ABSTRACT

CHAT AND INSTANT MESSAGING: THE RISKS OF SECONDARY ORALITY

by
Gregory P. Kohn

The synchronous nature of chat and instant messaging (IM) make them unique among computer-enabled communications technologies in that their real-time exchange of data allows for rich media experiences, even though users can only use text symbols to trade messages. Chat and IM are also important in that they enable secondary orality, or the merger of the most beneficial aspects of orally-based cultures with the well-documented benefits of print and text. Where print in the modern day has fostered contemplative behavior and inward thought among human beings, chat and IM breathe vitality into print and, in a sense, allow print to be spoken. Chat and IM have provided well-documented benefits for business, academia and everyday human socialization. However, when the tools are used beyond these narrow contexts they not only lose their effectiveness; they also pose credible threats to society. Because chat and IM provide anonymity to their participants, the virtual communities they support are typically loosely governed, driven by stereotype, and replete with social deviance. Further, the more attractive online environments become, the less time and energy people will invest in the physical world, thereby threatening that the habitats of humans will ultimately wither and decay. Finally, as humans become less able to extricate themselves from their computer-enabled habitats, they will increasingly rely on the computer as a social prosthetic--if not evolve to the point where human beings and computers become indistinguishable.

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To Carron

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CHAPTER 1

INTRODUCTION

1.1 Overview

Of myriad computer-enabled communications tools to emerge in the latter half of the 20th century, chat rooms and instant messaging (IM) are unique in that they offer users the ability to exchange information synchronously. Despite their single-track nature--participants can only use text symbols to relay messages--the speed (it takes just microseconds to send a message across a globally distributed network) and efficiency (each text message is comprised of the smallest packets of bits and bytes) of chat and IM provide users with sessions that rival the complexity of face-to-face interactions. In some regards, chat and IM can be considered to be what Richard L. Daft and Robert H. Lengel call "rich media," which they define as "the ability of information to change understanding within a time interval" (560). Chat and IM are also important in that they enable what Walter J. Ong termed "secondary orality," or the merger of the most beneficial aspects of orally-based cultures (e.g., community and interpersonal interaction) with the well-documented benefits of print and text (136). Where print in the modern era has fostered contemplative behavior and inward thought among humanity, chat and IM breathe vitality into the linear world of text and, in a sense, allow print to be spoken.

Even in their infancy, chat and IM already play beneficial roles at various levels of society. In the business sector the tools are used to aid global productivity and streamline far-reaching collaborative processes. Academics use chat and IM to share ideas with colleagues around the world, increasing the rate and breadth of intellectual discourse. Many other users simply use chat and IM to play games, make or maintain friendships,

find romantic outlets, or share their talents or interests with others around the world. In other words, chat and IM excel at extending existing human relationships, or at creating new relationships among people who may otherwise never have met. Used beyond this narrow context, however, chat and IM lose their effectiveness as communications tools and they also pose credible threats to society.

Although chat and IM appear to mimic seamlessly face-to-face human dialog, they should not be used as means of (or substitute for) primary interactions among humans. This notion is supported by Daft and Lengel's rich media theory, which argues that all communications media run a spectrum from "rich" to "lean," but that face-to-face interactions are by far the richest (560). Although chat and IM very closely emulate elements of face-to-face interactions, the inherent absence of cues (e.g., vocal inflection, gestures) makes them leaner by default. Further, while the removal of the body and all other physical tokens from online interactions helps to make chat and IM ideal forums in which humans may explore aspects of humanity, such as their roles in society or their sexuality, many others rely upon the relative anonymity of cyberspace to promulgate deviance. Even the most functional virtual spaces pose a risk to the physical world. After all, the more attractive an online environment, the more time people will spend tethered to their computers. As people choose cyberspace over the physical world, the resulting lack of civic investment will undermine the structure and function of the physical world. Worse yet, as humans become less able to extricate themselves from their computer-enabled habitats, they will increasingly rely on the computer as a social prosthetic--if not evolve to the point where human beings and computers become indistinguishable.

1.2 Background

In his far-reaching work, *Orality and Literacy: The Technologizing of the Word*, Ong coined the phrase secondary orality to reflect the deep impact that technologies such as the telephone, television and radio have had on society. Through his well-chosen phraseology, Ong did not mean to imply that humans would soon abandon their literate heritage in favor of restoring orally-based culture. Instead, he was implying that the modern technologies of his day were enabling humans to rediscover some of the more beneficial aspects of orality, such as "its participatory mystique, its fostering of a communal sense, its concentration on the present moment, and even its use of formulas" (136). In Ong's view, as well as that of others in the academic community, the worldwide proliferation of literacy gave way to an inward-looking society that lost touch with some of its more communal traits (135-137).

Interestingly, Ong's concept of secondary orality applied not only to the technologies of his day, but also, albeit indirectly, to the coming Internet generation. But where the Internet revolution was deeply rooted in literacy, its technical underpinnings were configured to support communications that could extend well beyond the printed page. Even though they only facilitate the exchange of text, chat and IM exchanges nonetheless tend to mimic spoken conversation rather than written discourse. As in spoken dialog, users of chat and IM tend to reduce language to its most basic components and, wherever possible, use gestures and other contextual clues (which online are called emoticons) to help convey messages. In fact, their synchronous nature combined with these abilities to employ cues are why chat and IM rank as richer media than most computer-mediated communications tools. Thus, even within a purely text-based

environment, chat and IM have a remarkable resemblance to some of the primary tenets of orality--enough, in fact, that by definition they can be considered the strongest enablers of secondary orality that humanity has yet to produce. Although Ong was not aware of technologies such as chat and IM when he introduced the concept, in hindsight he seems to have understood exactly what was coming in the future.

More than simply allowing users of the technology, who are often spread throughout the world, to share experiences and ideas easily and with the immediacy of spoken conversation, chat and IM have also forced researchers to examine literacy more closely. Their findings, though somewhat wide ranging, tend to suggest that the global spread of print and literacy came at the expense of healthy social networks. So where print enabled mankind to evolve much more significantly than orality ever could, it did so by connecting humans through written text rather than direct interpersonal interaction. Ultimately advances in computer technologies, including wide-reaching networks that allowed computers to exchange data freely, helped to reduce such barriers. The migration of writing to the electronic space from the printed page facilitated more of a community sense as well, further reducing the linearity of writing in favor of a more dynamic, multiple-channel approach. While this did not directly bring humans closer together, it made it easier for them to share the information they felt was most important. The Internet, of course, introduced on a wide-scale the immediacy of data and information exchange, and its underlying technologies enabled applications such as chat and IM to facilitate more meaningful and direct interactions among humans.

Today, chat and IM are used by millions of people throughout the world. Some use the applications in a recreational manner, such as to socialize or play games. Others,

sometimes at the behest of their employers, use them to collaborate with co-workers or to keep geographically diverse work teams in sync. Academics use chat and IM to share ideas well in advance of when such brainchildren might otherwise be published. Chat and IM even allow for people to share intimate experiences even though they may never have met in person. In a nutshell, then, chat and IM bring together people who otherwise might not interact; users of chat and IM can navigate an endless array of virtual spaces to find other users whose online interests match their own. Both tools also broaden the interactions of people for whom time or distance would limit dialog or collaboration. Perhaps most importantly, chat and IM help to reduce myriad barriers to social interaction, especially for people whose physical-world handicaps prohibit them from such interactions.

And, yet, despite such clearly tangible benefits, not all researchers are at ease with the destination to which secondary orality may ultimately deliver humankind. Some of the more mild dissenters feel that the technologies distract participants from their physical world responsibilities and existing social networks, and therefore work counter to their stated purpose. Others take a considerably more pessimistic view, suggesting that secondary orality will ultimately lead humankind to withdraw, en masse, from the physical world and its inherent responsibilities. Even within virtual spaces, however, comes a whole new set of social concerns--some that mirror problems common to the physical world and others that wholly unique. Sometimes citizens of virtual communities are able to establish workable governances for their online spaces, but other times cyberspace becomes a haven for deviance and chaos, where very real crimes affect both virtual and physical world personalities alike.

Overall, the virtual communities supported by chat and IM are highly malleable places that can be continuously fabricated and reconstructed to meet the needs (if not desires) of their citizens. Where the adaptable nature of such spaces has clear benefits, those benefits can also be, at times, tremendous drawbacks. Since participation in cyberspace can be mostly anonymous, many participants carve out online experiences that are very different from their physical-world lives. In a sense, much of cyberspace is used to deploy user fantasies through interactive role playing. The result, over time, is that online spaces begin to reflect more the stereotypical attributes of an ideal society rather than a functional, working virtual habitat. There are, for instance, communities in cyberspace where the majority of participants have molded their virtual avatars to conform to pornographic standards (i.e., overinflated sexual organs) or to cater to their own sexual fantasies. Prolonged exposure to such overtly stereotypical behavior can result in a loss of interest among participants; after all, physical characteristics become less erotic when all participants in cyberspace claim to possess them. It is also a fact that, over time, users of chat and IM may begin to blur the lines between reality (i.e., the physical world) and the virtual representation of reality. The latter, of course, is most dangerous, since it sometimes leads to participants whose offline behaviors do not vary from those online, despite the fact that such behaviors may be illegal or deemed antisocial in the physical world.

Perhaps the most dominant fear of researchers and common citizens alike is that secondary orality may render the human body moot, especially since it enables humans not to be in the same proximity of each other to engage in meaningful dialog. In fact, other than the need to type words into a computer terminal, the role of the human body in

chat and IM is minimal. Except for low-fidelity (i.e., text-based) representations, the role of the physical body is completely decoupled from virtual space. Yet, as cyberspace communities become more prevalent, the future may hold that humans spend as much time (if not more) in cyberspace than they do in the physical world. It is not unlikely, then, that as online civilizations flourish, the physical bodies of those citizens may decay and decompose from lack of engagement. Worse yet, humans may become so engrossed in computer-enabled societies that they yield their biology to the sustenance of the machine, rendering the two entities inseparable.

CHAPTER 2

PRELUDE TO SECONDARY ORALITY

2.1 Orality Yields to Literacy (and Contemplation)

In order to help understand how today's synchronous, computer-mediated communication methods came about, it is important to consider the origins from which they arose. Although modern humanity, rooted in the written word, retains elements of orally-based cultures, researchers such as Joy Alexander suggest it is virtually impossible to imagine life in a wholly oral culture, where "words are sounds; they have no visual linguistic existence" (168). In a sense, even though humans today still communicate through oral means as much as written ones, it is the mental processes associated with each that account for the largest differences between orality and literacy. According to Don Langham, orality significantly limited mankind's capacity for technological or intellectual advancement in that it required humans to remember everything, having access to only the most primitive types of memory aids (1). Writing, on the contrary, enabled humankind to reach milestones of advancement previously unimaginable. Yet, humans who write also retain some reliance on orality; according to Ong, "both orality and the growth of literacy are necessary for the evolution of consciousness" (175). It is also Ong's view that, even though writing today is typically an individual activity, "some recipient must be present, or there can be no text produced: so, isolated from real persons, the writer conjures up a fictional person or persons" (177).

While few scholars might reject the claim that writing has propelled human scholarship and intellectual curiosity well beyond what was possible in orally-based cultures, some researchers claim that writing has promulgated the internalization of

thought, thereby affecting, if not limiting, communication among humans. As Langham suggests, writing "disrupts the everyday routinized, ritualistic existence of oral society" (1). Unlike when most humans lived in orally-based cultures, which necessitated that humans maintain regular contact with each other, Langham says modern literate cultures reinforce "dehumanizing qualities insofar as they encourage the isolation of the individual from community" (1). By some measures, writing is indeed one-dimensional and impersonal, facilitating a close relationship only between a writer and his or her text. It is not surprising, then, that from the dawn of writing through most of the 19th century, humans tried to minimize such internalization by reading texts aloud--often to audiences of fellow humans. History suggests that, even well after the printing press brought written materials to the masses, text was primarily read aloud in some form or another. According to Alexander, the ready availability of print gradually led to the "the solitary student," one who read and processed text internally rather than aloud (169). Despite its potential to induce solitude, it is Ong's view that literacy nevertheless "opens possibilities to the word and to human existence unimaginable without writing" (175). Carol Westby and David J. Atencio support Ong's claim, stating that "without ready access to print, few other technological advances would have been possible" (72).

In Langham's opinion, although writing is an ideal "medium for the kind of critical thought characteristic of modern Western culture," he is bothered by some of the trade-offs required to support such traits. He suggests that, ultimately, writing is a lifeless, emotionless activity replete with "deaf and mute symbols [that] isolate the individual from the community [and] disrupt traditional social relationships, both public and private" (2). Another drawback of writing is that it typically lacks the accompanying

sublayers of communication (i.e., the nuances) that enhance face-to-face interactions, and that carry messages in their own right. As David J. Pauleen and Pak Yoong note, in some cultures "communication is more about context than the actual verbal message.... in high-context cultures messages have little meaning without an understanding of the surrounding context, which may include the backgrounds of the people involved, previous decisions and the history of the relationship" (214-215). Alan R. Dennis and Susan T. Kinney explain explain such contexts of communication through the rich media theory:

> Face-to-face communication enables participants to use various modes of communication: words, vocal cues (e.g., voice inflection, sighs), nonverbal communication (e.g., gestures, touch), and written or drawn communication (e.g., paper, blackboards). These modes combine to transmit factual information about the task and social information about the personal characteristics of team members. (257)

Therefore, when such "rich" context is missing or disregarded, as researchers say happens in purely textual interactions, human interactions are typically less effective, if not less meaningful.

2.2 Technological Evolution Plants the Seeds of Change

When Ong suggested that electronic processing capabilities and tools would propel humans toward secondary orality, he did so at a time when computers merely aided the writing process rather than fostered entirely new modes of communication. Again, as he noted in his seminal work, *Orality and Literacy*, the secondary orality of his era was not powered by computers, but rather by electronics such as the telephone, radio and television" (3). In a sense, Ong was both ahead of his time and just slightly behind it. What he did not see was how the computer was uniquely positioned to enable a secondary

orality much more powerful and enticing than what even the most robust broadcast media of his day could provide.[1]

In fact, as Jay David Bolter suggests, chat and IM would not be possible today if the computer had not been so widely embraced as a necessary tool for writing. According to Bolter, "hard structures [i.e., computer memory chips] constitute perhaps the greatest single technological change in the history of writing" (42). By moving the writing process to the computer, for the first time in history humans have had a simple and efficient means by which to write quickly (via keyboard rather than by hand), store vast amounts of information in a compressed form, and publish and disseminate copies of their work (whether electronically or in printed form). In fact, writing as aided by the computer did not merely allow improvements to existing writing processes, but, as Bolter says, it also made "possible new methods for organizing and visualizing text" (43).

On its own, however, computer-assisted writing did very little to propel humankind toward secondary orality; rather, it provided efficiencies for the spread of print-based communication throughout the world. In terms of enabling secondary orality, a more important development was the networking of computers.[2] Although the earliest computers were developed in the 1890s, it was not until the mainframe computer was put online by IBM in the 1950s that multiple computers could exchange information and essentially "talk" to each other. By the 1960s, when the capacity of mainframe systems became able to support multiple terminals, computer scientists realized the possibility that individual terminals could be linked, thus allowing disparate terminals (and, hence,

1 Ong was, of course, not off base in his deduction that the telephone, television, and radio were significantly affecting society. In 2002, Westby and Attencio declared that "on a typical day children spent 5-1/2 hours a day with media [such as] television, CDs, computers and radio" (78).

2 The following facts about computer networking are taken from: 1) Stone 99-121; and 2) Gibbs, Mark. *Absolute Beginner's Guide to Networking.* 2nd Edition. Indianapolis: Sams Publishing, 1995, pp. 3-26.

their users) to communicate with each other. In the early 1970s, scientists at the New Jersey Institute of Technology cobbled together the Electronic Information Exchange System (EIES), which Allucquère Rosanne Stone says "provided some simple protocols and a command-line interface of sorts for the exchange of simple text messages among several terminals" (101). While crude in design, the EIES system at NJIT led to the introduction of similar electronic bulletin board systems throughout the world.

Another important computing milestone occurred in the mid-1970s, when the concept of the personal computer was introduced. The PC, as it was called, differed from mainframe systems in that all necessary processing power and memory function were supplied locally on the PC, rather than centrally on a server (or mainframe hub). While this arrangement freed computing from the massive and cumbersome (not to mention expensive) mainframe systems, it also posed a whole new set of problems. Perhaps the most pressing of these was a way to link (or network) individual PCs so that they could correspond with each other. While scientists soon developed means to facilitate computer-to-computer dialog through cable-based interfaces (i.e., wired networks), they also discovered that binary data could be transmitted over sound waves. The key technology that enabled this was the modem, which could convert binary data into sound waves (and vice versa) for transmission of data (i.e., bits and bytes) over existing analog telephone lines. The impact of this determination was far-reaching, as it enabled computers (and their users) throughout the world to be in touch with each other without reliance on clumsy and provincial mainframe systems.

Once modem technology took hold--at least among the tightly knit technical community--more robust bulletin board and message exchange systems began to emerge.

One of the earliest was the CommuniTree conferencing system. CommuniTree was basically an open system that allowed computer users around the world to dial into the system (via modem) and post and review messages asynchronously. Unlike prior attempts at online message posting, such as EIES, CommuniTree was designed as a "tree and branch" messaging system, described by Stone as follows:

> Each branch of the tree was to be a separate conference that naturally grew out of its root message by virtue of each subsequent message that was attached to it. The continuity of messages grew from whatever thread of thought each reader found interesting. Conferences that lacked participation would cease to grow, but would remain on-line as archives of failed discourse or as potential sources of inspiration for other, more flourishing conferences. (109)

Communities such as the CommuniTree project not only introduced the concept of social computing, but also paved the way for wider, more functional communities online. In other words, they helped to set the stage for the era of hypertext and the Internet.

Although the military had early iterations of the Internet in place by the late 1970s, the modern concept of the Internet--with its fully standardized addressing, linking, and presentation protocols established--came to fruition only in the last few years of the 20th century. In many ways the Internet represented the apex of computer networking, if not the launch pad of true interactive computing. Langham suggests that the Internet's proliferation of hypertext was revolutionary in that it moved "the writer out of the isolation of print into a hypertextual network of readers and writers" (1). In other words, although the Internet was built entirely on a framework of encoded text, its text was no longer linear. As Bolter describes it, "a hypertext is like a printed book that the author has attacked with a pair of scissors and cut into convenient verbal sizes" (23). More than removing linearity from literacy, hypertext allowed for ideas and information to be

exchanged more freely and efficiently than ever before. For one, hypertext could be read instantaneously from a computer screen, thus eliminating the necessity of printing and delivering a paper-based text. The Internet also brought the world closer together, as people could find each other and communicate via their computers rather than through face-to-face interactions. Bolter saw hypertext as a great enabler: "These synaesthetic texts will have the same qualities as electronic verbal texts. They too will be flexible, dynamic, and interactive; they too will blur the distinction between writer and reader" (27). Like Bolter, Alexander also ruminated on the significance of the Internet and hypertext on communication, suggesting that they would spawn a "re-configuration on a scale commensurate with the chirographical and typographical revolutions [where] society itself is likely to be altered by new modes of thinking and relating" (171).

CHAPTER 3

BEYOND HYPERTEXT: CHAT AND IM AS CATALYSTS OF SECONDARY ORALITY

While hypertext and the Internet introduced to the world a new paradigm of data and text exchange, it did not directly facilitate interactive collaboration or socialization. Part of the reason was because hypertext, despite introducing what Bolter called "animated writing" (155), was still an asynchronous--if not a very passive--mode of communication. Typically, writers of hypertext uploaded their data to a server, from which other Internet users could retrieve it freely. In other words hypertext initiated a publishing revolution much more than a communications revolution. Thus, those seeking to collaborate and communicate through computing had to turn to other means by which to do so.

Groupware applications were one such approach. For decades, technology companies poured heavy research and development investments into groupware applications, realizing that if people could collaborate productively no matter their physical location, the benefit to sectors such as business and academia would be significant. According to D. Christopher Dryer, Chris Eisbach, and Wendy S. Ark, the fact is that groupware vendors have for years been "frustrated by its lack of commercial success" (654). One reason for such disappointing growth has been the complexity (i.e., low usability) of most groupware solutions, thus underscoring the difficulties of replicating electronically the richness of human communication and interaction. In their studies of such collaborative tools, Pauleen and Yoong found that despite having very expensive groupware applications at their fingertips, most workplace collaborators felt the telephone was still "the back-up channel of choice ... when sensitive issues need to be

discussed" (210). Dennis and Kinney suggest such behavior is supported by the rich media theory: "Performance improves when managers use rich media for equivocal tasks (where there are multiple and possibly conflicting interpretations to the available information), and leaner media for nonequivocal tasks" (257). According to Daft and Lengel, the real-time nature of phone conversations are richer than other asynchronous forms of dialog in light of the fact that quicker communication more often leads to communication clarity (560). Another reason for the lukewarm success of groupware applications is that many product offerings have simply compiled (i.e., packaged together) various computer-enabled communications tools, such as e-mail applications, electronic bulletin board systems and document repositories. In other words, most groupware solutions have been built upon asynchronous (and, therefore, only mildly effective) means of electronic communication. As Internet protocols matured and online videoconferencing became feasible, many groupware vendors rushed to add video capability to their offerings as well. Even then the results were disappointing. As Dryer, Eisbach, and Ark found in the course of their research, "videoconferencing systems are used relatively rarely [because] restrictions on video images typically give participants an awkward appearance" (655). For the most part technological limitations have limited videoconferencing from becoming a richer media. In another view, humans seem to prefer to hide behind the mask of anonymity that text-based messaging provides.

Compared to expensive groupware applications (which can cost as much as thousands of dollars per user license), chat and IM provide a very low cost (and low tech) alternative. Given that chat and IM are Internet technologies, all that is needed to become a virtual citizen is a computer terminal with a connection to the Internet and a software

application (also called a chat or IM *client*) that facilitates interactions with other users. Most chat and IM clients are, in fact, available free of charge, which further enhances their appeal to a wide array of people. And because chat and IM require only the processing of simple strings of text or computer code at a time, they do not mandate that users have cutting-edge computers with expensive functionality. What is more, most researchers feel chat and IM actually provide far greater user experiences than most groupware applications--not to mention that the scope of their use is much wider (groupware is traditionally used only by business, government and academic institutions). In fact, some users are even able to access chat and IM applications from their handheld organizers or mobile phones, leading Dryer, Eisbach and Ark to conclude that "computers are leaving the largely sedentary and solitary desktop environment and are entering into human social lives in an unprecedented manner" (664).

It is interesting to note that neither chat nor IM were designed to supplant traditional face-to-face communication. Chat room technology first surfaced as a means to enable real-time communication among military personnel using Internet protocols. Used in its infancy mostly by hard-core computer programmers, chat quickly grew into an ideal means for that subculture to proliferate the Dungeons and Dragons gaming communities that were popular in the 1980s. Thus, it became possible for participants around the world to participate in gaming sessions without requiring that any of the participants leave their homes. Even though some chat areas are today still used for Dungeons and Dragons gaming, those early pioneers quickly realized that the online social aspect was as alluring as the gaming itself. Where the early online gaming communities were called Multiple User Dungeons (per the namesake game), they were

subsequently renamed Multiple User Domains so as to elicit broader appeal. As the Internet spread rapidly in the 1990s, not only did chat rooms became more commonplace, but the ability of people to find a chat session targeted to their interests became considerably easier, simply due to the high number of people online who embraced the technology.

According to David Rapp, instant messaging was born as a tool for networking systems engineers at MIT to alert each other when problems arose on the network (1). They thus construed a mechanism by which any person logged onto a network could, at any time, send instant notifications to any other users logged onto that network. The advantage of this system was twofold. For one, system administrators did not need to disengage from their present task--such as writing elaborate pieces of code--to scan proactively for potential systems issues; instead, such notification simply appeared on their screen the instant a problem occurred. Secondly, the instant messaging scheme developed was, in Rapp's view, "faster than e-mail, which could take hours to deliver--making it useless as a warning tool" (1). While instant messaging systems are rightly credited with improving the efficiency of systems administration (and sometimes drastically), some users of the early instant messaging systems also began to see their value as social communication tools. Toward that end, in 1983 MIT launched "Project Athena," a program designed to migrate instant messaging (among other collaborative tools) into a functional commercial product.

Chat and IM are alike in that they significantly build upon earlier forms of Internet-based communication, such as e-mail and bulletin board systems. E-mail services and electronic bulletin board systems, however, are flat and one dimensional, with deep

roots in traditional literacy. While both foster community, they do so by merely extending comparable aspects of print-based cultures. (E-mail, after all, is simply a computer-assisted means of letter writing and delivery.) Langham suggests that a drawback to electronic bulletin boards is that "the lack of visual or conversational cues in print communication make informal discussions difficult" (3). Rhonda D. Evans argues that chat and IM, to the contrary, offer "graphic images and gestures that serve as symbols of communication within the chat cultures as well as avatars, which serve as visual representations of the individual chatter" (197). In their research on the use of chat and IM among work teams, Pauleen and Yoong found that participants had "many opportunities for informal, spontaneous communication between facilitators and team members" (211). One participant in their research took particular note of how chat and IM provide "a cross-link ... a way for people to have a cross-conversation, the corridor conversation model, the chance conversation" (211).

A key factor behind the success of chat and IM, of course, is that they both closely mimic real-time human dialog. Researchers such as James Albright, Kiran Purohit, and Christopher Walsh define "the speed of synchronous chat as immediate written conversation" (700). Langham extends their observation, suggesting that "technologically mediated human interaction approaches the immediacy associated with orality" (4). Although chat and IM are purely text-based and require participants to read rather than listen, research has found that many participants view their interactions as verbal rather than written, a curiosity given the fact that neither chat nor IM requires any auditory function from its participants. The reason for such comparison, according to Albright, Purohit, and Walsh, is that an IM exchange, for example, is "extremely fast and

symmetric and shares qualities with oral communication; clauses and phrases appear one after another without connecting words.... [It is] colloquial, telegraphic, and uses acronyms" (699). Chat and IM exchanges are also notoriously choppy and staccato, traits that in particular mirror human conversation.

Unlike many other uses of the computer, whereas participants tend to feel isolated from humanity (or lost in the void of the cathode ray tube), chat and IM can sometimes provide overstimulation. Where IM is typically more controllable by the user, chat rooms can get downright crowded. And as Albright, Purohit and Walsh note, crowded chat rooms typically "lack orderly turn taking.... speakers talk over one another and can be involved in several conversations simultaneously" (699). In other words, chat is not unlike a large dinner party, with many simultaneous conversations taking place at once. At such a gathering, imagine the plausibility for Person A, seated at one end of the table, to converse properly with Person B, seated at the opposite end of the table. Chat and IM were designed to overcome such logistical problems, lessening the chance that participants will lose threads of conversation as might typically occur in a physical-world setting. For one, different users employ various techniques to separate their identities from others in the session, such as by using different typefaces or font characteristics (e.g., red, italic, twenty-four point). If a friend online types in "ALL CAPS" with red typefont, it may be very easy to pick his or her messages out of the streaming dialog. Additionally helpful is the fact that a person's screen name (or nickname) precedes each message submitted to the network, more or less eliminating the type of audio guesswork required when multiple strangers join a conference-style telephone call. Chat and IM participants also have the ability to scroll back to review prior interactions, or to get

oriented with portions of earlier conversations they may have missed. In other words, chat and IM sessions are not unlike a society in which all interactions are recorded (in video and audio), and citizens can "rewind the tape" whenever they feel they have overlooked something.

Reading and writing in chat and IM interactions is also very different than in other, more traditional exchanges of literacy. In Robin Hamman's view, chat and IM participants place a "higher value on rapidly conveying their point than they do on correct spelling and grammar" (13). Albright, Purohit, and Walsh suggest that such frenetic behavior results from the fact that chat rooms and IM sessions are "personable, intimate, and constantly refashion themselves from what is available" (699). Hamman also notes that "grammatical, capitalization and spelling errors are not only acceptable, they are expected in online communication" (13). Ultimately, it is the message--and the speed at which it is delivered or received--that is of most importance to chat and IM users, not how well that message was crafted. For instance, in the course of her work Nicola Döring has found that online participants practice "quick reading and typing skills, good writing ability and a strong power of imagination" (867). Even though an inaccurate typist may thrive in the online world, a slow typist may not.

The norms of chat and IM are extremely unique in that communicants, despite being situated in an entirely text-based environment, need not communicate through writing at all. Instead, they can use symbolic representations to express emotion, enable short-cut references to text, and even provide visual representations of themselves. Such symbolic gestures are typically called "emoticons," and while occasionally sprinkled into other electronic genres, are most meaningful in a fully interactive, synchronous

environment. For instance, rather than waste twenty precious keystrokes typing the phrase "I am glad to see you,"some participants might prefer to shrink the expression to five: "Hi :-)" The ":-)" is, of course, an emoticon--in this case a representation of a smiley face turned ninety degrees counterclockwise. The range of emoticons used online is wide and varied, with both standardized and colloquial usages. At a deeper level, emoticons demonstrate the added richness of chat and IM. Because their interactions happen synchronously, the context of those interactions is so rich that sometimes even the most basic symbols (versus words or sounds, or both) is all that is needed for humans to communicate. According to Bolter, the ability of humans to communicate through semiotics alone is a byproduct of the electronic writing space (such as that provided by hypertext).

> The computer is a machine for creating and manipulating signs; the signs may be mathematical, verbal, or pictorial. Computer programming and indeed all kinds of writing and reading by computer are exercises in applied semiotics. (195)

But what even Bolter's work has not anticipated are dynamic media (e.g., chat and IM) that allow humans to converse synchronously through symbols alone.

CHAPTER 4

BENEFICIAL ELEMENTS OF SECONDARY ORALITY

All other factors aside, Evans suggests that the ultimate benefit of chat and IM is that their users "do not have to leave their homes in order to interact with other adults and make good friends from all around the world" (198). Therefore, as chat and IM proliferate, some research indicates it is likely that the resulting social structure may be urban in nature. As with urbanism in the physical realm, chat and IM place humans in close proximity to each other, and facilitate (if not force) human communication and interaction. According to Anthony Townsend, who studies modern technology as it applies to urban planning, synchronous technologies such as chat and IM "reinforce the competitive advantage of central city districts by making them more efficient, yet at the same time making megalopolitan automobile-based urban sprawl manageable and livable" (89). A contrasting argument, of course, is that chat and IM are beneficial because they enable a sense of community without the crowding and massing of populations. Townsend calls this latter phenomenon "decentralization," and claims that it creates "myriad new interactions and potential interactions between individuals [similar to those] that dramatically speed up the metabolism of urban systems" (89). In actuality, even the most accommodating physical landscapes provide only limited opportunities for human interaction (i.e., humans can be in only one place at a time). Chat and IM, on the other hand, allow virtual selves to be in many different places at the same time.

As use of chat and IM continues to take hold throughout the world, humans are increasingly supplementing their physical social networks with virtual ones. They are also relying on such tools to broaden their perspectives and interactions beyond what is

possible given physical constraints such as time, distance, cost, age and handicap. D.J. Walmsley suggests chat and IM have increasingly "enabled contact to be maintained between geographically separated individuals and groups very easily and relatively cheaply" (6). Albright, Purohit, and Walsh saw this phenomenon first hand in their study of computer usage among students in New York City:

> Although these students may rarely leave their neighborhood (Chinatown) or interact with people of different ages or ethnic groups, their lives online are full of such interactions. Although many parents have these adolescents come home immediately after school and stay in much of the weekend, the students are still exposed--although in a somewhat voyeuristic and impersonal way--to life outside of Chinatown. (694)

Such evidence also supports Walmsley's view that "cyberspace might have annihilated distance but not place" (5), meaning that people--even underprivileged students in Chinatown--can actively seek meaningful interactions instead of waiting for such interactions to come to them.

A critical notion is that chat and IM give participants remarkable control over their experiences and interactions--typically much more control than they might expect in the physical world. After all, humans in cyberspace are capable of filtering their social interactions. Marshall Van Alstyne and Erik Brynjolfsson describe scenarios in which chat room visitors can "easily match a desired profile by searching for people with similar interests, by using searching and filtering to suggest relevant information and by using IT to screen out less attractive partners or information" (18). Such filtering techniques do not have a parallel in the physical world. Consider the example of a single woman seeking male companionship. In the physical world, this woman's search for a suitor might prompt her to visit local night clubs where other singles gather. While she may use some rudimentary form of filtering (such as word-of-mouth recommendations or editorial

reviews) to decide which night clubs to visit, her level of satisfaction at those venues is subjective. And where it may be feasible to attend several different venues in one night should some prove less than desirable, physical-world limitations such as time and distance (among others factors) might hamper or limit such choices.

Persons in virtual environments need not suffer such fate. That same single woman seeking companionship in cyberspace can instead move very easily from venue to venue, feasibly visiting dozens of virtual spaces in one evening. Nor is she confined to venues close to her home or within her budget. Using chat and IM, it is quite feasible that she may end up socializing with persons physically located on other continents whose native languages differ from her own. Nor is the heroine constrained to socializing only during the weekends, when she has more time to commit and is not worried about arriving home too late. Instead, she can troll the dating scene from the comforts of her own home for as little or as much time as she desires--even on a work night if it suits her. Van Alstyne and Brynjolfsson suggest that the woman presented in this example might use her computer to "seek out interactions with like-minded individuals who have similar values, and thus become less likely to trust important decisions to people whose values differ from their own" (24). Thus, if the single woman determines she wants to socialize only with Australian rugby players, say, her odds of doing so in a virtual environment are not only significantly greater but may also require less effort. Not to mention, if the social venue of choice should be one with a hostile crowd, she can easily depart without fear of physical harm or reprisal--a guarantee quite uncommon in the physical world. As Döring suggests, "virtual gathering places and environments are, contrary to the popular opinion that anarchy reigns supreme on the Net, much easier to control than social spaces outside

of the Net" (875). Once notified, systems administrators can simply remove deviant users from chat rooms. Likewise, chat and IM users can configure their software settings to block knowingly deviant users, or, in the extreme case, simply log out of unpleasant sessions altogether when confronted with danger.

The benefits and productivity gains of chat and IM are in no way limited to social interactions. In fact, a growing body of research suggests that chat and IM are most effective when used by humans to extend existing (physical world) relationships or, in certain situations, to introduce relationships where none might have otherwise existed. Chat and IM as applied to the business and academic communities, therefore, represent two highly successful use cases. According to Marshall Van Alstyne and Erik Brynjolfsson, Internet-enabled communications have more or less revolutionized academic discourse. One of their studies found that, as a result of the use of technologies such as chat and IM among authors in the field of economics, "the number of out-of-state and out-of-country co-authorships in four journals grew from 4.6% in the 1960s to 27.6% in the 1990s" (13). Where literacy has for centuries allowed for non-synchronous discourse of ideas among academics, chat and IM radically change that paradigm by allowing synchronous, real-time discourse among participants who under ordinary circumstances might not be peers. Where historically the strength of an academic department was reflected in its resident faculty, Van Alstyne and Brynjolfsson argue that it now "depends on the extent to which each faculty member is interconnected with other professionals--worldwide--pursuing similar interests" (13).

Businesses worldwide are also embracing tools such as chat and IM to facilitate global trade and production. In the course of their research, Carys E. Siemieniuch and

Murray Sinclair found significant growth in the number of virtual teams throughout the commercial sectors, and defined such teams as "distributed groups of individuals from one or more companies who are networked electronically and who work together toward a common goal" (362). Their research also suggested that concurrent engineering, which is where tools such as chat and IM are used to foster at-a-distance collaboration, "is becoming the de facto methodology for product development," with over "96% of the respondents in one corporate-level survey planning or implementing concurrent engineering activities" (362). In fact, in a 1998 study, Dennis and Kinney found that "more than half of the projects [studied] had at least one member from another location, and 29 percent had half of their members from multiple locations" (256).

Beyond facilitating both existing and new social and workplace interactions of humans around the world, chat and IM are also reshaping the notion of time. Where time brings order to the world, some economists argue that, in the present day, time imparts significant limitations on business productivity. Daytime around the world takes place when light is available; nighttime occurs when darkness falls. Human circadian rhythms, which govern sleep-wake cycles, also subscribe to these patterns. It is for these reasons that the world is structured by timezones that divide the Earth temporally. These conventions, of course, were critical in the pre-electrical age because little (if any) productivity could be achieved without the aid of sunlight. Now, with an almost infinite source of artificial lighting, among other innovations that enable productivity beyond daylight hours, humans can (and do) remain productive around the clock. Neither innovation nor electricity, though, has physically shrunk the world or collapsed its time zones. Japan and New York are still fourteen time zones apart, and separated physically

by thousands of miles. When the majority of people in Asia are working, most people in North America are sleeping.

The fact that technologies such as chat and IM allow humans to interact easily and effectively regardless of location around the world has led David Rothenberg to sense that "the globe does feel much smaller today than ever before [with] enough common ground to suggest the world is one culture" (102). While telephony-based technologies of earlier generations also cut across such boundaries, they were intrusive by comparison (especially when attempting to foster transnational relationships that required the crossing of multiple time zones). Conventional telephony also typically provided meaningful interaction only among individuals, whereas chat and IM help to build communities as much as intimate one-to-one relationships. Soraj Hongladarom argues that "just as there was a clear shift in conception of time and space when the European world, and later on in other civilizations, emerged from the feudal and medieval era to become modern, so the shift engendered by the Internet and other information technologies could be just as momentous" (241). A case in point is the truly global nature of businesses and enterprise. It is no longer economically feasible for large-scale businesses to isolate themselves geographically, when larger profits can be obtained conducting business on a global scale. A clear result of such thought, say Cynthia Lewis and Bettina Fabos, is the recent proliferation of "multinational mergers of information and entertainment technologies" (462). In other words, says Hongladarom, tools such as chat and IM make "possible instantaneous communication across the globe [and a successful] mingling of the global and the local" (246).

Some critics of globalization worry that technologies such as chat and IM threaten to reduce the world into one large, homogenized pool. Walmsley refutes such claims, arguing that the shrinking of the globe (perceived or otherwise) as well as the reconceptualization of time can bring with it "a renewed emphasis on local communities" (15). Just as humans can now more easily communicate with persons around the world and around the clock, he says, they can also more easily band together to form localized communities or interest groups. Walmsley's idea is that while "cyberspace leads to a concentration of power, it can also facilitate resistance by enabling small groups to access large audiences. And just as cyberspace encourages time-space convergence, it can also highlight local social and cultural traits" (15). Take Greenpeace, for example. While this environmental advocacy group has always had supporters around the world, it has traditionally relied upon geographically concentrated teams to carry out its mission--doing so in any other way would likely lead to a disjointed and counterproductive effort. Now that Greenpeace participants can use collaborative tools such as IM, teams can be constructed from participants around the globe and yet be as synchronized and harmonized as even the most tightly knit local teams.

Aside from simply allowing participants to measure themselves in the context of human interaction, chat and IM have also demonstrated an ability to strengthen physical-world relationships. Human relationships are inherently complex, and use of tools such as chat and IM narrows the scope of such interactions, and thus, some argue, pares down interactions to more manageable levels. Anonymity plays a significant factor as well. Shyness, stereotyping and cultural norms are traditional barriers to successful interaction, and chat and IM are particularly adroit at reducing such obstacles. In fact, research has

shown that the technologies are rapidly reshaping human mating rituals. Perhaps nowhere is this more apparent than as seen through the romantic interactions among teenage boys and girls. While such encounters in the physical world can be derailed by factors such as pimples, braces and ill-fitting clothes, chat and IM provide a means to overcome such hindrances. One study of computer-literate teenagers by Lewis and Fabos demonstrated that "this ease of communication [such as through chat and IM] is particularly useful when talking to members of the opposite sex; there is no fear" (466). Over the course of their work, Lewis and Fabos found that a number of teenagers "felt online flirting far surpassed the real-life equivalent" (467). Even large numbers of adults, it seems, are using chat and IM to augment their romantic pursuits. Some research even suggests that chat and IM are becoming widely embraced not only as replacements for the dating scene, but for the bedroom as well. As Hamman found, almost half of the member-created chat rooms on AOL--as of 2000 the most widely used Internet service provider in the world--"have names that can be considered to be sex or cybersex related" (5).

Other bodies of research suggest that chat and IM are also enabling humans to overcome self- or socially-imposed boundaries. In the physical world, humans maintain many selves, or identities, which are enacted upon in different circumstances or around certain audiences. For instance, a person's self at work may be quite different than that person's self in a social setting. In other words, these different selves are very much tied to the many roles humans play in their daily lives. Research has found that chat and IM enable persons to explore their multiple selves much more productively than is possible--or perhaps appropriate or safe--in the physical world. Hamman's research, for example, suggests that the physical world "does not allow us the freedom we need to safely explore

our multiplicity of selves [and that] being unable to experiment with these selves, we are not whole" (28). Because virtual communities closely replicate physical ones, they are ideal forums for the exploration of selves. The study by Lewis and Fabos saw this clearly: "Rather than speaking in one voice, Sam [the subject of the study] is conscious of choosing different tones and language styles depending on who she's Instant Messaging" (465). In other words, people can use chat and IM to manage and display their multiple selves dynamically, a contrast to the physical world in which selves are typically dictated by a social scenario rather than personal choice. Not surprisingly, chat and IM provide humans the benefit of exploring their multiple selves in a sexual context, which for many persons in the physical world is a source of discomfort or distress. As Dennis Waskul, Mark Douglass and Charles Edgley suggest, "sexual expression is rooted in the interplay between the selves that we are, selves in relation to our physical bodies, and ourselves situated in a sociocultural context" (376).

Waskul, Douglass and Edgley, among a number of other research teams, have invested considerable effort in understanding the extreme popularity of "provoking, constructing and playing out sexual encounters through a single interactive mode of communication" (384), particularly one that precludes any form of physical contact. They suggest that one allure of cybersex is the fact that "you can do anything you want and you can picture anybody you wish" (385). Because the physical body is not part of cybersex, Döring notes that "arousal and satisfaction are derived from an interaction process that may be limited to text, but regarding the addressed desires and themes is often more multidimensional and complete than the act as otherwise practiced" (872). To achieve such satisfaction through cybersex requires of its participants what Waskul, Douglass and

Edgley consider "a great deal of sexual literacy and communication skills [and an] expansive vocabulary" (384). In other words, where physical performance is typically a hallmark of real-world sexual encounters, there are whole other sets of criteria that distinguish virtual trysts. For instance, as cybersex encounters usually entail series of short, passionate messages fired in sequence, slow typists or those with slow network connections are at a clear disadvantage.

According to Döring, for many cybersex participants "anonymity and the absence of audiovisual controls create a safe and relaxed atmosphere for text-based cybersex" (871). But where Döring considers cybersex a form of sexual intercourse, Hamman counters that "cybersex and the phone sex it often leads to is a safe and moral simulation of real life sex" (16). In either view, several studies have revealed that cybersex is particularly attractive among women, especially those who are too reluctant or fearful (such as for reasons of physical safety) to engage in physical-world relationships. Döring's theory is that through virtual communities women "can seek out diverse sexual scenes from home [and that] physical distance guarantees them protection from infringement and other physical dangers" (870). Beyond allaying fears of violent sexual behaviors against them, cyberspace also arms women with viable means to counter such violence or threats. Döring suggests that for women it is "easier online than offline to react to boundary infringement in an aggressive or self-assertive manner rather than just merely being terrified or intimidated" (874). In other words, cyberspace evens the playing field, giving women equal abilities as men to sanction out-of-line behavior--clearly a departure from the statistical norm in the physical world. Döring says that women who use chat and IM can "systematically block undesired contact attempts without having to

justify or defend their decisions" (874). Lewis and Fabos add that women who engage in online relationships have greater ability to "manipulate their voice, tone, and subject matter to hide or transform their own identities and to monitor the interactions of others" (468). For instance, imagine a woman who enters a sexually-oriented chat room and within moments discovers that one of her co-workers has also joined that session. While her first inclination is to leave--she would not want news of her online behavior to affect her career--she is enjoying her experience and would prefer to stay. If her interactions were telephone-based or face-to-face, her options (other than escape) would be limited; her face or her voice, after all, would easily reveal her identity. However, because in chat and IM her persona and actions are entirely text-based, she can, through words and symbols, shape her existence to hide her true identity.

Cybersex, however, is far from simply a safe harbor for those with fear or misgivings about engaging in real-world, physical relationships. Rather, researchers such as Döring feel an overriding benefit of cybersex is that it makes "sexual contacts possible in situations in which sex would not otherwise take place, and it brings together people who would not otherwise have sex with each other" (871). Döring has also found that cybersex is not entirely subject to the traditional rules of romance: "looks don't matter, it's easy to find mates, anonymity minimizes social control, and the physical distance between parties and the computer's off switch prevent dangerous or harmful situations" (863). She also notes that women who engage in virtual encounters are not bound or limited by physical stereotypes and "retain more control over how they present their bodies in cybersexual dialog than in non-medial sex" (878). Similarly, Margaret Morse recalls the example of Walter Hudson, who weighed 1,200 pounds and is still considered

by the *Guinness Book of World Records* to be the heaviest human being ever to have lived. Despite Hudson's inherent physical limitations--he was unable to get out of bed--through chat rooms he became "the ideal citizen of the electronic city" (171).

CHAPTER 5

WHY SECONDARY ORALITY UNDERMINES THE SOCIAL CONSTRUCT

5.1 The Threat to Human Relationships and the Environment

One body of research suggests that, while closely replicating physical world interactions, chat and IM are not authentic (or even healthy) substitutions for meaningful person-to-person interaction. According to Guiseppe Riva, "because online friends are not embedded in the same day-to-day environment, they are less likely to understand the context of conversation, making discussion more difficult" (465). In other words, where chat and IM may be acceptable communications tools for people who already share physical-world relationships, they otherwise leave complete strangers left to acquaint themselves through narrow-channel, text-based communications. Because chat and IM make it very easy for participants to filter or block unwanted interactions, Van Alstyne and Brynjolfsson have also found that online communication often "leads to narrower interactions" (4) in which participants tend to communicate only with other participants who share similar interests or perspectives. In fact, some researchers suggest that such "narrow-banding" actually acts counter to the claims that cyberspace promotes community. In Rothenberg's view, "real communication is only possible between people who share a common culture--and speak the same language" (101).

Another argument from those who question the benefits of secondary orality is that tools such as chat and IM actually work to deprive humans of a fundamental need for physical contact. For there to be true and effective interaction, humans need sensory stimulation such as touch, sound and smell--none of which chat or IM can come close to emulating. The olfactory sense, for instance, is so predominant in sexuality (e.g.,

pheromones) that some researchers wonder how an act devoid of such sensory factors is truly considered to be sexual intercourse, and not merely computer-assisted masturbation. Even devout participants in cybersex, those who have learned to gain pleasure from purely text-based exchanges, tend to desire that physical elements be added to their online interactions. As Waskul, Douglass and Edgley have found, "people say that what they like about cybersex is that people are not judging them by their appearance, but after age/sex checks, it is the first thing everyone wants to know" (388). It seems, then, that few users are completely comfortable with the notion of cyberspace as a replacement for (versus as a supplement to) physical space. During the course of his research, Hamman found that many online participants tried to "put some reality" into the contacts they made online (14). Among participants who used chat and IM mostly for sexual purposes, he determined that "going offline to have phone sex is commonplace" (15). Part of the need for participants to tie physical elements into their online ventures may lie in the mistrust that many participants have toward the media. Hamman's view, for instance, is that it is very difficult for some people to find comfort "in a place that does not physically exist" (7).

Aside from sometimes confusing or alienating online citizens, the anonymity of chat and IM environments can also further weaken the trust of online participants toward one another. Identity online is typically not a problem when participants know each other from shared physical world experiences. When people meet and interact exclusively online, however, the issue of unreliable identity surges to the forefront. As Evans describes them, chat and IM are "set up so that people can quickly move in and out of chat rooms" (200); the result, she says, is that many online interactions are fleeting, and

often do not give participants the benefit of prolonged exposure to their acquaintances. Riva cites another drawback: "computer mediation creates an asymmetrical relationship between sender and receiver that enables the sender to send information and initiate cooperation (but does not guarantee that the receiver receives the message), and offers the receiver no guarantee that the sender's declared identity is authentic" (464). In other words, the recipient of an instant message may never know if the sender was truly the owner of the identity, or somebody pretending to be that person. Lewis and Fabos describe briefly what they found:

> When [teenage girls] Sam and Karrie choose to enter chat rooms that are not age specific, they lie about their age and certainly don't list it in their sketchy user profile so as to pursue 'adult' conversations with older people.... Karrie went so far as to track her boyfriend in a chat room and assume the "male" identity of "snowboarder911" to try to find out what kind of conversations he [the boyfriend] was having. (467)

Even when trust between online citizens is firmly established, many other factors can work against chat and IM participants' building of meaningful relationships online. For starters, both media place significant weight not only on the writing skills of their participants, but on the abilities of their participants to mimic speech effectively through written words. It is toward this end that Lewis and Fabos argue that a technology such as instant messaging "cannot by its splintered nature lead to extended conversation" (466). Hamman concludes that "narrow-bandwidth mediums [sic] do not transit much of the data present in face to face interactions" (17). In fact, save the clever use of emoticons, participants in chat and IM interactions are left with the unenviable task of having to convey wide ranges of emotion and nuance through text alone. Hamman discovered this first hand when trying to invite a fellow online citizen named Rebecca to engage in cybersex. Having no relationship with Rebecca in the physical world, Hamman was thus

left to navigate the tenuous experience through text strings: "Had I been able to see Rebecca's body language as she spoke, I would have known that she was trying to tell me that she was willing to talk about cybersex" (12). In fact, Dennis and Kinney might suggest, using the rich media theory, that Hamman's interaction was a highly equivocal, and that chat and IM were too lean to support it (257). Yet, without a body or any other physical token by which to convey necessary context, chat and IM participants are forced to use a variety of other methods to relay gesture. Some participants use response time to convey gesture; for instance, participants may respond to messages quickly or slowly, depending on the mood of the dialog. Lewis and Fabos discovered one teen who measured carefully the timing of her responses:

> So as not to appear a "loser" with no other windows to juggle, and in effect, no other friends to keep her preoccupied, Sam chooses to wait a certain amount of time before typing her responses and is careful not to send messages to the same person in succession. (467)

Of course a variety of other factors, such as a slow Internet connection or a distracted acquaintance, could deliver the same result, thereby reducing the effectiveness of such an approach. It is not surprising, then, that the lack of physical contact in online interactions has caused Hamman to conclude that "the narrow-bandwidth of the computer medium causes us to make misinterpretations of each other's words and intentions because important information was missing from our communication" (12).

Despite such limitations and drawbacks, masses of people are drawn to chat and IM as means by which to interact and communicate with fellow humans. A drawback to this migration toward online communication is that, as Van Alstyne and Brynjolfsson suggest, "spending more time interacting with online communities necessarily means spending less time interacting with geographic communities or even family members"

(5). A low-impact result of such reduced interaction may be a rise (slight or otherwise) in social indifference. A more strongly pessimistic approach is that prolific embrace of cyberspace will completely devastate Earth and the human infrastructure, and leave its inhabitants (biological or cyberlogical) culturally and emotionally damaged. In other words, as people grow more inclined to put their energies into building functional virtual communities, their physical surroundings will wither from neglect, not unlike the fate of American cities as the inception of the automobile drove its citizenry into suburbia. In the view of Van Alstyne and Brynjolfsson: "As virtual citizens leave their physical neighborhood behind, they inadvertently withdraw their contributions to their physical locations" (12).

A related problem, according to Westby and Atencio, is that because "people are spending more and more time communicating, they are communicating far less in face-to-face interactions with people" (71). Over time this may induce a growing dysfunction among citizens within their physical habitats. A study by Albright, Purohit, and Walsh on computer-literate teens discovered that "between online games, Internet surfing, and chat rooms, a number of students spend even more time online than in school each day" (694). Such factors, researchers conclude, does not bode well for humanity in the long run. After all, even before the advent of chat and IM, some researchers such as Dryer, Eisbach, and Ark pondered the potential impact of computers (i.e., the physical machinery) on society: "computers themselves can make an antisocial statement.... in many persons' minds, computers are associated with a lack of social engagement" (656). The rise in popularity of telecommuting, which has increasingly come to rely on chat and IM, has been labeled by some researchers as the bane of computer-enabled antisocial behavior.

Walmsley concludes that "the drudgery of the flat screen has been widely noted in telecommuting, as have the isolating possibilities of working from home.... [both are] characterised [sic] by an unacceptable lack of human contact" (12).

Even schools are beginning to feel the impact of chat and IM usage by their students. At a point in time in which many school districts are still pondering how to infuse computing into their curricula, chat and IM represent a wild new frontier for educators. As Albright, Purohit, and Walsh suggest, virtual communities are becoming "integral and time-consuming parts of the literate lives of most students, yet an examination of the technologies they consciously or unconsciously employ as part of these kinds of literacies was absent from our teaching" (695). In other words, the literacy skills that students use within the classroom are rapidly becoming very different than the ones that they use outside of school. Lewis and Fabos feel that the speedy and dynamic nature of chat and IM affects significantly the performance of students in the linear-based classroom: "many students over the years have told us that they are bored by the pace and sequence of writer's workshop and that they fake their rough drafts after having completed final ones in a flash" (468). The dichotomy between student lives inside and outside of school may also lead to a social crisis as well. After all, students may be less inclined to participate in the development of school-based communities--or even perform in the classroom--because schools cannot keep pace with the out-of-school interests of their students. Disaffected, children may opt to put their energies toward development of virtual communities that facilitate activities meeting targeted interests. As noted by Winner, some schools have unsuccessfully attempted to address such cultural shifts by simply adding more computers to their infrastructure:

> A common response has been to attack the malady [i.e., a decline in intellectual skills] with a blitz of electronic information, spreading computers throughout schools, in the hope that this would provide a remedy. But after a decade or so in which computer education has been applied, the signs of deterioration in both the schools and in the abilities of American school children each year appear unabated. (193)

5.2 Challenges of Time, Space and Identity

While research has documented the benefits of distance collaboration, some work has raised concern about how the reduction in space and time (both literally and figuratively) may ultimately affect human biology. Long-term use of tools that work counter to inherent biological functions (such as the human sleep-wake cycle) may ultimately undermine productivity or, in a worst case scenario, trigger the evolution of humans into a cyborg state. For instance, by using chat or IM, workers in San Francisco and Helsinki can collaborate on a project in ways unimaginable through earlier technologies. Yet, the fact that there is a ten hour (and ten time zone) difference between the two countries means that one of the collaborators is working when her or his internal (i.e., biological) clock says that she or he should be at rest. Whereas most users of online tools--including those who stay up beyond their bedtime to use them--do so out of choice, some researchers are concerned that the more pervasive these technologies become, the more difficult it may be for humans not only to separate themselves from technology, but retain their privacy as well. Townsend, for one, imagines a society completely immersed in technology, in which traditional social norms and rules no longer apply:

> The old schedule of minutes, hours, days and weeks becomes shattered into a constant stream of negotiations, reconfigurations, and rescheduling. One can be interrupted or interrupt friends and colleagues at any time.... They can never let it go, because it is their primary link to the temporally, spatially fragmented network of friends and colleagues they have constructed for themselves. (94)

Such fragmentation is partly due to the fact that the implementation of chat and IM are enabled by *presence*, software code that is bundled with both tools to track the activities and whereabouts of participants on a network. For example, a system administrator might view one participant's presence information as follows:

> Network: AOL AIM
> Username: fun_girl22
> Login time: 4-April-03 | 18:25:55 GMT
> Login: 22.44.556.557
> Location attribute (user_defined): work
> Current active sessions: 3
> Current multiuser channels: 2
> <U2 Fan Zone – 447.66.778.99>
> <Beach Bingo USA – 556.5.6.77.9>
> Users blocked: 0

While presence information is mostly generated monitored by the network, very often users are allowed to control some aspects of their own presence information, such as the environment from which they have logged into the network (e.g., work versus home). When and where available, participants can use presence information to track the whereabouts and activities of fellow online participants. While users can block other online participants from viewing their presence information, most research indicates that such means are imperfect and, furthermore, require a proactive mindset to implement them properly. The result of presence, say researchers, is an environment that provides little refuge (if not privacy) for its participants. In other words, citizens in cyberspace are not protected by the conventional laws--or even social norms--regarding privacy. For the

most part, when a user logs onto a chat or IM network, that user might as well be walking down Main Street in broad daylight. This represents a significant--if not potentially dangerous--departure from the rules of the physical world in which humans can be in only one place at a time, and can choose whether that place is public or private. In the physical world, for example, if a human is at his or her place of work, he or she will not be bothered if someone should ring the doorbell at his or her home. For users of chat and IM, though, the fact that they are online leaves them exposed to unsolicited interactions with vast numbers of other online users.

A secondary side effect that accompanies the "always on" nature of technologies such as chat and IM is the struggle by users to keep pace with a persistent stream of information and interaction. For example, imagine two persons out on a first date. They are seated at a table at the center of a small Italian bistro. Immediately upon sitting down, both the woman and man begin to talk--not with one another, but with a variety of patrons seated at nearby tables. The couple converses in private sporadically throughout the evening, but only between snippets of dialog with the other diners. Yet, by the end of the meal, both the man and woman consider the date to be a success. As bizarre as that scenario may seem, researchers say it is becoming the norm in virtual societies--especially among younger generations of users. In fact, studies have shown chat and IM users to be distracted not only by the sheer number of interactive channels available to them (if not, in fact, those used), but also peripherally by physical world stimuli. Lewis and Fabos found, for instance, that when adolescents use chat and IM, they "routinely multitask, such as doing homework, watching television, and talking on the phone at the same time" (466).

Alexander questions whether the dynamic and intrusive nature of tools such as chat and IM threaten to "overwhelm the human capacity for brooding, ruminative, interior listening which was fostered by a manuscript culture and by a print culture while it remained attuned to reading aloud" (173). Some researchers suggest that, in terms of its required decoding and cognition skills, the online experience represents a significant departure from traditional literacy. Lewis and Fabos documented an example of this in their work:

> Sam routinely converses with four to eight people simultaneously, while Karrie manages around 20 windows and maintains a buddy list of 90. In the IM environment, the drama unfolds by way of multiple narratives and intersecting social discourses. IM communications, although typed, mimic face-to-face conversations. They are peppered with distinct shorthand lingo ... often the shorter the better ... and the norm is to type and send short, overlapping messages in the spirit of continuous interruption. (466)

Alexander worries that such behavior undermines longstanding educational and cultural literacy standards. The reading of text, of course, is traditionally a silent and focused activity. Most readers, after all, do not listen to music at the same that they read; nor do they converse with fellow humans at the same time that they labor through difficult passages of prose. Rather, such competing sensory stimulations are considered a distraction to the reader of print-based text. In that Chat and IM introduce a very different approach to literacy, Alexander suggests that students with "multitrack sensibilities will probably be less and less able to perform the single track tasks demanded by the silent page" (175). In Rothenberg's view, a likely long-term outcome of such multitracking--and not necessarily a favorable one--is a "shortening of our attention spans in response to the growing barrage of information which we constantly confront" (99). Lewis and Fabos have seen such behavior firsthand in witnessing students who "humor their English

teachers' romantic visions of the 'writing process' and 'the writer's life' knowing well that they will return home to multitask their way through their assignments--with word processor and Internet open, phone and CD at hand, and a book or two in their laps" (463).

5.3 The Opportunity for Deviance

Although many people use chat and IM for quite straightforward reasons, such as a means by which to conduct business or to maintain long-distance friendships, some users call upon chat and IM to remove themselves--even temporarily--from their roles in the physical world. For many participants, chat and IM represent richly textured gaming environments that allow for ordinary people to be thrust into extraordinary roles or situations (or at least credible representations of such scenarios). Researchers such as Waskul, Douglass and Edgley claim that the gaming element helps to explain the wide popularity of cybersex, which they regard as "merely another form of entertainment" or "self-game" (386). In the post modern age of sexually-driven media, it is not surprising that humans would migrate toward the use of media that endorse and enable such behaviors. When humans create virtual (i.e., simulated) environments in which to fulfill role-playing fantasies, there also lies the danger that the line between reality and illusion ultimately will become blurred. Döring has already witnessed such problems arise among cybersex participants: "The existence of explicitly sexually related Net forums, the accompanying expectation that cybersex can be had practically at the touch of a button, as well as the characteristic anonymity of the medium intensify the already existing problem of sexual harassment" (869).

While Döring's example may represent a somewhat extreme case, it is quite normal for the confluence of virtual and physical worlds to create some form of turbulence for participants. Hamman, for example, notes that many "users expect other users to be the same as their respective online selves when they meet off-line.... this leads to disappointment and broken dreams" when those parties eventually meet in person (27); after all, even the most attractive online personalities may be deplorable human beings in the physical world. When two people feel a particularly close bond online, those feelings do not necessarily translate seamlessly back into the physical world. As Hamman's research supports, "the feelings associated with falling in love are just as 'intense' online as they are in the real world [yet] many online relationships are unable to cross the boundary between the virtual world and the real world" (19-20). Other times, however, actions or emotions generated online can be conveyed back to the physical world--sometimes quite forcefully. For instance, when a participant in an online relationship suffers a breakup, or when a chat or IM user is victim to online rape or harassment,[3] Hamman states that such participants "take very real pain with them as they log out of the online world and into the real world" (18).While some participants carry the burdens of online relationships and interactions into the physical world, other users of chat and IM find that they begin to lose sensitivity to their physical environments as a result of their online experiences. Because virtual spaces are inherently malleable, participants can and often do fashion them into rich, dreamlike environments that cater to specific interests or fantasies. The problem researchers have with this approach is that virtual citizens

3 Stone covers the notion of virtual rape in her work, and says it occurs when one person online is "virtually molested by another inhabitant of the virtual environment" (172), such as forcing somebody to engage in cybersex against his or her wishes. As Stone mentions, there is ongoing debate in the academic community regarding whether such an act is rightfully labeled rape, which typically involves some form of physical violation, or whether online rape should be classified differently.

typically create environments devoid of crime, poverty, deviance and the like, thereby building unhealthy barriers between themselves and those types of human conditions. In other words, a user who spends the majority of his or her time online may grow out of touch with some of the social problems arising in his or her physical-world community. Or, worse, that person may determine that it is easier to reside in virtual space where difficult problems can be avoided simply by changing chat rooms or IM sessions. As the findings of Van Alstyne and Brynjolfsson suggest, it is also common for "a virtual community of like-minded citizens [to] be entirely homogeneous" (12). Where such homogeneity may pique short-term interest among online participants, some research suggests it may also ultimately lead to disillusionment among participants. Waskul, Douglass and Edgley have already found instances in which some virtual communities have lost appeal: "Because their enactments contain culturally prescribed standards of beauty and sexiness, it should not be surprising to observe a conspicuous absence of fat, ugly persons with pimples, small breasts or tiny penises" (390). So where it may be appealing to a teenage boy to visit a chat room full of female participants claiming to be tall and blond with supermodel figures, he may invariably lose interest when all participants in all chat rooms begin to meet that stereotype. Waskul, Douglass and Edgley saw this first hand in the course of their research:

> One out of every three persons listing a bra size (32.7%) [of 4,250 persons in a particular chat area] identified themselves as either a D or DD cup. This would indicate that either an inordinate number of large-breasted women spend time on-line or people who claim to be women tend to exaggerate the breast size of their socially constructed body. (391)

Over time, it is possible that such broad adoption of stereotypical physical characteristics in virtual spaces may lead to a reshaping of humanity. Perhaps it is not unrealistic to

imagine a society in which it is easier for overweight, physically deformed, or handicapped persons to disappear behind the masks of chat and IM rather than struggle for equality or attention in an increasingly harsh physical world driven by unrealistic stereotypes. In a similar vein, Van Alstyne and Brynjolfsson note that "in this world-without-walls, historical biases stand in for geographic barriers and limit integration just as effectively" (5).

Even at a reduced level, chat and IM seem to promote a decreased sensitivity among online participants toward norms and customs widely embraced in the physical world. Waskul, Douglass and Edgley have found that, due to the absence of bodily and other visual context in online interactions, chat and IM participants tend to "ask some of the most fundamental body questions imaginable--questions that are unnecessary or seem inappropriate in face-to-face interaction" (389). In her research, Döring has found it typical that phrases such as "'How large are your boobs?,' 'What are you wearing?,' 'Are you horny?,' and 'Need a fuck?' have become the first private messages to appear on the monitor after logging on to a chat room" (869). Döring, however, sees this latter type of behavior as not entirely resulting from of a lack of visual cues; rather, she suggests that such cases of abusive behavior stem directly from the anonymity of the media (868). Because humans shed the obligations of their physical bodies in virtual space, many also shed their inhibitions. For instance, a woman who blushes when passing a handsome co-worker in a workplace hallway may, within the safe and anonymous confines of a chat room, choose to discuss freely sadomasochism with a complete stranger. The online world, after all, provides perfect cover for non mainstream (if not illicit) behaviors.

Another contributor to the spread of online deviance is the fact that online participants have limited means by which to punish offenders. Evans suggests there are few ramifications for online offenders "other than possibly the realization that they will have to search for another chat room" (204-205). Such an example is not unlike a penal code that simply forces the relocation of a convicted killer to a neighboring jurisdiction. The lack of appropriate means by which to punish deviant behavior online both perpetuates such behavior and disrupts the flow and structure of online communities. Evans suggests that "when people engage in behaviors that are disruptive to the culture it impedes the interaction and communication of other members within the culture.... time is wasted" (207). In worst-case scenarios, deviant behavior online can rival even the most severe crimes in the physical world. A particularly notorious form of deviance is when online participants forcibly work to reveal the identities of their online counterparts--especially those with whom they have had cybersexual encounters. Historically such deviance has proved ruinous in online spaces; but it has also led to harassment, rape and death in the real world as well (particularly in instances where online participants have dramatically blurred the virtual with reality). Another contributor toward deviance related to cybersex is the fact that all sexual acts are, in essence, permanently recorded in the form of text-based transcripts. It is not surprising, then, that unwarranted publication of such transcripts is another popular act of deviance. At the very least, argue Waskul, Douglass and Edgley, "to violate a participant's perceived sense of privacy is to alter and/or destroy the characteristics of the medium that allow cybersex to occur" (382). In fact, Evans sees a clear historical connection to current levels of deviance online:

> The structure of cyberspace can be likened to the geographical characteristics of inner city areas that were studied by the Chicago theorists in the first half of the 20th century. Many of the elements of social disorganization that were conducive to increasing crime rates are an inherent part of cyberspace. (200)[4]

Some research has shown, indeed, that deviance online is geared as much toward disrupting social structure as it is toward thrusting violence upon individual users. In a sense, such behavior is not unlike that of gangs in the physical world. While gang members will sometimes accost random individuals, doing so may simply support a higher-order goal, such as disruption of society in a larger sense. While it would be an extraordinarily difficult feat to bring the entire physical world to a grinding halt, doing so in a virtual environment is much more feasible. To be sure, factions of computer hackers specifically target virtual communities (such as chat rooms and instant messaging systems) because, if their hacks are successful, whole societies may be rendered obsolete for a span of time if not forever. In other words, the resulting destruction of a successful hack against a popular chat application is not unlike detonating a nuclear bomb in a large city--within an instant life ceases to exist. To a degree, the deities of the cyberspace are the systems administrators who protect the systems, or the hackers capable of destroying them. For example, Stone describes the untimely death of the pioneering CommuniTree system at the hands of teenage hackers:

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4 The "Chicago Theorists" refers to the collection of sociologists who assembled at the University of Chicago throughout the early 20th century. Collectively the theorists developed the concept of empirical sociology, in which data about human behavior was collected directly from the social environment rather than through various second-hand means. A main laboratory for their work was the city of Chicago itself, which at the time was notorious for its abundance of crime, poverty, and dilapidated housing.

> Each time the CommuniTree system melted down under the hackerkids' relentless assaults, it was generally too late to save the existing disks.... After only a few months of nearly continual assault the system operators were powerless to prevent, the Tree expired, choked to death by a kind of teenage mutant kudzu vine, a circumstance that one participant saw as "the consequences of unbridled freedom of expression." (116)

5.4 Humanity: Disembodied, Dismembered or Mechanized

As noted by Van Alstyne and Brynjolfsson, an inherent drawback of cyberspace is that it leaves a critical void in the twelve-inch span between "the computer monitor and the brain" (4). Although chat and IM enable humans to interact, socialize and collaborate with other humans around the world, such intercourse is merely cognitive and not physical. At the same time, some researchers claim that chat and IM are mental enablers; other researchers proclaim them to be physical disablers. Stone describes cyberspace as "a physically inhabitable, electronically generated alternate reality, entered by means of direct links to the brain--that is, it is inhabited by refigured human 'persons' separated from their physical bodies, which are parked in 'normal' space'" (in Morse 176). Plenty of research has shown that neglect of the physical body is not merely a conceptual byproduct of technology, but rather a growing problem. Studies by Dryer, Eisbach, and Ark have demonstrated this clearly; they found that

> Internet use of as little as four hours per week is associated with higher levels of depression and loneliness. Face-to-face interaction, on the other hand, reduces the levels of hormones involved in stress, fear, and worry and increases the levels of hormones involved in trust, bonding, attention and pleasure. (656)

There is also the irony, as Walmsley suggests, in the fact that "people are able to travel so fast electronically that they do not actually need to move at all" (7). Yet, when people do

not need to physically move in order to socialize, they are more prone to medical problems, such as obesity, that are brought about by a sedentary lifestyle.

In fact, a common theory is that as humans become more and more ingrained in virtual worlds the more that computers will increasingly become part of their bodies. The computer, in other words, becomes a human prosthetic, not unlike a cane or a crutch. Over time, humans who walk with the aid of a cane typically find that they can no longer walk without the cane. The same phenomenon holds true with computers; the cross between a human and a computer is known as a cyborg. In Hamman's view, people become cyborgs when two boundaries become problematic: 1) the boundary between animal and human and, 2) the boundary between human and machine (1). In the course of his work, Hamman determined that one of his research subjects fit the criteria of a cyborg "because her sex life was undeniably tied to and dependent on chat rooms" (17). A cyborg, however, does not necessarily define a human who has circuit breakers for brain cells and coaxial cabling for veins and arteries. More typical, according to Waskul, Douglass and Edgley, is the notion that "a cyborg, like any self, is situationally defined" (386). As humans increasingly place themselves in situations in which they rely upon or co-exist with computers and computer-enabled technologies, their status as humans versus cyborgs comes more into question. Such hypotheses have led Westby and Atencio to pose the question: "Instead of merely asking what our children will learn with computers, we also need to ask what they will become" (81). In other words, will tomorrow's students still merely be the operators of computers, or will they be held captive by them?

And, perhaps nowhere is the dichotomy between the physical body and its virtual

representation more clear than in the realm of cybersex. As Waskul, Douglass and Edgley proclaim, corporeal sexual encounters "evidence themselves in bodily matter (e.g., sexual intercourse is wet, odoriferous, and teeming with biological organisms)" (375). By contrast, cybersex is devoid of any such contact among tangible or living organisms. This paradox has led Waskul, Douglass and Edgley, among others, to seek to discover whether or not human sexuality can truly be emulated in an environment in which "semiotic icons replace all interactions between people" (375). As stated earlier, Döring believes that, because of these factors, cybersex is not a replacement for "personal togetherness and skin contact," and further suggests that the act of cybersex may be little more than an aid to human masturbation (871). Stone also supports the notion that cybersex is not sexual intercourse, per se, but an interactive simulation. In fact, Stone might argue that the relatively narrow bandwidth of cybersex interactions is not unlike that of phone sex, which she studied in detail over the course of her work. She reports that

> sex workers took an extremely complex, highly detailed set of behaviors [the sex act itself], translated them into a single sense modality, then further boiled them down to a series of highly compressed tokens. They then squirted those tokens down a voice-grade phone line. At the other end of the line the recipient of all this effort added boiling water, so to speak, and reconstituted the tokens into a fully detailed set of images and interactions in multiple sensory modes. (7)

Some researchers fret that, as technologies evolve, humans will not only be less able to distinguish sexual intercourse from masturbation, but if given the choice may actually choose computer-aided masturbation because of its relative ease. The result of such a situation, says Döring, is that "increased use of cybersex will be accompanied by a reduction in real, interpersonal togetherness, which could lead to alienation and isolation of the entire community" (880).

The human-as-cyborg concept is perhaps most clearly exemplified in Stone's musings on Steven Hawking, the famous American physicist who, because of an almost total paralysis of his body due to amyotrophic lateral sclerosis, relies upon an artificial speech device for communication. In her reflections, Stone wonders what Hawking would be without his speech-enabling device:

> No box, no discourse; in the absence of the prosthetic, Hawking's intellect becomes a tree falling in the forest with nobody around to hear it. On the other hand, with the box his voice is auditory and simultaneously electric, in a radically different way from that of a person *speaking* into a microphone. Where *does* he stop? (5)

In other words, Hawking sits behind his voice synthesizer in much the same way as chat and IM users sit behind their computer terminals. Their physical bodies are determining their actions, but are not the actors themselves. In the realm of chat and IM, a person can only assume a virtual identity if there is someone (or something) on the other end to communicate with; in the absence of a recipient, chat and IM are nothing more than electronic writing spaces.

CHAPTER 6

CONCLUSION

An underlying concern regarding the onset of secondary orality is the ultimate effect it may have on literacy. Secondary orality, after all, represents a clear departure from the linear and solitary world of print-based text, and change is not always well received. Some in academia, for instance, worry about how the frenetic exchange of text in chat and IM forums will ultimately bastardize the world's languages, where written phrases such as "you are great" may be condensed to "u r gr8." But, as Alexander points out, grammar, among other key components of written text, has developed over time "in response to the need to codify and regulate the written language" (169). She is referring, of course, to the written languages of yesterday, the ones that pre-date secondary orality. In the context of secondary orality, writing is not always an end goal, but sometimes merely a means by which to communicate via a computer network. After all, writing in any generation has been a reflection of oral style. Just as Shakespeare's writing style more or less emulated how the Globe Theater audiences spoke English, modern English is likewise a representation of how people speak the language on today's proverbial Main Street. So if the English language should evolve over time to reflect the clipped language commonly found on today's chat and IM systems, such evolution would, in fact, represent a natural progression of written language reflecting oral tradition.

Another reason why humanity should not panic over the fact that the languages of the world may devolve into the equivalent of "chat slang" is because text exchange may not represent the end state of chat and IM applications. The exchange of signs through chat and IM channels may actually better represent the future direction of how the tools

may be used. Rather than continue to use text-based representations of language, objects, gestures or emotions, participants may ultimately determine that it is easier to represent such effects through symbols alone. Such symbols need not be crude, either. Rather, they may vary from text-based symbolic smiley faces to computer-generated representations richer in texture than even today's best-of-breed multimedia. Interestingly, such embrace of semiotics as a vehicle for communication actually represents a deepening commitment by humanity toward a new-found literacy, not orality; or, as Bolter proclaims: "orality is further diminished in electronic writing" (201). He further supports his observation through the following statement:

> As text becomes more visual and includes signs that cannot be spoken, the sense of the arbitrary and the mediated increases at the expense of the belief that words are natural, immediate representations of the world. (200)

In other words, as electronic text gains a larger grip on humanity--especially synchronous exchange of such text--that text may evolve beyond any current concept of orality or literacy.

Another theory is that chat and IM may evolve into complex virtual systems that extend well-beyond the limitations of text- or symbol-based communication. In fact, some chat systems already allow voice chat, in which rather than sending text-based messages across a network, users send packets of recorded sound. Today's voice chat is rudimentary (if not low fidelity), but it nevertheless represents a further departure from the grip of literacy as it has been traditionally manifested. To accommodate a growing number of users who are frustrated with the text-only limitations of chat and IM, both applications may evolve into entirely voice-based tools, further inducing some of the basic tenets of primary orality. Even so, writing and text will still play an important role

in such applications. As Ong says, even when such systems abandon text as a user interface, the use of writing and print "are essential for the manufacture and operation of the equipment" (136). In other words, chat and IM users can only exchange messages if the applications they are using are built according to the same technical specifications, which are invariably documented in written form. Further, when future chat and IM applications introduce richer media (e.g., video and sound files), it will necessitate that such media be compressed into packets of binary, text-encoded data that could be distributed across a network in exactly the same way as text messages are sent today.

An inherent problem with using richer media in chat and IM environments, such as voice, image, or video, is that such media are not easily *stackable*. In a purely text-based online environment, incoming text messages simply enter a message queue "on top of" older ones. The result is a finitely ordered list of all messages distributed within the confines of that messaging forum. The following listing is an example of a typical message delivery architecture, presented as it might appear on an end-user's screen:

<Message5> User1: Text message
<Message4> User5: Text message
<Message3> User444: Text message
<Message2> User31: Text message
<Message1> User12: Text message

Here, messages submitted to the server by users are displayed to all users in that chat or IM forum instantaneously in the order that they are received. If multiple messages are received by the system simultaneously, the system uses a set of arbitrary rules to establish a delivery queue for the messages. And because chat and IM text messages are extremely low *footprint* (i.e., they contain very few bits and bytes, and therefore require very little performance from a server's processor), even a high message volume can be handled

quickly and efficiently by a modest computer. Such efficiencies ensure that chat and IM message exchanges are near-instantaneous and mimic the flow of person-to-person interactions. Relatively speaking, even long system queues in chat and IM forums still convey to users the sensation that the messages are being sent in real time.

Once richer media, such as sound and video, are added to synchronous interactive environments, however, the queuing and delivery of chat or IM messages becomes considerably more complex. In a traditional (i.e., text-based) chat or IM environment, a steady incoming flow of voice- and video-enriched messages would result in an overwhelming (if not intolerable) cacophony of image and sound being presented to the end user. Thus, the means to avert such a disaster would be to *layer* the delivery of such media so that they do not all arrive into a chat or IM forum at once. Thus, "VideoMessage22" would not be broadcast to the chat room until "VideoMessage21" had finished playing or else they would play simultaneously (i.e., over each other). But where layering introduces necessary order to chat and IM forums, it also renders obsolete many of the benefits of chat and IM. Essentially the layering of media makes chat and IM asynchronous, inasmuch as participants can only follow one thread at a time--no matter how long that thread may be. Whereas participants in text-based chat and IM sessions can be witness to dozens of messages per minute, users of video chat or IM might only see one or two messages per hour depending on the duration of those messages. In a sense, then, the introduction of rich media into chat and IM would more resemble a television-on-demand system than an interactive online communications channel.

Another immediate and tangible concern for society is the prospect that secondary orality is merely a stepping stone to a civilization that is minimally grounded in the

physical world and increasingly reliant on machines for the basic functions of life. As Bolter declares in *Writing Space: The Computer, Hypertext, and the History of Writing,* "many are still frightened by the prospect that superintelligent computers will someday take control of human affairs or dispense with human beings altogether" (171). For instance, even today there are significant limitations in the abilities of chat and IM participants to know the true identity of those with whom they are communicating. These limitations relate not to the identity of online participant in the familiar sense, but rather the identity of participants in terms of whether they are human or machine. Clearly it is feasible that now, or in the very near future, advances in artificial intelligence will enable self-governing computers to engage in (or at least emulate) chat and IM interactions. Because conversations over chat and IM channels are typically elementary and formulaic, it is not hard to imagine a computer assuming the role of either participant in the sample exchange below:

> Person1: How r u today?
> Person2: good. And u?
> Person1: hanging in there. A/s/l
> Person2: 33. f. Lund, Sweden
> Person1: What is ur job?
> Person2: I play golf.
> Person1: Is that your job?
> Person2: Yes. I really enjoy it. What do you do?
> Person1: I'm an electrical contractor here in Cleveland
> Person2: What music do u like?

At this juncture, most human chat and IM participants take for granted that a human body also sits at the other end of the interaction. In the scenario above, it is fairly easy to assume that "Person2" really is a 33-year-old female golfer who lives in Lund, Sweden. But how could somebody begin verify this claim? Better yet, what if there were no physical body at the other end of the discourse? In other words, what if the messages from

"Person2" are being generated by an intelligent, self-governing computer located in a clean room in San Mateo, California? From a scientific point of view, such a scenario revisits (if not modernizes) the important mid-20th century work of Alan Turing toward determining a computer's capacity for human intelligence. By Turing's standards, if an experimenter "cannot distinguish correctly between the human and the machine at least six out of ten times, then the machine must be said, *de facto*, to have human intelligence" (Hardison 318). Historically, even when interacting with the most intelligent computers most people would not confuse a computer with a human being. Computers, after all, were mechanical boxes that looked nothing like the physical human body, and that until very recently could manage only poor reproductions of the human voice. Realistically, because there is no context to online interactions other than text-based symbols, participants stand no reasonable chance of knowing with whom or with what they are interfacing. It is, therefore, entirely possibly that humans in cyberspace could engage in sexual intercourse with machines. Or they might fall hopelessly in love with an intelligent iMac.

Ultimately humanity's growing interest in and reliance on virtual environments is a significant risk, even if only for the fact that humanity cannot physically engage (i.e., sit, sleep or eat) in the virtual spaces in which it dwells. Taking a different view, virtual spaces are only possible so long as the physical world can support them. At the very least, the physical world must provide enough energy to power the computers that humans use to engage in virtual communities. Indeed, as Rothenberg states, humans are correct to "perceive the world as fuel for human opportunity" (81). But what happens when that fuel runs out, and the mechanized underpinnings of the virtual world become jarred loose? In

Morse's view, such an event would be tragic, even if only for the fact that humans would be forced to confront the "repulsive and/or wasted world of the organic body outside the screen" (172).

A contrary opinion is that the tools of secondary orality actually reduce the possibility that society, whether virtual or physical, would ever reach such a point of no return. After all, by allowing increased social engagement and collaboration of people around the world, chat and IM improve research methods and scientific problem solving. For instance, a corporate research team from Kyoto, Japan, might collaborate virtually with a weekend hobbyist in Nome, Alaska, to develop a key enabler for solar energy, thus reducing the world's reliance on fuel-based power resources (and, therefore, reducing the likelihood of the virtual Armageddon described earlier). In other realms, disparate communities of citizens might band together online to combat issues that might have never been solved otherwise. Chat and IM might also significantly work to mitigate current risks to human population by providing virtual alternatives to destructive physical activities, such as sexual intercourse among persons infected with AIDS.

The long-term impact of chat and IM--and of secondary orality itself--is dependent on how seriously humans commit their physical bodies to virtual spaces. Just as Nicholas Negroponte has asked, rhetorically, "If I log into my office and do my work electronically, exactly where is my workplace?" (165), others have inquired into how their forays online will ultimately affect their offline lives. Quite simply, some researchers view chat and IM as little more than interesting venues for in-depth role playing in which injury or death to an online persona has no impact whatsoever on the physical world. Others, such as Stone, can imagine activities in virtual spaces bearing

much more weight. Stone compares her view of virtual spaces with the science fiction visions of William Gibson, author of the 1984 work *Neuromancer*:

> In *Neuromancer*, the "original" body was the authenticating source for the refigured person in cyberspace; no "persons" existed whose presence was not warranted by the concomitant existence of a physical body back in "normal" space. But death in either normal space or cyberspace was real, in the sense that if the "person" in cyberspace died, the body in normal space died also, and vice versa. (34)

Even though humanity may not realize what science fiction envisions for the future, the more that humans blur cyberspace with the physical world, the greater the likelihood for such intersection. And at the point of such intersections, virtual spaces may no longer function as alternate realities, but rather as extensions to the physical world, replete with its norms, customs and cultures--or at least ones carved to meet the needs of both the virtual and the physical. Walmsley suggests, perhaps, that humankind is already moving toward this target. His studies of cyberspace have found that "one rather striking example of the inroads being made by telecommunications is the appearance of cyberspace funerals, where relatives can watch and participate without the trouble of travel" (9). Whereas a cyberspace funeral might serve as a logistical convenience, chances are it would not provide the same emotional or psychological outlet as attending in person might. After all, the funeral represents humanity's last chance to interact with the body of the recently deceased. A virtual representation of that body, without the emotion or spirit behind it, is devoid of all such humanity.

Ultimately, when chat and IM introduce barriers between humans in situations where face-to-face interactions may be more appropriate or meaningful, they evince the inherent limitations of these tools. Whereas chat and IM provide humankind with a newfound ability to interact synchronously in ways that emulate some of the better traits

of orally-based communications, their range of effectiveness is nonetheless finite. As rudimentary, narrow-channel tools, chat and IM limit (if not significantly) the amount of context that can accompany the exchange of information. What they often yield are loosely governed virtual spaces that breed identity cloaking; the proliferation of media-driven stereotypical behaviors; and unharnessed social deviance, among other results. Even when humans are able to migrate successfully their interactions, situations, or relationships into cyberspace (or vice versa), such a feat does not preclude the introduction of other sets of risk factors. After all, the more humans rely upon computer-based tools for social interaction, the more likely it is that they will decrease their investment and involvement in the physical world. It is also entirely feasible that the more humans rely on computers to enable communications and supplant physical world activities, the more likely it is that they will rely increasingly on computers as a means to subsist.

Just as the print revolution brought forth a new type of humanity, secondary orality likewise promises to enact widespread social change. The breadth of transformation introduced by secondary orality, though, may be monumental--or at least well beyond any level currently conceived. Where the advent of print gave humans a choice of whether to communicate verbally or through text, secondary orality gives humans the choice of habitat: physical or virtual. In other words, through secondary orality humans suddenly have the far-reaching capability of being socially functional yet completely disengaged from the physical world. Humans should use enablers of secondary orality, such as chat and IM, to explore virtual landscapes and determine how they relate to and affect their own lives. But they should do so with great caution. Like

many other powerful tools of humanity, chat and IM are proverbial double-edged swords. On one edge, through simple, efficient means chat and IM allow humans throughout the world to collaborate successfully, communicate, and interact in ways not possible in the eras of orality or print. On the other edge, chat and IM are easily available gateways into potentially catastrophic alternative universes that may or may not support human life.

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