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Introduction

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To say the Internet has exploded onto the media scene in the eight years since the publication of the first edition of this book is a bit of an understatement. While pundits had many forecasts for the impact this new media would have in the late 1990s, many are still surprised at the rapidity and breadth of the integration of the Internet into contemporary society. Today, the Internet is no longer a unique medium, but rather the basic structure of nearly all media as they increasingly change and merge. Thus, today when we think about the Internet it is not only something we access on our desktop home computer, but also on our cell phones, pagers, PDAs, televisions, video game consoles, MP3 players, and any number of portable laptop computers. We expect to find wireless access to the Internet in airports, coffee shops, and malls and recognize that wireless access will soon become part of the invisible communication sphere which surrounds us now, much like access to TV, radio, and cell phones.

But even the good old standbys of mass media, TV and radio, are changed due, in part, to the Internet. Now the late-night radio talk show we love but can not stay up for is available by podcast first thing the next morning when we turn on our laptop. Television shows are downloadable to our iPods and satellite radio can now be subscribed to and listened to in cars and online. So today when we talk about life online, the meaning of that is increasingly widespread across a variety of media vehicles.

In 1998, one might have pointed out that although the Internet is exciting and offers much potential, it is a relatively “local” phenomenon. That is, it’s dominated by the United States. My, how times have changed in the eight years since the United States’ early development and domination! According to Miniwatts International (2005), as of November 21, 2005, the North American usage of the Internet is only slightly less than a quarter (23%) of the overall usage worldwide. Another 29% of the usage comes, not surprisingly, from Europe, while Asia, with the largest segment of the world’s population, also has the highest relative usage (34%). Since 2000, Miniwatts International statistics points out that although North America increased Internet use by about 100%, the rest of the world increased by almost 200%. But although usage is higher among the most populous area on the globe, penetration is
still highest in North America at 68%. That is, most households in North America have Internet access. In other words, the merging of media just described is still largely a North American phenomenon.

The focus of the this book and its predecessor is psychological. We ask whether there are special psychological considerations both to using the Internet and to its effects upon the user. As before, answers to both of these questions are explored from three perspectives: intrapersonal, interpersonal, and transpersonal. The first chapter offers an overview from history, and is followed by several chapters in each of the three sections. Intrapersonal perspectives are addressed initially from a developmental perspective (Chapter 2), and then as a function of personality, gender, race, and culture (Chapter 3). The much puzzled-over phenomenon of disinhibition is revisited, followed by a chapter on online sex and Internet addiction. The interpersonal begins with an overview of the current status of computer-mediated communication research and then a look at virtual societies. The last two chapters in this section examine two online clinical concerns, self-help groups and therapy. The final section, unique to this book and rarely seen in other treatments of the psychology of the Internet, considers three transpersonal elements: virtual reality, the internet as Global Brain, and consciousness.

CONTRIBUTORS AND CHAPTER SUMMARIES

With the rapid growth of research into use of the Internet in all walks of life since 1998, this original groundbreaking book on the psychology of the Internet has a new chapter added on children, with two previous chapters on self and gender combined into a single chapter. Some of the chapters have either entirely new authors or added or lost previous coauthors. However, in general, the original contributors to this seminal book have become leading lights in the area of psychology and the Internet over the eight years since it was originally published. Several have their own books out about the Internet and all continue to work online as researchers, instructors, entrepreneurs, consultants, and clinicians. What follows is a brief look at each of the chapters and authors in this volume.

The first chapter, “The Internet in Context” is written by Evelyn Ellerman, chair of the Centre for State and Legal Studies and Program Director of Communication Studies at Athabasca University. She is interested in the effects of technological innovation on narrative and in the development of book culture in island nations of the South Pacific during decolonization. Ellerman offers a historical perspective for understanding the impact of the Internet in contemporary society. Relative to the first edition, Ellerman offers a more in-depth historical analysis with a cultural analysis of our relationship to machines. Not only does she draw a parallel between adoption of the Internet to the history of radio adoption as she did in the last edition, but she also examines how our society has come to understand and conceptualize the Internet by examining the metaphors used to describe it, and how they have changed over time.
**Intrapersonal Considerations**

With this historical and cultural context, we examine the intrapersonal aspects of the Internet in the next five chapters. A developmental perspective is taken by Connie Varnhagen, who is a professor of Psychology at the University of Alberta. Her research is on how people interact with and learn from technology. Her recent work is on the search for and the critical appraisal of Web resources by children and adults. She is the author of *Making Sense of Psychology on the Web*, Worth Publisher, 2002, and numerous interactive Web resources and CD-ROM activities for learning about psychological principles and methods. Varnhagen examines various topics related to children being online. Following an examination of the use statistics, she considers how the Internet may be shaping children's social development. She focuses specifically on areas of concern, such as exposure to pornography and predators, as well as how children bully and are bullied online. Finally, she offers the reader some helpful hints for helping children to navigate life online.

The next chapter considers self and is written by this book's editor, Jayne Gackenbach, and Heather von Stackelberg. Gackenbach is a professor at Grant MacEwan College in the Department of Psychology and an instructor in the Department of Communication Studies at Athabasca University. Gackenbach has written several online courses in psychology and communications, offered various workshops and presentations at professional conferences on the psychology of Internet use, and hosted and co-wrote a three-part documentary on the Psychology of the Internet for Canadian Learning Television. She is a coauthor of the forthcoming "cyber.rules" with Joanie Farley Gillispe for Norton. Her coauthor on the self chapter is Heather von Stackelberg, a writer/researcher who has recently finished a Communication Studies degree from Athabasca University, to accompany her BSc in Botany. As a freelance writer, she has written about health, natural history, and technology, and finds people's varying reactions to change fascinating. She is currently a research assistant for the Associate Dean of Science at Grant MacEwan College.

Gackenbach and von Stackelberg follow Varnhagen's developmental chapter by considering how self online is affected by Internet use. They begin by briefly addressing how contemporary psychology thinks about self and turn then to a brief look at personality differences in online use, focusing especially on introversion and extroversion. Other personality characteristics are also considered. These Grant MacEwan College colleagues then examine self as a function of various demographics which have been shown in the developmental literature to contribute to the development of self: gender, race, culture, and socioeconomic status. Although the gaps between men and women, whites and people of color, industrialized and third-world countries, and rich and the poor are narrowing, the primary Internet use remains, to one degree or another, white men from the industrialized rich countries.
The next two chapters in the intrapersonal section consider specific aspects of the intrapersonal domain: disinhibition and sexuality. Dr. Adam Joinson is senior lecturer at the Institute of Educational Technology, the Open University, UK. He completed a BSc (Psychology) at the University of London (1991) and a PhD (Social Psychology) at the University of Hertfordshire (1996). His research interests include self-disclosure on the Internet, survey methodology, and educational technology. He is the author of *Understanding the Psychology of Internet Behavior* from Palgrave, which came out in 2003, as well as articles on computer-mediated communication, online research methods, personalization techniques, privacy, and e-learning. His webpage is http://www.joinson.com.

Joinson explains how disinhibition can lead to enhanced self-disclosure of both the positive and negative types. This author then considers several explanations for why disinhibition is observed so frequently online. The chapter serves as a cornerstone in understanding the psychology of Internet use, with the theme of disinhibition carried forward in many of the other chapters as well.

A far-reaching discussion of sex online is undertaken by Raymond J. Noonan, Ph.D., who is an Assistant Professor of Human Sexuality and Health Education at the Fashion Institute of Technology of the State University of New York (FIT-SUNY) in Manhattan. He is also director of SexQuest/The Sex Institute, providing educational consulting in human sexuality and educational content for the World Wide Web (http://www.SexQuest.com). Noonan was coeditor of the award-winning *Continuum Complete International Encyclopedia of Sexuality* (Francoeur & Noonan, 2004), to which he contributed the chapter "Outer Space and Antarctica: Sexuality Factors in Extreme Environments," as well as numerous contributions to the chapters on United States, Brazil, and others. He was associate editor of volume four of the *International Encyclopedia of Sexuality* (Francoeur & Noonan, 2001), and contributed articles to Robert T. Francoeur's three-volume *International Encyclopedia of Sexuality* (Francoeur, 1997). He was also coeditor and author of *Does Anyone Still Remember When Sex Was Fun? Positive Sexuality in the Age of AIDS* (3rd Ed.) (Anderson, de Mauro, & Noonan, 1996).

After a rather extensive discussion from a systems approach of why sexuality is important at all levels of human activity, he focuses on its impact online. He surveys the history and diversity of sex online, followed by a consideration of online dating and blogs.

The last chapter in the intrapersonal section focuses on when online use goes wrong. "Internet Addiction: Does it Really Exist?" is written by Mark Griffiths, who is a Chartered Psychologist and Europe’s only Professor of Gambling Studies (Nottingham Trent University). He specializes in technological addictions and has written extensively on Internet addiction and abuse. He has published over 155 refereed research papers in journals such as the *British Journal of Psychology, British Journal of Social Psychology, British Journal of Clinical Psychology, Journal of Community and Applied Social Psychology, Journal of Adolescence, Addictive Behaviors, British Journal*
of Addiction, Addiction Research, Journal of Psychology, and extensively in the Journal of Gambling Studies. He has also published two books, numerous book chapters, and has over 400 other nonrefereed publications to his name.

In this chapter on Internet addiction, Griffiths updates his review of the research on Internet addiction. For the first edition of this book, his research had just begun. The reader will see that much has been done to identify the precursors, co-morbidity, and definitional issues. This author makes important distinctions among types of data collected and draws on case studies to distinguish between addiction and heavy use, with one being maladaptive and the other not.

**INTERPERSONAL PERSPECTIVES**

The next four chapters consider the interpersonal perspective. What happens when we meet or work with others online? The first two chapters in this section review previous research into computer-mediated communications, both in general and, more specifically, in work teams. The last two chapters consider clinical applications: self-help groups online and online therapy.

In “Revisiting Computer-Mediated Communication for Work, Community, and Learning,” authors Caroline Haythornthwaite and Anna L. Nielsen offer a comprehensive overview of research and reviews of computer-mediated communication literature. Caroline Haythornthwaite is an Associate Professor in the Graduate School of Library and Information Science (GSLIS) at the University of Illinois at Urbana-Champaign. Her major works include Learning, Culture, and Community in Online Education: Research and Practice (2004) from Peter Lang Publishers coedited with Michelle M. Kazmer, and The Internet in Everyday Life (2002) from Blackwell, coedited with Barry Wellman. Dr. Haythornthwaite is an active and much published researcher in the area of computer-mediated communication. Anna Nielsen is a doctoral student at GSLIS, with an interest in computer-mediated communication and online learners.

Before psychologists “discovered” the Internet, communications scholars had been examining communications over computers for some years. This rich historical and contemporary overview is offered by these researchers with a focus on groups. They then consider how online and offline interactions can become better integrated, a particularly important point for online work groups.

Taking a broader view of the interpersonal elements online is the chapter by Conrad Shayo, Lorne Olfinian, Alicia Iribarri, and Magid Igbaria entitled “The Virtual Society: Its Driving Forces, Arrangements, Practices, and Implications.” The lead author on this chapter from 1998, Magid Igbaria, has passed away, but the coauthors agreed to update the chapter in his honor. The new first author is Conrad Shayo, who is a Professor of Information Science at California State University San Bernardino. Over the last 23 years, he has worked in various capacities as a university professor, consultant, and manager. He holds a Doctor of Philosophy
degree and a Master of Science degree in Information Science from the Claremont Graduate University. He also holds an MBA in Management Science from the University of Nairobi, Kenya, and a Bachelor of Commerce degree in Finance from the University of Dar-Es-Salaam, Tanzania. His research interests are in the areas of IT assimilation, performance measurement, distributed learning, end-user computing, organizational memory, instructional design, organizational learning assessment, reusable learning objects, IT strategy, and “virtual societies.” Dr. Shayo has published research on these and other topics in various books and journals. Currently, he is involved in developing reusable learning objects and web-based learning game simulations. He is also a coeditor (with Dr. Magid Igbaria) of the book Strategies for Managing IS / IT Personnel.

Lorne Ollman is the Dean of the School of Information Science and Fletcher Jones Chair in Technology Management at Claremont Graduate University. Lorne came to Claremont in 1987 after graduating with a PhD in Business (Management Information Systems) from Indiana University. Lorne also holds a Bachelors degree in Computing Science, a Masters degree in Economics (both from the University of Calgary), and a Masters of Business Administration degree from Indiana. Lorne’s extensive work experience includes computer programming, economic analysis of government airport policy, and computer model development of financial plans for a telecommunications company. Lorne’s research interests involve three main areas: how software can be learned and used in organizations, the impact of computer-based systems on knowledge management, and the design and adoption of systems used for collaboration and learning. He has published articles on these topics in journals including MIS Quarterly, Journal of Management Information Systems, and Information Systems Journal. Lorne has always taken an interest in using technology to support teaching and has been using the Internet to facilitate classes for more than a decade. A key component of Lorne’s teaching is his involvement with doctoral students. Lorne has supervised 35 students to completion. Lorne is an active member of the Information Science community. He regularly reviews papers for journals and conferences, and was in consecutive years the program chair and general chair of the Association for Computing Machinery’s Conference on Computer Personnel Research. He also coordinated mini-tracks of the Hawaii International Conference on System Sciences for 10 years. Alicia Iriberrri is a Doctoral Student at the School of Information Science, Claremont Graduate University. Her research interests are User Interface Design, Computer Ethics and Virtual Communities. Currently, she is working on her dissertation and is involved in supporting various virtual communities in Claremont and Pomona.

These authors take a wide-ranging view of social life online ranging from politics and economic considerations to weblogs and virtual work teams. They then consider issues that are emerging for the new virtual society. They note that “in this chapter, we examine the driving forces behind the growth of virtual societies and discuss existing arrangements and practices at the individual, group, organization,
and community levels. We also examine the implications of how people will live and work in societies where these arrangements and practices are widespread and mixed with face-to-face relationships.”

The last two chapters in this section take a very different approach to interpersonal relationships online by examining two clinical issues, online self-help groups and online therapy. The authors of the first of these two chapters, “Internet Self-Help and Support Groups: The Pros and Cons,” are Storm King and Danielle Moreggi. Storm A. King recently finished his doctoral degree in clinical psychology at Pacific Graduate School of Psychology. He has been researching the value of online self-help groups and the psychology of virtual communities, specifically, the therapeutic value perceived by members of e-mail groups that function as self-help groups, since 1993. He has proposed innovative ways for psychologists to use the Internet with clients and to gain new insights into a variety of disorders. His 1996 article, “Researching Internet communities, proposed ethical guidelines for the reporting of results,” was one of the first articles to address the unique ethical dilemmas facing researchers who use Internet-archived text data to study the social impact of the Internet. He created and maintains a clearinghouse website for researchers interested in the psychology of virtual communities. Mr. King is a founding member and past president of The International Society for Mental Health Online. He has also published research on compulsivity in Internet gambling. His 1999 article, “Internet gambling and pornography: Illustrative examples of the psychological consequences of communication anarchy,” published in CyberPsychology and Behavior, is considered by many to be a seminal article in that field. He coined the term “Internet Enabled Pathology,” and introduced its use at the 2000 convention of the American Psychological Association and at the 1999 first annual convention of the Association of Internet Researchers. He is a member of the editorial board of the Mary Ann Leibert journal CyberPsychology and Behavior. He has coedited a special issue of that journal titled The Internet and Sexuality. His coauthor, Danielle Moreggi, is an Assistant Director of Counseling, PIR Psychology Department at the University of New Haven. After introducing the idea of self-help as actually mutual aid, they discuss its implication in a largely text-based environment. The authors then offer a list of pros and cons of both face-to-face and online self-help groups. They also consider distinctions between self-help groups and group therapy and its implications for the online environment.

The final chapter in this section on interpersonal aspects of life online is by Joanie Farley Gillispie. Gillispie holds a doctorate in clinical psychology from the Fielding Graduate Institute with an emphasis in Health Psychology. Dr. Gillispie works from a systems and individual perspective. She holds a Professional Postdoctoral Training Certificate from University of California, Berkeley in Neuropsychological Assessment Screening and advanced training in Strategic Depth Psychotherapy. Dr. Gillispie is an independent practitioner, an Area Chair for the Behavioral Health
and Social Sciences Department at the University of Phoenix, regional trainer in HIV prevention for the American Psychological Association, and forensic evaluator for the Board of Prison Terms and Juvenile Justice Systems in Marin and San Francisco counties. Her clinical work includes forensic assessment of disability in court settings and cognitive–behavioral treatment with individuals and groups. Dr. Gillispie teaches at the University of California, Berkeley Extension. Postdoctoral courses for professional licensure and continuing education in the areas of behavioral health and ethical decision making are among her areas of focus. As Area Chair for the Bachelor of Science Program at the University of Phoenix, Dr. Gillispie teaches in the Behavioral Health undergraduate department and in the Masters in Teaching Program. In October 2002, she received a “Teacher of the Year” award for excellence in teaching at the University of Phoenix, Northern California Campus. She has recently finished a book with Jayne Gackenbach for clinicians and teachers for Norton Publishers called “cyber. rules” and her website is www.drjoaniegillispie.com.

In her chapter, Gillispie considers both professional and clinical issues with therapeutic online work. She points out that one does not have to do therapy online to be affected by this environment, as increasingly, clients are presenting with problems that are happening online or as a consequence of being online. Therefore, Gillispie argues that it is incumbent upon the clinician to become familiar with these issues.

**Transpersonal Aspects**

The final three chapters in this book consider the transpersonal perspective on the Internet. While the intrapersonal perspective focuses on self and the interpersonal perspective considers relationship to others, the transpersonal perspective views the sorts of human experiences that transcend or go beyond the ordinary ones taken up by most of psychology. The authors of all three chapters discuss the Internet in the most general form. This includes the notion of the Internet as a Global Brain to the Internet as one form of electronically mediated virtual world and its implications for the development of consciousness.

The author of the first of these three chapters is Joan M. Preston, who received her PhD from the University of Western Ontario and is a Professor of Psychology at Brock University. Her scholarly interests include visual and emotional processing in virtual reality, video games, and other media. Preston offers the reader a journey through Gibson’s theory of perception as it applies to mediated virtual worlds. She then explains how the perception of mediated worlds offers many experiences that are of the natural world with potential to offer insights and experiences into altered states of consciousness. She uses the virtual art of Char Davies to illustrate these concepts.

The second of these three chapters is by Ben Goertzel, who writes of his work (personal communication, Dec. 30, 2005):
In the time since 1998, I have mostly been working in the software industry, focusing on AI, bioinformatics, and the Internet, and I have also been pursuing research in cognitive science and philosophy of mind. An example of my practical Internet work is the ArrayGenius software released by my company Biomind, which provides online analysis of bioinformatics data and has been used extensively by the Center for Disease Control and the National Institute of Health. I have also edited a book called *Artificial General Intelligence* for Springer-Verlag, which was released in 2005, and have been working on three other books on AI theory that are likely to appear in 2006 and early 2007. Finally, since September 2005 I have been working on natural language processing technology at Virginia Tech in their National Capital Region Operation.

Goertzel outlines the basic ideas behind Internet as a Global Brain by drawing upon complexity theory and the online Global Brain study group. He goes on to connect these ideas to Jung’s notion of the collective unconscious.

The last chapter in the book is also written by this book’s editor, Jayne Gackenbach, with Jim Karpen. Gackenbach’s background in the psychology of the Internet was noted earlier in this introduction but most of her professional life has been in studying the development of consciousness with a focus on lucid dreaming. To this end, she has edited or written four books on dreaming with two on lucid dreaming and has authored numerous chapters and articles on the subject. As well as serving as a past president of the International Association for the Study of Dreams and editing for 10 years a semiprofessional journal on lucid dreaming, her career hallmark was an invitation to present research into lucid dreaming to the Tibetan Dalai Lama at a conference in India on sleeping, dreaming, and dying. Her co-author, Jim Karpen, is an Associate Professor of Professional Writing at Maharishi University of Management, Fairfield, Iowa. His 1984 dissertation focused on the “digitized word” and anticipated some of the developments being seen today with the Internet. Over the past 12 years, he’s written hundreds of articles about the Internet that have appeared in newspapers and magazines and online. He holds an undergraduate degree from Maharishi International University, practices Transcendental Meditation, and has an ongoing interest in Maharishi Vedic Science and research on consciousness.

In this chapter, Gackenbach and Karpen first explain why consciousness develops, or perhaps evolves, by drawing on both historical literature and contemporary research. They then review research on how video game play is certainly affecting attention in heavy gamers, and possibly the potential development of consciousness, with their discussions drawing on studies done on this subject by Gackenbach and colleagues. They conclude that although interactive technologies may be affecting the expansion of consciousness in this way, it is not a substitute for a fully balanced life.

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1 Tibetan Buddhism considers the “lucid dream” a part of the process of the development of consciousness.
The broad perspectives of the authors in this book add up to more than the sum of their parts. The psychology of the Internet, how it changes us both as individuals and as a society, as well as how it reflects us, is a rapidly growing and fascinating field. It is the hope of the editor and the authors that this book will expand the view of its readers, teach them something, and inspire them.
CHAPTER 1

The Internet in Context

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Introduction
Our Collective Love Affair with the New—
Inventing the Self
Humans and Machines—An Ambivalent
Relationship
The Ambivalence Deepens
And Now...the Internet
Take a Lesson from Radio
Studying the Net
Summary
References

INTRODUCTION

The Internet has changed considerably from its early adoption by business and
the general public as a means of locating and exchanging information. These days
it is increasingly difficult to name a communication function that our email pro-
grams, web browsers, cell phones, MP3 players, and Internet games cannot perform.
We are daily “wow-ed” and often “cow-ed” by the seemingly endless shapes this
technology is able to assume. But whether delighted or dismayed, our individual
and collective responses to the Internet fall into recognizable patterns conditioned
by our historical relations to technology. This chapter examines these responses,
which are grounded in events that occurred over 500 years ago, but which con-
tinue to shape our attitudes to innovation, our belief in individual freedom, and
our uneasy relations with the machine. It also suggests that any critical perspective
on the functions that Internet technologies have played (or might play) in the new
media landscape must be informed by a clear grasp of communication history.
OUR COLLECTIVE LOVE AFFAIR WITH THE NEW

Communication technology's well-known ability to focus our attention on the present actually relies on a very old motif in western society. Neil Postman (1985) alerts us to the prevalence of this motif in his critique of television, *Amusing Ourselves to Death*. Postman claims that the two most insidious words of the twentieth century are "Now...this." Among other things, he warns us about the way modern media emphasize the present in order to deny history, connectedness, and cause and effect. He feels this insistence on the present dangerously short-circuits our ability to evaluate both the media and the information they convey. In other words, in a technologically induced "dumbing-down," the mass media encourage us to absorb and react, but not to think.

Whether or not we agree with Postman's assessment of television as the cause and intellectual and social decay as the effect, most scholars in the field of communication would agree that the "now-ness" of the telegraph, the newspaper, the telephone, radio, television, and the Internet has indeed affected the way we think about and use them. Nobody, it seems, is interested in last night's news or yesterday's war. In fact, few can even remember last night's news. And we all want (or feel obliged) to keep current. Postman blames this psychology of the contemporary on television, but historians of communication technology recognize that, far from being the purview of technology, now-ness is a common cultural motif that predates television by at least 500 years.

Seeing "now" as a positive value and "then" as irrelevant is an important theme of European society that can be traced back to the close of the Middle Ages. It has its roots in medieval humanism, a rejection of the model for living that was developed by the Roman Catholic Church over a period of ten centuries. Humanists refused to live as though today were of no importance, as though the only goal of man should be the afterlife. In doing so, they opened the door to the study of contemporary society.

The Renaissance, or cultural "rebirth," that followed the Middle Ages fundamentally altered the way Europeans saw the world: their gaze changed. And when they focused on the world around them, the world of the now, they chose to see it as a break with the immediate past. They began to value not only the new, but the new. They thought of innovation as progress. This revolutionary emphasis on the life we know, rather than on the life we aspire to after death is the touchstone of the modern age.

Like many new ideas about the world and man's role in it, these ideas generated chaos. For the next two centuries, Europe suffered a devastating series of wars. People in Protestant and Catholic towns laid siege to one another; soldiers and mobs terrorized the countryside, blowing up and pulling down the symbols of power and belief belonging to the rival faith. Indeed, during this period, one can be excused for observing that it did not pay to own either a church or a castle; sooner or later, they were likely to be reduced to rubble.
The pyrotechnics of the Reformation and the counter-Reformation eventually generated an intense desire for law and order. Many people were obsessed with taking this desire for peace, order, and decorum with them to a “new” place. By the mid-seventeenth century, the notion of “pure and undefiled” places and peoples was gaining prominence as a social and cultural ideal. Some people fled religious warfare and persecution to the so-called New World, where they established ideal communities. Indeed, they frequently inscribed their settlements with the word “new,” as if to ward off the excesses of the “old” world. Nova Scotia, New England, New France, New Orleans, New Norway, New Glasgow, New York… it is a long and idealistic list. Far from representing an historical anachronism, this proclivity of the inhabitants of the new world to seek for and, indeed, to mythologize the “new” is crucial to understanding the development and reception of the Internet and all its technological progeny. When first made available to the public, it was presented as a new way to store and retrieve information, then as a “pure and undefiled” place for the expression of free thought and, more recently, as the purview of the young.

While thousands of people braved the vicissitudes of emigration to the clean and peaceful shores of the New World, thousands more stayed behind in the smelly, contentious “old” world, trying to improve it by rising above factional fighting. Taking part in the transnational exchange of “new” ideas was one way of doing this. The new sciences tried to find universal laws that would explain the natural phenomena of the observable world. New and more logical systems of thinking were developed. New and more natural ways of educating children were proposed. On the eve of the Industrial Revolution, then, notions of a better world had come to be associated with innovation and with knowledge.

INVENTING THE SELF

When medieval humanists argued for the value of lived experience, they were really arguing for the value of the human. Rather than concentrating on abstract theological discussions, they preferred to study humans as part of the natural world, because they believed that “man is the measure of all things.” Their argument was given substance by the creation of the Protestant church, which formalized and gave authority to the concept of the individual. In effect, the Lutheran Church had eliminated a 1000-year-old function: the office of the priest. Individual believers could now communicate directly with God, without the intervention, or mediation, of a third party.

However, with individual freedom came individual responsibility. At first, this was understood as a spiritual task. Without the mediation of a priest, the individual needed to develop a personal relationship with the divine. The starting point was learning to read the Bible oneself. Humanism encouraged each person to seek truth everywhere, not just in sacred texts. Sophisticated methods were developed
for recording observations of both the external world and humankind. Eventually, this way of knowing the natural world, and humans as part of that world, came to be called the scientific method. It reified nature as constructed (and therefore knowable) and the individual as part of that construction. For example, medical discoveries about the circulation of the blood, especially about the heart as a kind of pump, led philosophers and scientists to describe the human body as just another kind of machine.

Then, as now, people felt it necessary to define how humans differ from animals, indeed how humans differ from machines. Were humans just an assemblage of parts? Surely, animals lack a soul. Surely, machines lack the spark that makes human-kind self-aware. When René Descartes proclaimed, “I think, therefore I am,” he was addressing this very question. For Descartes and many others since, it was this ability to be self-aware that defines the human.

Indeed, it is a question that has persisted, as evidenced by the many fantasy and science fiction books, movies, and Internet games that continue to explore the interplay between the animal, the mechanical, and the human. We still worry, for example, about how much time we spend with certain machines—especially those that appear to think or communicate. Will the machine become self-aware as well? Will the human take on machine-like attributes and therefore become less human? Theories of the Internet as a global brain serve as catalysts for this centuries-old fear. Ever since the Renaissance, western society has explored the notion that awareness of self is, somehow, a human trait. Furthermore, it is a trait that must be tempered by some sort of self-control: conscience, for example. The eighteenth-century response to this question was that individuals could voluntarily impose moral obligations on themselves in the form of duty. In so doing, they demonstrated both their individual freedom from the mechanical laws of nature and their worthiness to partake in society. In other words, through self-awareness and self-control, humankind could transcend Nature.

By the late eighteenth century, the dialectic between individual freedom and personal self-control would resonate throughout European society and the New World. The notion that humankind could have freedom of thought generated the notion that freedom itself was a human right which political states ought to respect and support. Laws were considered morally defensible if they represented the will of the people. The good citizen was therefore the person who accepted a moral responsibility to obey the laws formed by the majority. In the best of all possible worlds, this balance between freedom and responsibility at the level of both the individual and the state would sustain an enlightened society.

These were the ideals that sustained both the American and French revolutions. But nowhere were they more finely tuned to the political than in the United States, where the coprinciples of individual freedom and collective responsibility were enshrined in a constitution. These ideals were associated with the printing press, the technology that helped to spread them throughout the American
populace. A free and independent press became as much an ideal as that of the free individual. Today in the United States, this association between the technologies of thought and information and the intellectual and political freedom of the people is one of the most enduring conceptual links in the relations between humans and machines. When it works, it works very well indeed. The mythology of the Internet, for instance, echoes much of the mythology of America. Internet technologies are said to assist their users in maintaining personal and political freedoms, in seeking truth despite the obstruction of the powerful, in establishing and regulating their own democratic communities, and so on.

HUMANS AND MACHINES—AN AMBIVALENT RELATIONSHIP

The Renaissance invention of the “self” and the “new” supplies two components of the conceptual map for understanding society’s contemporary responses to the Internet. Over the last five centuries, in the New World, novelty and individual freedom have become deeply ingrained social values which, despite their desirability, must be balanced against society’s need for stability and control. Too much social change, too much individual freedom, can threaten social order. A consistent catalyst for tipping the balance between what society can accommodate and what it cannot is technological innovation.

The third component, then, of this conceptual map for understanding our relations with the Internet is the relationship of humans to the machine. Jessica Wolfe (2004) describes the deeply ambivalent attitude of western society to its machines. We believe that machines can improve many facets of our daily lives. The signature machine of the Middle Ages, the mechanical clock, is a good case in point. Like the computer, the clock at first seemed to offer many useful services to society. Gimpel (1977) describes the effects of the clock on medieval society. Astronomical clocks provided accurate measurements of the movement of the planets, the sun, and the moon. They allowed scientists and technicians (or mechanics) to collaborate in predicting the movements of tides. They served as complex calendars for saints’ days and for movable feasts, such as Easter. As a secondary and somewhat revolutionary function, these clocks also told the time accurately and reliably. Mounted in towers situated in town squares, mechanical clocks ordered and dominated public and private lives just as the Church once had. The clock was a significant factor in facilitating the changed gaze of the Renaissance away from eternity toward the here and now.

However, over the next two centuries, the mechanical clock assumed an unprecedented control over the human body. La Mettrie’s 1744 publication L’Homme-Machine compares the human body to an intricate machine that can be studied, controlled, and used as an instrument of power. In Discipline and Punish
(1977), Michel Foucault writes that, in eighteenth-century France, a new concept of discipline developed. It was modeled on monastic life, which was organized by the clock into seven offices or times of worship. This new mechanical model of social control manifested itself in the reorganization of armies into many ranks and subranks, using clockwork-like drills, in new methods of prison surveillance, and in new forms of keeping records on human activity.

Ordering and controlling soldiers and prisoners is one thing. But simulating God’s creative power is another. Our own contemporary concerns about computer simulation of human intelligence and the real world mirror those of eighteenth-century Europe during the craze for automata, clockwork toys that simulated real human beings. Gaby Wood (2002) writes that these were no mere dolls, but lifesized humanoid machines mounted on stands and displayed to the general public in elegant showrooms. They were, in fact, precursors to the robot. The early dolls, such as the two “boys” created by Pierre Jaquet-Droz in Switzerland in 1774, played musical instruments, smoked pipes, sketched pictures, and wrote with quill pens. They rolled their eyes and appeared to breathe. The Droz dolls still perform once a month in Switzerland. At the end of each performance, their bodies are opened to reveal the mystery of life within—clockwork.

Makers of such automata were often obsessed with making their dolls as lifelike as possible. De Vaucanson’s chess player, for instance, challenged human beings to beat him at chess; the machine rarely lost. But while its maker was alive, he experimented in covering his mechanical creations with real skin, and in trying to construct automata that could bleed (that is, containing real veins and arteries). Naturally, these machines generated awe for the wonders that mankind could create, but they also created anxiety. When Droz exhibited his dolls in Spain, he was imprisoned by the Inquisition for heresy. What would the Inquisition make of computers that can talk or that beat humans at chess? Of internet servants that “remember” your preferences in order to search for the best insurance prices for you?

Never quite alive and yet never dead, eighteenth-century automata, or imitations of life, raised fundamental questions about what life was and about how it could be created. Could humans really create life from inanimate objects? And if they could, did they dare? Mary Shelley’s Frankenstein (1818, 2003) was written in the early nineteenth century while she was visiting Switzerland. Whether she saw the Droz automata or not, her novel about the creation of artificial life must be understood within the context of popular concern about the nexus between the human, the mechanical, and the divine. It is a concern that has never left us.

Movies such as Terminator and Blade Runner and many other science-gone-wrong movies of the twentieth century are the direct inheritors of this latent mistrust of technologies that approximate the human. In the twenty-first century, we have been inundated by such movies. Increasingly, inspiration for such movies comes from Internet games, especially those that “learn” the players’ moves in each
round, so that the players “die” if they do not constantly learn how to “outwit” the game. Some movies, such as Lara Croft: Tomb Raider, simply make the game “come alive” by using flesh-and-blood actors to replace the computer-generated images of the game. Other movies ask complex questions about what is real and what is constructed. Will the virtual simulation become self-aware (Virtualocity)? Does the game really run through the bio-plug in a human’s back (Existenz)? Are humans really the creation of the Internet, merely supplying it with energy (The Matrix)?

Such cultural products are a good barometer for social concerns. We may embrace Internet technologies, but we worry about how close we get to them and express our fears in cultural forms ranging from music to print to film. Nowhere is our ambivalence stronger than in the workplace. Ursula Franklin (1990) writes that the eighteenth-century fascination with regulating and controlling human bodies developed into “the factory system [which], with its mechanical devices and machines, only augmented the patterns of control. The machinery did not create them. The new patterns, with their minute description of detail, their divisions of labor, and their breakdown of processes into small prescriptive steps, extended quickly from manufacturing into commercial, administrative, and political areas.” (p. 60)

The new division of labor in industrial society meant that people had less control over the product of their work and less control over their own bodies. The sense of individual power that had been generated by the notions of humanism had changed to one of powerlessness. It is common to lay the blame for this changing relationship between humans, progress, and technology on the Industrial Revolution. But, as Franklin points out, these changes were part of social patterns that had existed for centuries in Europe. She writes that, although “the eighteenth century exercised control and domination by regarding human bodies as machines, the nineteenth century began to use machines alone as instruments of control” (p. 62). To factory owners, machines seemed more predictable and controllable than people. They were therefore more than willing to eliminate those workers who could be replaced by machines and equally willing to force the remaining workers to work like machines.

THE AMBIVALENCE DEEPENS

From the nineteenth century onward, the relationship between progress, technology, and the individual has become increasingly problematic. Despite the speed of technological innovation in the twentieth century, western society is still in love with the idea of now-ness; our vocabulary is fairly littered with terms such as breakthrough, groundbreaking, and cutting edge. As a society, we still treat the new as a break from the past; we still equate it with progress, and we still act as though
progress will bring us a better world. We feel both a financial and moral imperative to embrace the new. But we are also haunted by the effects of the technology on the individual and society as a whole. We feel it divorces us from nature, that it prevents us from knowing ourselves, that it controls our lives.

In *The Spirit of the Web: The Age of Information from Telegraph to Internet*, Wade Rowland (1997) writes that the more complex society becomes, the more necessary it is to develop methods of maintaining control. Communication and broadcast technologies are designed to do just that: they control people within a context of compliance. In all technologies of mass communication except the telephone, the Internet, and some forms of radio, the communication is organized in one direction, with only the illusion of contribution and control by the audience.

Franklin agrees that technology in general and communication technologies in particular are not neutral, but catalysts for control. She claims that technology is usually introduced to the general public in two stages. In the first stage, the technology is an option for the wealthy, the specialist, or the enthusiast. It often appears to be liberating; its promoters claim that it will free users in some way or make their jobs/lives easier. There is frequently an attempt to make the technology appear “user-friendly” in order to calm fear of the new. User communities such as clubs and specialist magazines are established. In this early phase, the users who have chosen the technology feel a strong degree of control. Franklin uses the introduction of a range of technologies as examples of this process: the automobile, TV dinners, the sewing machine, baby formula, and the computer.

The next phase in the introduction of new technologies is the introduction of infrastructure. As the new technology becomes more broadly accepted, its use becomes more necessary, if not mandatory. She points to the development of the sewing machine. In 1861, the sewing machine was advertised as a great liberator for women. No longer would they have to ruin their eyes hand-sewing their family’s clothing. Once employers realized the speed at which these new machines could accomplish the task, a factory system was organized, operating a sewing machine became a requirement for the seamstress, and the slavelike conditions of the garment trade were the result. In the second stage, people become “captive supporters of both the technology and the infrastructures” (p. 97). The infrastructures themselves, she writes, are developed so that the technologies are easier to use and so that people will “develop a dependency on them” (p. 102). Freeways are an example of infrastructures that support a dependency on the automobile.

Franklin and Rowland remind us that the introduction of communication technologies has followed the general technological pattern outlined previously. From the telegraph to the radio to the Internet and CD-ROM, most communication technologies were developed first for military and then for commercial use. In most cases, governments have enabled, constructed, or maintained the distribution networks for these technologies in concert with a commercial monopoly (or at
least a very restricted competitive field). They are therefore deeply implicated in the effects those technologies have on society, even though they may take pains to assume a neutral, or regulatory, distance from the technologies.

AND NOW . . . THE INTERNET

The introduction of the Internet seems to follow the two-phase pattern outlined by Ursula Franklin. It was developed in response to a strategic problem posed to an American think-tank, the Rand Corporation, during the 1960s. How could government keep informed and maintain order in the United States after a nuclear war if conventional communication technologies were destroyed? The answer was to create a networked system with no central control, which was so redundant that it would not matter if part of it were destroyed.

As a military response to the Cold War, Internet technology was the purview first of the army and then of the universities. In 1969, four universities with Defense Department contracts were connected to the network. By 1972, there were 37 nodes on the network. As the number of users multiplied, the network began to change. Originally designed as a computer-sharing network, the Advance Research Projects Agency, or ARPA, had become a post office for personal messages and a conferencing center for researchers to discuss their work and collaborate on projects. The enthusiasm for this new system of long-distance communication was catching. People worked in their spare time to devise software that would make the Internet easier and faster to use. Since the early users were academics, their goal was to develop a free network with publicly shared information. Eventually, the network became so clogged with this university traffic that the military moved to a new network of its own.

Despite the enthusiasm of gifted "amateurs," the Internet remained a hobby of the philosopher-technicians of the universities until the 1990s, when its information-sharing and communicative functions attracted the interest of corporations and then of the general public. Now, most employees no longer have a choice in whether or not they use the Internet—it is a condition of work that they use e-mail and share files. As citizens, students, and customers seeking services from governments, schools, and corporations, they are increasingly directed first to online forms and resources. Paper alternatives are gradually being withdrawn. In short, if people do not participate in online activities, they feel excluded or powerless or, at the very least, out of date. Somehow, the revolution has passed them by.

How do we understand what has happened to us personally and culturally since the introduction of the Internet in the 1990s? How do we balance our culturally conditioned attraction to the novelty of the Internet against the seemingly never-ending newness of the thing? There's no rest from it: it continues to change. How do we measure the purported individual freedoms of the Internet against
increasing external requirements to use it? Do we willingly embrace a technology that offers endless access to unorganized information, intimate psychological contact with millions of strangers, or health advice to technology addicts?

One way to gain perspective on technological innovation is to examine its cultural context. Another is to review the documented ways in which governments and corporations introduce and legitimate new technologies. A third way is to discover how the innovation has been incorporated into language and consciousness. Just as the mechanical clock became the principal metaphor for the modern age, the Internet seems to exhibit a powerful hold on the language and imagination of the postmodern age.

The degree to which a technology has affected the public imagination is evident in the kinds and numbers of stories that are told about it. They are an indication of its cultural strength. Legendary tales about early technicians and entrepreneurs are common to all technological innovation, but those about the “heroes” of the Internet are everywhere. Will they last? It is difficult to say. Among the many people involved in developing the printing press, we still remember Gutenberg; for the radio, Marconi; for the telephone, Bell. But who remembers the originators of television? We are all familiar, for example, with the success story of Bill Gates, who parlayed technical wizardry and ambition into a digital empire. Will his name be the one that remains? Perhaps.

Because the history of the Internet is so recent, we can still retrieve endearing lore about the nameless male graduate students, for whom the early Internet was full of limitless opportunity for exercising individual freedom. By 1986, Usenet (Unix User Network) was so large and unorganized that network administrators tried to restructure it, separating serious academic discussions from casual chat. Administrators proposed seven functional categories: computers; miscellaneous; news; recreation; science; society; and talk. “The last of the groups, ‘talk,’ was designed as a repository for all the unsavory, salacious, politically incorrect, and socially psychotic newsgroups that has appeared like banana slugs among the Usenet flora” (Rowland, 1997, p. 303). Gathering this activity into one spot on the Internet was an indirect attempt to manage or censor the Internet. It didn’t work.

Rowland writes that the result of the “Great Renaming” was a flame war. Users felt that any attempt to organize and control the medium violated its democratic and nonjudgmental character. Their response was to subvert the attempted reorganization by proposing two new groups under the rec category: “rec.sex” and “rec.drugs.” Although most users voted by e-mail to accept these two new groups, the Internet’s volunteer administrators refused to create them. In answer to this refusal, the dissenting users created “alt.sex” and “alt.drugs” themselves and, just to round things off, “alt.rock-n-roll.” It had become clear that no one had any real content control over this new medium. It’s a wonderful story with a “Wild West” tone reminiscent of New World passions for the “new” and uncontaminated.
Will such stories survive in the popular imagination? How tied to American cultural ideals such as individual freedom and democracy are they? As the Internet loses its newness, as it matures into a regulated and somewhat tarnished vehicle for any number of private and public interests, will these narratives seem irrelevant? Will utility overcome idealism?

There is no doubt that the Internet has produced its own heroic culture. But most of its users are not part of the privileged inner circle. How does the multiplicity of the Internet's users understand the new technology in their midst? Language often holds the clue. New technologies borrow words and phrases from other aspects of daily life in order to describe their own character and function. When airplanes were invented, for instance, they were first understood as "airships." This is the reason that planes are flown by "pilots" and "co-pilots." It is why they have "captains," "pursers," "stewardesses," and "navigators." And it is why, when a plane rolls to a stop at an airport gate, it has "docked."

The Internet began by appropriating existing terms from other paradigms. Until the Internet, for instance, a word association game might have yielded the results contained in Table I.

As a technology becomes more widely used and more culturally entrenched, it can become its own paradigm. Had we added the word "google" to our pre-Internet word association game, the audience response would likely have been "What?" Had we added "connectivity," the response might have been, "Do you mean 'connection'? 'Connectivity' isn't a word."

Such lexical indicators can point the way to more general, guiding ideas about what a technology is and what it does. Once more, metaphor points the way.

**TABLE I**

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<th>Pre-Internet Word Association</th>
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<tr>
<td><strong>Word</strong></td>
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The Internet is too new to have had the clear metaphorical impact on society that the mechanical clock had in Renaissance Europe. But we can discover how society has been trying to understand the Internet by analyzing the metaphorical hats proposed for it during its introduction to the general public.

The first of these, and probably the most widely remembered, is that the Internet is a kind of highway that carries information. The life of this initial metaphor can be quickly and informally followed by employing the search term “Information Highway” AND “Internet.” For the purposes of this essay, the academic database, Expanded Academic ASAP was used. This particular database contains articles and chapters from newspapers and popular magazines as well as from scholarly journals and books across many disciplines, so it provides a broad range of public and professional perceptions of the new technology.

The first published article addressing the Internet as an information highway appeared in this database in 1992. The following year there were 6 articles; in 1994, 114 articles; in 1995, 73 articles; then 40, in 1996. By 1999 (only seven years after its first appearance), the articles had dwindled to fewer than 6 per year, which remained the trend into 2004.

Clearly, an initial use that had been envisioned for the technology was almost immediately rejected as inadequate. Nevertheless, “highway” was a metaphor that was easily understood. Titles from these articles play artfully on what a highway is: open road, busy signal, access, exits, gutter, trip, online lane, bypass, way station, maps, lights dim, fast lane, cyber-route. Articles located using this metaphor also muse on what the human experience of a highway might be: lurking danger, hitchhiking, roadblocks, death en route, potholes, new frontier, roadkill, blazing trails, stay off the highway, student drivers. Evidently, the information highway was perceived as an adventurous, yet likely dangerous, place to be.

Most of the articles from 1994 address issues of capacity-building. They ask whether governments could raise the necessary money to build infrastructure and whether schools could keep up with the technology. In other words, the information highway metaphor seems to have been of most interest to institutions. It fits the parameters of their concerns over policy and program. It seems that, once the logistical problem of actually building the information highway had been solved, the term died.

A second metaphor, that of “cyberspace,” coexisted with and outstripped “information highway” in its frequency of use. But it suffered an equally meteoric rise and fall in popularity. Beginning in 1993 with 13 articles and rising quickly to 97 in 1994, “cyberspace” balloons in popularity for the next 3 years, with 246 articles in 1995, 260 in 1996, and 183 in 1997. By 2004, the use of this metaphor had dwindled to 28 articles. Unlike “information highway,” which had its genesis in the administration of American president, Bill Clinton, the term “cyberspace” was the invention of novelist William Gibson. The term first appeared in The Neuromancer (1984, 1995). Heir to MIT experiments of the 1940s in cybernetics, the term “cyberspace” is evocative of an early reaction to the potential dangers of
the Internet. In Greek, cyber means "control" and "space" provided a description of where the Internet might be found. In fact, the term "cyberspace" makes the highway metaphor look positively antiquated.

Controlling this new space, where many unforeseen things were occurring, was a new concept. After the heady Wild West show of the early Internet, control seemed like a good idea. And control could be exercised across the full range of its users. Unlike "information highway," the "cyber-" adjective is applied to almost every aspect of online activity: education, business, personal relationships, citizenship. On a grammatical level, the term can be widely applied because it is an adjective. However, it works as a metaphor because of widespread contemporary fear about the effects of the new technology. Every society needs to establish its level of comfort with individual freedoms, and early on in the history of the Internet, concerns were being voiced about how wild and free society could allow the Internet to be.

The titles of the cyberspace articles indicate strong concerns with impending social and moral chaos: dissent, kiddie porn, losing souls, computer gambling, hack attacks, exposure. And they are replete with phrases that indicate what to do about that chaos: crack down on dissent, First Amendment in cyberspace, disinfect computer bugs, self-appointed cops, intelligent decisions, regulating cyberspace. A preponderance of the titles contain the words "law," "control," "order," and "regulation."

The third early metaphor for the Internet is "virtual." The notion of the Internet as a technology that imitates reality seems to have occurred later than the first two. The number of articles on the "information highway" peaks in 1994–1995; and those on "cyberspace" in 1995–1996. Articles found using "virtual" AND "Internet" reach their peak in 1997–1998, although they surface in the early 1990s as do the other two. Even so, by 2004 the number of articles employing the "virtual" metaphor dwindles to 72.

"Virtual" seems to have appealed to yet another need in the community of Internet users and with differing intensity. A total of 187 articles appears at the height of interest in the "information highway"; slightly more than twice that amount, 506, appear at the height of popularity for "cyberspace." But, nearly double that number, 964, can be found at the apex of popularity for "virtual." Which seems odd, since "virtual" is an unlikely candidate for a borrowed metaphor. By definition, it does not call up any associations at all. It may be that, with "virtual," writers were beginning to find a metaphor that more clearly described what the technology was actually like. This seems a reasonable assumption, since the overwhelming use of the metaphor in the database articles was for communication. That is, "virtual" connoted the ability of the Internet to provide "real-seeming" communication. Most of these articles concern themselves with the need for safe, effective communication and focus on such technical aspects of Internet communication as bandwidth and encryption.

Prior to 2002, an interesting subset of these articles employs "virtual" to simulate the visual. Art galleries, museums, libraries, publishers, and schools use "virtual" in order to represent cultural artifacts or to guide students through visual
experiences. After 2002, a number of education- and health-related articles appear but, by then, the metaphor was on the wane.

Clearly, these three Internet metaphors had run their course by 2004 and no others seem to have taken their place. This is significant for the history of the Internet. Metaphors for technical innovation come and go. Their use indicates a need to understand a new and dynamic event. They remain in use until they feel outdated or inappropriate, or until the technology has become so familiar that it no longer requires perceptual aids to understanding. The history of communication technologies suggests that this “new” technology has taken its place in the long chain of innovation that stretches from the Renaissance to the present day.

**TAKE A LESSON FROM RADIO**

The speed at which the Internet has developed has taken us by surprise. But it shouldn’t have; it has all happened before, with radio. We have forgotten, because we were too focused on the now-ness of computer technology. So, although Wade Rowland writes that the Internet is a “technology without precedent,” he actually devotes six chapters each to the radio and the Internet, making clear allusions to the parallel ways they have affected us as individuals and as social beings. By drawing our attention to the historical connections between radio and the Internet, Rowland tries to remedy the effects of now-ness. He argues that when we study the mass media, we must pay attention to the past, or seriously risk misunderstanding the social role of each new medium that comes along. If we look at the Internet, then, as a two-way, long-distance communication technology that is readily available to the general public, radio provides the first model of how such technology affects society. But when we study the early history of radio (when it was actually a two-way interactive medium), we discover an interesting fact: within 20 years of the invention of radio, infrastructures had been set in place to take control out of the hands of the average person. It had become the one-way technology that we know today. Although it is the boast of Internet users that they have so far resisted such attempts by government and industry and that, technologically, such control is impossible, the history of communication technology argues otherwise.

Like the Internet, radio began as a communication tool for military use that soon attracted the interest of both commerce and highly trained enthusiastic amateurs. In Europe and North America, radio was used by the navy and the shipping industry for long-distance maritime communication. As with the Internet, the first users of this new

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1 We will not consider the telephone here because long-distance telephone use was, for many years, both difficult and expensive for the average person. In addition, after the first few years of its existence, the telephone carried only personal and business messages, a much more restricted range than those carried by radio and by the Internet.
technology were highly skilled young men working in privileged positions. And, also as with the Internet, the new technology soon developed a cachet. By 1908, it had become a subculture for boys and young men, complete with its own legends and heroes, its own jargon and conventions. Unlike the Internet, two-way radios were cheap to buy and easy to build for any young man with a little expertise and a few dollars. But otherwise, the parallels are remarkably similar. Radio clubs and magazines sprang up. Radio was seen as an adventure. In 1909, when the S. S. Republic was making its way along the American Atlantic coastline, it hit the S. S. Florida and began to sink; it was the ship’s wireless operator, Jack Binns, whose emergency signal saved the day. Jack Binns became an instant hero.

The virtual nature of both media is important to note. At the turn of the twentieth century, the airwaves offered young boys and men an unlimited virtual land for exploration and adventure. When they tuned in, they never knew where they would be, what exciting discovery they would make, who they would meet, what strange events they would witness. They never knew when their turn would come to save lives. As with the Internet, the use of pseudonyms and the mode of delivery was a great leveler. Radio reduced age, race, and class (but not gender) to the one important qualification: enthusiasm. A community of worldwide radio users developed very quickly. But, almost as quickly, the airwaves became chaotic and crowded, even dangerous. It was difficult to ask anyone monopolizing the ether to give way to others. Each user felt he had the right to speak out as a citizen of the radio world.

Whereas the Internet was originally meant to maintain government control after the disaster of nuclear war, radio was originally meant as a life-saving device after disaster at sea. But the irresponsible and uncontrolled use of it was often blamed for disasters like the sinking of the Titanic. Navies and shipping companies demanded that the airwaves be regulated and that the technology be forbidden to the general public. Bit by bit, regulations were imposed. Interestingly enough, the first blow to the independence of radio was struck with the declaration of war. During World War I, governments in Europe and North America reasserted their power over long-distance communication technology by forcing all civilian users to turn in their equipment as a security measure.

After World War I, governments began to realize the commercial gain and political control that could be achieved by using radio. They worried about who could use the powerful medium and to what purpose, because radio also had considerable subversive potential. Then, as now, attempts to censor radio through government control varied. In Britain, private radio was outlawed and the responsibility for radio was passed to the post office, which regulated the telegraph and telephone systems. In Canada, private radio stations and networks were operated by newspapers, universities, railroads, and other commercial companies. The distribution system generally followed that developed by the telegraph companies and was therefore largely controlled by American firms. After the War, the Canadian

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2 As with most technological innovation in communication, early development and use was a male pursuit.
government became increasingly concerned about the threat to Canadian culture from predominantly American programming; so it instituted the Canadian Broadcasting Corporation (the CBC), a public broadcasting system similar to the British Broadcasting Corporation (BBC), but in competition with private radio.

By the late 1920s, the twin forces of commercial greed and politics had turned radio into a one-way, heavily regulated voice of authority where the former users/operators had become listeners/customers (for private radio) and listeners/citizens (for public radio). Time will tell whether the users of the Internet will suffer the same fate. But the social tensions between individual and corporate and governmental interests are already apparent. The now famous shutdown of Napster and the subsequent (re)negotiation of music rights on the Internet is a case in point.

The exponential growth of the Internet amazes us, as though it were a single event in social history. But such rapid growth also has happened before. Despite governmental control over the use of two-way radio, ordinary people remained profoundly optimistic about the new medium. In the United States alone, 100,000 sets were sold in 1922; the next year, a half million (Babe, 1989, pp. 69–70). Like the Internet, radio was felt to represent the voice of the people. Radio became the main way that most people received their news. It was simply the fastest method of transmitting the news to the greatest number of people. (It probably still is.) What is more, people believed the news they heard on the radio. Radio news reports were often read right off the telegraph wire service, without the interpretation or editorializing that was common to newspapers. The medium began with small local stations employing young reporters, whose voices radiated enthusiasm and sincerity. When the airship Hindenburg crashed in 1937, the sobbing reporter cried, “Oh, the humanity!” as he broadcast live from the scene, and this had the immediacy of lived experience with which no newspaper could compete. Radio gave people in urban and rural areas equal access to information. Women could listen to it without leaving the home. Children could tune in after supper. People felt they had power in their ability to “surf” the airwaves, changing from one channel to the next. Radio felt like the “people’s medium” long after local stations had been gobbled up into national networks and long after the invention of television. The strong attachment that many people now feel toward their involvement in Instant Messaging and MSN communities is a latter-day incarnation of this vox populi.

The personal connection that people felt with radio was generated partly from the nature of the medium itself. The invisible “waves” were magical and frightening at the same time. Our reactions to the Internet today are not dissimilar. There is about the Internet, as there was about radio, an aura of the unknown and the forbidden. The virtual connections made between people and ideas impart an almost spiritual quality to both media. The many sites on the Internet devoted to religious and spiritual concerns are a testament to how strong this aspect of the Internet experience is. With both the Internet and radio, our imaginations are seduced by
the notion of the intangible; we can reach out into the “ether” and construct any reality we want. Churches recognized this aspect of radio from the outset and were quick to broadcast sermons, educational shows, children’s hours, and choral music.

To this day, churches have extensive radio networks around the world and are now equally active on the Internet. But, although radio might provide spiritual comfort to some, it was profoundly disturbing, even thrilling, to others. In the 1920s and ’30s, the virtual nature of radio complemented a strong parochial interest in spiritualism and the otherworldly. So, radio became a natural companion to the ouija board, the séance, and the substantial book trade in science fiction.

Popular magazines in the 1920s are filled with articles about the frightening possibilities of radio. The comments sound remarkably contemporary. When we ask ourselves whether the Internet has become some sort of “global brain,” we participate in an intellectual paradigm that is nearly a century old. “We are playing on the shores of the infinite,” wrote Joseph K. Hart in 1922. “Man has his fingers on the triggers of the universe. He doesn’t understand all he is doing. He can turn strange energies loose. He may turn loose more than he figured on; more than he can control” (p. 949). Waldemar Kaempffert was equally in awe of the possibilities of radio: “You look at the cold stars overhead, at the infinite void around you. It is almost incredible that all this emptiness is vibrant with human thought and emotion” (1924, p. 772).

Radio was connecting humankind to the cosmos. What if there were other voices out there besides our own? In 1919, Marconi himself had announced that his operators were picking up signals that did not originate on earth. Nicola Tesla and other scientists thought that signals might be coming from Mars. Articles such as “That Prospective Communication with Another Planet” (Tesla, 1919) in Current Opinion, “Those Martian Radio Signals” in Scientific American (1920), and “Can We Radio a Message to Mars?” in Illustrated World (Walker, 1920) give some indication of how radio was changing perceptions of the relationship between humans and the cosmos.

The panic caused in the eastern United States by the 1938 Orson Welles’ broadcast of the “War of the Worlds,” a dramatized invasion of earth by Martians, was the culmination of radio’s two-decade flirtation with the ineffable. But this broadcast was also a turning point in the credibility of radio as a medium of truth. Welles had deliberately misrepresented science fiction as though it were a news report. Americans had been conditioned to listen to “news flashes” about invasions in Europe; some of them, therefore, believed the news flash about a Martian invasion. Welles had broken a truth convention and the ensuing public outcry revealed how betrayed the public felt. Today, we are ambivalent about the new people’s medium, the “Net.” When someone tells us, “I found it on the Net,” we are still powerfully compelled to accept and believe. On the other hand, we know that there are no guarantors of truth value for anything on the Net. In both cases, this diminution of truth value has affected the power of the medium to stand against “official” truths.
But we can define “people’s medium” in other ways. When we link mass media with notions of democracy, we link the people with the notion of official truth. In Britain and Canada, and in the early days of state-supported RCA (Radio Corporation of America) in the United States, radio was welcomed as a tool for educating citizens in the liberal arts, in matters of health and hygiene, in history and politics. Radio presented its listeners with opera, folk music, popular music, and symphonies; documentaries, readings from history; short stories, poetry, and children’s literature; forums, speeches, sermons, and debates; fine drama and comedy; helpful hints and advice. In short, governments saw public radio as a cheap, effective tool for educating its citizens; in many remote locations, children and adults took their schooling over the airwaves. For governments, radio was also an excellent tool for strengthening both nationalism and acceptance of regional diversity; at home, radio could create a sense of solidarity against the foreign; abroad, it could bolster an empire. In Britain and in Canada, the BBC and CBC, respectively, were used for exactly those purposes from the 1930s onward. Today, governments share the Internet with individual citizens in providing useful information about its programs and services, in promoting national ideals, and so on. But there is no way of really knowing who has created any of the sites we encounter.

In the U.S., where commercial radio quickly outmaneuvered public radio, the educational function of the technology was soon lost. Radio became little more than a medium of entertainment. This shift worried educators and government officials alike. Radio, after all, was in every home and no one could actually control what came over the airwaves. Now that more and more homes are connected to the Internet, similar concerns are being voiced about this new technology, especially about violent, pornographic, and hate sites that might affect young children. Educators then and now were worried that communication technology was producing an illiterate public who would rather give themselves over to mindless enjoyment than read a good book.

In a 1924 article that could have been written yesterday about the Internet, an enthusiastic parent wrote “It’s Great to Be a Radio Maniac.” In it, he claimed that radio had made his son more informed and more manually dexterous. Radio “gave everyone the chance and the impulse to learn to use his brains.” Eventually, it would “level the class distinctions, which depend so largely on the opportunity for information and culture” (O’Brien, p. 16). In our own times, we are daily presented with the notion that the Internet will eliminate the traditional classroom and the need for teachers. Like so much in the history of communication technology, this prediction has a familiar ring. In Radiating Culture, Joseph Hart (1922) envisioned students galvanized “by a single inspiring teacher who speaks to the thousands of revived students through a central radio-phone. A whole nation of students might thus come under the stimulating touch of some great teacher” (p. 949).

But the uncritical enthusiasm with which society first greeted radio soon gave way to grave doubts about its negative effects. After the rise of private radio in
the United States, dozens of scholarly books were written, from the late 1920s into the 1940s, studying the ways in which the new technology was reshaping personal relationships, the structure of the family, the literacy of children, and the ability of people to think critically and express themselves clearly. We have only to pass by the shelves of any bookstore to see this whole process repeating itself with respect to the Internet.

Belief in the ability of radio to improve political life was also short-lived. At first, people thought that a better informed public would demand that its politicians be sensible and accountable. In How Radio is Remaking Our World, Bruce Bliven (1924) argued that it was easy for a politician to take advantage of a crowd by appealing to its emotions instead of its intellect. But, the new medium of radio would prevent that, since people listened to radio as individuals. Listeners would therefore take the time to reflect. And since radio had so many channels, it was possible for people to hear many more politicians than they would in person; this would give them the chance to compare and contrast the messages before deciding with which they agreed. This opportunity to encounter information individually (and asynchronously) from multiple sites is also an argument for the democratic power of the Internet, if the medium remains as a free forum for all ideas.

Even with these assurances, governments in the 1940s were nervous about the power radio seemed to have in swaying people's voting patterns and about the access radio gave to unprincipled politicians and foreign powers. Could radio reshape its audience into an uncultured, unthinking mob that could be easily manipulated? In his book, Radio and the Printed Page (1940), Paul Lazarsfeld, one of the leading communication scholars of the day, outlines the real fear for American authorities. Nazi radio propaganda had essentially put Hitler into power during the 1930s in Germany; Nazi sympathizers were broadcasting from within the United States, and the American government was regretting its loss of control over radio at home.

"By the grace of history, this country has been left time to solve some of the problems which have precipitated chaos in Europe. We ought to use this time to understand what social forces are operating and to adapt our thinking and our way of life to a greatly changed situation." (p. xvii–xviii)

Lazarsfeld's observations are as salient today as they were during World War II. Examples of terrorist use of the Internet in the 1990s demonstrate yet again that anyone with an agenda can use communication technologies for subversive purposes. But, what is interesting to note about Lazarsfeld's comments is that radio did not produce a nation of illiterate zombies who could be easily controlled by those in charge of the communication medium.

Radio historian Susan Douglas (1999) writes that radio "is arguably the most important invention of the [twentieth] century" (p. 9). She makes this claim, in part, because of the way in which radio prepared its audience for the technologies that were to follow. But her contention is based on a fundamental belief that radio is
the ultimate interactive technology that has never stopped adapting to its cultural and political contexts.

"Because radio has taken so many forms over the century and is such a flexible, adaptable, and relatively inexpensive technology, it has been used both to buttress and to challenge the economic, political, and cultural status quo in America. It has been neither the particular technical qualities of the device nor the people's goals and ambitions but rather the often unstable, unpredictable marriage between the two that has determined radio's relationship to social change." (pp. 20-21)

STUDYING THE NET

As a society, we pay a price for devoting so little attention to our own technological history. Part of that price is that we regularly confuse the difference between one-way and two-way communication technology. And in so doing, we misunderstand the dynamics between people and new technologies. So, the now-ness of the Internet is part of an historical trend that prevents us from connecting it to similar developments and effects in the recent past. This is especially the case because, unlike other communication technologies, the Internet has developed like magic before our very eyes. The speed and nature of this metamorphosis is both fascinating and terrifying, depending on how we situate ourselves with respect to change and computer technology. If we are not rhapsodizing daily about each new Internet application, we are worrying about its effects on us as individuals and as a society.

When we do turn from wonder to analysis, we are often most concerned with the effects of communication technology on society. In general, such analysis takes three broad theoretical approaches. The first falls under the heading of technological determinism, which examines the ways in which technology shapes society. The second approach tries to counter the first by looking at how people use the technology. The third analyzes the historical contexts in which technology develops.

If we look at the Internet from the standpoint of technological determinism, we assume that technology affects all patterns of human activity and that changes to technology constitute the single most important changes in society. Each technology has certain inherent characteristics that direct its use. In fact, any given period of history can be defined by the technology in use at the time. The two communication theorists most often associated with technological determinism were Harold Innis (1950) and Marshall McLuhan (1967). Innis is best remembered for his original observation that each technology alters the relationship that its users have with time and space. McLuhan's work first explored the notion that the form of technology is more significant than its content.

When studying the relations between society and the Internet, a determinist perspective might lead us to claim that ours is now a digital society; that the ways
we think, act, and interact are governed by the ways we communicate using networked digital technology. Certain words and phrases from the technology make their way into our vocabulary, reshaping the way we see the world. Certain modes of communication are opened to us and others are closed because of the dominant technology. Extreme points of view on technological determinism, like that taken by Jacques Ellul (1964), would argue that technology has even taken on a life of its own apart from human agency. Ellul is perhaps the most important proponent of the notion that technology is out of control. He would claim that the technological creations of humankind have a willful, self-determining quality of their own. “At the present time, technology has arrived at such a point in its evolution that it is being transformed and is progressing without decisive intervention by man” (p. 85). Many would make similar claims about the Internet.

Technological determinism takes little account of social context or individual action. So, a second way of analyzing the effects of communication technology is to take a “uses and gratifications” approach. Social psychologists and communications scholars often employ this theoretical framework as a means of balancing technological determinism with human agency. Uses and gratifications adopts the stance that people can choose to use technology or not, or even to adapt it to their own needs. This way of examining the relations between technology and society explores first the types and levels of human needs and then the ways in which we try to satisfy them. Scholars who use this approach to study the Internet might argue that the technology is a useful tool for increasing the amount and kinds of personal interactions we have all enjoyed using, for example, telephone technology: that it saves us time, or that it allows previously disadvantaged individuals to have personal relationships that are otherwise not possible.

Joe Walther’s “Social Information Processing Theory,” first formulated in 1992, is a good example of early attempts to understand interpersonal communication on the Internet. He developed the theory in rejection of the determinist stance that claimed such communication was inferior to face-to-face communication. In the years since he proposed the SIP framework, Walther (Walther & Parks, 2002) has discovered that computer-mediated communication is far more complex than he first assumed; he is now reexamining his original framework to accommodate a decade of research. Walther’s case is not unusual. Theories addressing the uses and effects of communication technologies must remain supple enough to incorporate new knowledge. In fact, he now calls his framework a perspective rather than a theory, partly because our psychosocial experience of the Internet is changing too rapidly for theory to be reliably predictive.

Other theorists have been more concerned with the uses that specific groups make of the Internet. In recent years, Cheris Kramarae has extended to the Internet the notions of “Muted Group Theory,” which examines how women are disadvantaged because language (and its technologies) are male-dominated. According to Kramarae (Taylor & Kramarae, 2004), the Internet is still the purview of men and
of those women who can afford to be online. The true potential of cyberspace will not be realized for women until computer terminals are readily available in shelters for the homeless, in laundromats, daycare centers, and so on.

A third approach to studying new technologies focuses on the various contexts in which the technology is introduced and employed. Both Franklin (1990) and Rowland (1997) take this approach when studying technology. They maintain that technology does not fall from the sky fully formed. It is developed by individual societies for particular reasons. Once it is in use, it has a complex relationship with that society: technology affects and is, in turn, affected by the social, technological, and political context in which it is used. This approach sees the Internet as a participant in the history of technological developments, rather than as a sudden and inexplicable arrival.

Since the Internet is such a recent arrival on the technological scene, appears to incorporate so many previous technologies, and continues to evolve, communication theorists have been slow to construct frameworks that describe and explain this new phenomenon. The starting point must be to situate the Internet within the history of communication technologies. One useful such attempt is that of Jay Bolter and Richard Grusin in *Remediation: Understanding New Media* (1999). Like Ursula Franklin, these authors argue that the new media are best understood not as unique technologies, but as developments from older media. Their theory of new media claims that all communication technologies refashion, or "remediate," previous forms, while negotiating space in the existing technological landscape. But the "landscape" is not passive. Their theory also explains how preexisting media resist, imitate, or accommodate the new.

Although all three of these approaches may be used separately, we frequently combine them, especially when trying to account for the introduction of a new technology as complex as the Internet.

**SUMMARY**

Internet technologies seem to have taken linguistic and narrative hold in western society. The myths of origin are in place. An Internet-specific lexicon has developed. The metaphors that bridged old and new technologies have served their purpose and been discarded. The second phase of technological innovation outlined by Ursula Franklin (1990) seems to have been achieved: infrastructures have been constructed and Internet use has become more or less compulsory. Remediation, as posited by Bolter and Grusin (1999), seems to be ongoing. Internet technologies have adopted the shape and functions of several preexisting technologies; radio is one example. And other technologies have taken on attributes of the Internet in order to survive; television comes to mind.
The tentativeness of theory-making with respect to the Internet reflects its relative youth and continuing growth. Joe Walther's (2002) reluctance to use the word "theory" for his own attempts to develop predictive mechanisms for the Internet is indicative of the historical moment we all occupy with respect to this particular technology. His is an honest admission that our intellectual engagement with Internet technologies needs to be as open and fluid as the technologies now are.

REFERENCES


O'Brien, H.V. (1924, Sept. 13). It's great to be a radio maniac. Collier's, 74, 16.


CHAPTER 2

Children and the Internet

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Introduction
What are Children Doing on the Internet?
Concerns
Becoming “Internet-Wise”
References

INTRODUCTION

The Internet is a vast virtual environment. Children can access a wealth of information on subjects ranging from acne to zebras. They can communicate with others from around the world, sharing their experiences and interests while breaking down cultural barriers. They can listen to music from around the world, watch award-winning public service announcements, and play games that test their skill and coordination. Children can also access pornography, hate, and terrorism. In addition, children are vulnerable to sexual solicitation and predation and cyberbullying and harassment. How do we help them access the cognitively and culturally enhancing aspects of the Internet while, at the same time, protecting them from the dark side of the Internet?

Although the news media is quick to report on any situations where children are adversely affected by the Internet, we are only beginning to learn about children’s use of the Internet, their exposure to unwanted or undesirable resources, and how these exposures affect their development. We need a principled approach to understanding this new environment and children’s dynamic interactions with it. Critics of the Internet claim that children’s social development is arrested through interactions with the Internet, that children are victimized by unwanted exposure to pornography and hate, and that they are easy targets for sexual predators and cyber-bullies. Although the most dire predictions of critics of the Internet have not been borne out by the research literature, there are risks for children online. Just as we empower our children with shrewd awareness of the possible dangers around
them as they explore the physical environment, we need to empower them with critical appraisal of information and opportunities they encounter as they explore the virtual environment of the Internet.

WHAT ARE CHILDREN DOING ON THE INTERNET?

The vast majority of children in the United States and Canada have accessed the Internet; over 95% had been online by 2003 (Kaiser Family Foundation, 2004; Environics Research Group, 2001) and close to 75% had Internet access in their homes (Kaiser Family Foundation, 2004; Statistics Canada, 2003). Internet use is comparable or slightly lower in other developed countries (e.g., Livingstone and Bober, 2005; Nielsen ratings). Many children access the Internet at least once a week from school, home, or libraries; surveys from the past few years indicate that up to one-half of children spend more than one hour on the Internet per day (Environics Research Group, 2001; Roberts et al., 2005).

Moreover, children access the Internet from a very early age. In a 2001 Canadian survey for the Media Awareness Network (Environics Research Group, 2001), 15% of youth under the age of 18 years recalled learning to use the Internet at 7 years of age or younger. In a 2003 United States survey of parents, Rideout et al. (2003; see also Calvert et al., 2005) found that children started looking for Web sites without parental supervision at 4 years of age and sent an e-mail by themselves as early as 3 years of age. Clearly, children are immersed in the Internet environment in increasing numbers for increasing lengths of time.

Children mainly access the Internet through the World Wide Web. Children use the Web to access information resources through Web searches and browsing preferred Web sites; communicate using e-mail, instant messaging, and discussion; and access music, video, and computer games (Environics Research Group, 2001; Rideout et al., 2003; Roberts et al., 2005). Children as young as second grade have an e-mail address through their classrooms. These e-mail accounts are used as part of the language arts curriculum for developing reading and writing skills and as part of the social studies curriculum for communication with children from other cultures. Young children may also have an e-mail account to communicate with family members. Children also use instant messaging to communicate with friends, often in parallel with playing computer games or doing homework (Shiu & Lenhart, 2004). Children most often surf the Web for games and music but they also search for information for school reports and personal interest (Environics Research Group, 2001; Lenhart et al., 2001).

Specialized children's Internet resources have become increasingly popular—among parents and educators, at least—and are marketed as providing children with safe and secure access to the Internet. For example, although many children use
Hotmail (http://hotmail.com) or Yahoo (http://mail.yahoo.com) accounts available to everyone, specialized children’s e-mail services such as KidMail (http://kidmail.net) and Surf Buddies (http://www.surfbuddies.com) provide spam-free, secure e-mail for a small fee. These resources allow parents to limit children’s e-mail contacts and the programs automatically filter out questionable content and spam. Almost all other e-mail services allow setup of filters but these child-safe resources appeal to parents who do not feel confident modifying program preferences and options.

Child versions of search programs have also become popular. Yahooligans (http://yahooligans.com) and Ask Jeeves for Kids (http://www.ajkids.com/) are search directories designed specifically for children. All resources that can be searched or browsed from the home pages have been verified as appropriate for children by a team of educational consultants. These directories are quite limited, however, and don’t include information on many topics children might be investigating for school or personal interest, such as specialized information on dinosaurs found in Canada or adoption resources for searching for biological parents.

Many entertainment resources have been developed specifically for children. A number of media companies, such as the Public Broadcasting Corporation (http://pbskids.org/), Warner Brothers (e.g., http://harrypotter.com), and Scholastic (e.g., http://scholastic.com/kids/) have developed information and game resources for their child audiences. Most of these resources are completely self-contained and contain no off-site links; those that do include off-site links provide a warning before the child clicks to an off-site link.

Finally, children’s Internet access can be controlled through the use of filtering programs, such as Net Nanny (http://netnanny.com/) or Cyber Sitter (http://www.cybersitter.com/), and children’s browsers, such as zExplorer (http://www.zxplorer.com/). These commercial programs limit children’s access to the Internet, filtering spam, advertising, and content determined inappropriate for children. Because it is difficult to define spam and inappropriate content, these programs necessarily provide very restrictive access to the Internet.

Although these child-oriented Internet resources are increasing in number and popularity, given the unorganized and unregulated nature of the Internet, they are not foolproof and children may still be exposed inadvertently to objectionable content. Also, most of these resources are overly restrictive; for example, because of “adult” content of some encyclopedia articles, children are unable to access such ubiquitous resources as the World Book Encyclopedia through many of the resources. Finally, and possibly most importantly, by passively limiting children’s access to possibly unseemly information and resources on the Internet, children may not learn to actively appraise and evaluate Internet information.
CONCERNS

Historically, parents, teachers, policymakers, and the press have been concerned about the adverse effects of new media on children (Gackenbach & Ellerman, 1998; Paik, 2001; Wartella & Jennings, 2000). Movies, radio, and television were all seen initially as potentially harmful for children's development. Computers are seen as depriving children of important social and physical development opportunities. Critics warn that important social contact and physical activities are displaced by time spent socially isolated in front of a computer screen—these are much the same concerns that were expressed when televisions began to appear in living rooms. Because the Internet is freely accessible, critics are also concerned about children being exposed to issues they cannot comprehend or cope with, such as pornography and hate. Finally, given the anonymity of the Internet, critics are now becoming increasingly concerned about children being victimized by sexual predators and cyber-bullies.

SOCIAL DEVELOPMENT

Children develop a sense of who they are and how they fit into their family, school, and community. They learn to critically evaluate the characteristics that define themselves and they learn to control their behavior to adapt to society's norms and values. These aspects of social development require children to interact with others in order to differentiate themselves from others, compare characteristics that define themselves with those that define others, and develop self-control.

Critics have complained that computer use leads to social isolation, which often leads to depression and other mental disorders. Given that many children have access to the Internet in their bedrooms (Kaiser Family Foundation, 2004), this concern may be valid. There is some evidence to suggest a correlation between social isolation and depression and computer use. Kraut et al. (1998) reported results of a survey of first-time Internet users as part of the HomeNet longitudinal study conducted 1995–1998 regarding the impact of the Internet on social interactions. These first-time Internet users reported a decline in social interaction and an increase in depressive symptoms over their first months of Internet use; in addition, the correlations between Internet use and isolation and depression measures were slightly higher for the adolescents in the sample than those for adults. These effects were short-lived, however; Kraut et al. (2002) followed the HomeNet participants over a longer period of time (three years as opposed to 12–18 months) and the negative effects of Internet use had disappeared. In a second study, Kraut et al. (2002) found that extroverted children and adults reported greater increases in social interaction and self-esteem as a function of increased use of the Internet.
Gross (2004) argued that, as more children use the Internet, more of their friends will as well, and the Internet will simply become one more form of communication and interaction.

Other research indicates that the Internet may have positive effects on social development. Stern (2002) analyzed teenage girls’ personal Web sites. She found that the girls’ self-expressions were consistent with theories of social development. Stern argued that the Internet provides an excellent opportunity for children to express themselves as they develop socially and sexually.

Several studies have examined the relationships between social well-being and Internet instant message use. Instant messaging is becoming the most common form of communication on the Internet (Environics Research Group, 2001; Ipsos-Reid, 2004; Law, 2004). In a study of the relationship between self-concept and instant messaging use, Law surveyed adolescents between the ages of 11 and 19 years and found no correlation between self-concept and instant messaging use. However, consistent with the statistics on increasing use of instant messaging, over three-quarters of Law’s adolescent participants used instant messaging daily. Similarly, Gross (2004) surveyed adolescents aged 11 to 16 years and found no relationship between amount of time spent online and measures of loneliness, social anxiety, depression, or daily life satisfaction.

Gross et al. (2002) examined relationships between well-being and closeness of instant message partners in adolescents aged 11–13 years. Among adolescents who used instant messaging, those who reported feeling comfortable in their social interactions reported communicating primarily with school friends whereas adolescents who reported feeling socially isolated also communicated with people they did not know well. Ybarra et al. (2005) found that children aged 10–17 who reported significant depressive symptoms (e.g., experiencing functional impairments in school, personal hygiene, and/or self-efficacy) spent more time on the Internet at school and used e-mail more often for social communications than those reporting fewer or no depressive symptoms. Their sample came from a large United States study, the Youth Internet Safety Survey, conducted in 1999–2000 with children aged 10 to 17 years (Finkelhor et al., 2000). Wolak et al. (2002, 2003), using the same sample as Ybarra et al., found that children who reported depressive symptoms and having been victimized in some way had more close personal relationships with people they had met on the Internet than did children who were not as troubled. Rather than remaining socially isolated and alone, troubled and depressed children and adolescents appear to reach out to online friends.

Indeed, online communication may help children develop a sense of self in an anonymous and supportive environment. Turkle (1995) argued that multi-user dungeon games provide an important opportunity for people to experiment with different selves and, in so doing, refine their own self-concept. Subrahmanyan et al.
(2004) analyzed a 30-minute transcript from a teen chat room which included 52 different participants. Topics discussed in the time period included sports, sex, and parental concerns. The participants openly discussed their feelings and, when a participant expressed a personal concern, the others quickly supported the participant. Subrahmanyam et al. concluded that the Internet can provide a socially safe environment in which adolescents can discuss embarrassing topics and practice social relationships.

Suzuki and Calzo (2004) examined postings to teen general issues and sexuality discussion boards over a one-month period and found postings similar to those found by Subrahmanyam et al. (2004). Postings to the general board predominately dealt with romantic issues and posting to the sexuality board predominately considered sexual health. As well, topics dealing with personally relevant issues, such as body image and working out, received more viewings by others than did basic factual topics, such as pregnancy prevention. Suzuki and Calzo argued that the boards allowed the children to candidly discuss and receive social support for embarrassing adolescent issues. Other researchers have similarly argued that the Internet can be an important source of information and support for embarrassing or social taboo topics (Boies et al., 2004; Gray et al. 2005; Longo et al., 2002).

Greenfield (2004a), however, cautioned that free expression in chat rooms may not always be developmentally positive. She explored children's use of various forms of Internet communication (e.g., unmoderated and moderated chat, instant messaging) and identified many communications promoting sexual infidelity, racism, and prejudice. Although acknowledging that none of her concerns was unique to the Internet, she argued that the anonymity of the Internet may lead children to engage in more degrading communications and therefore amplify the potentially negative effects of such communications.

Taken together, and recognizing the cautions expressed by Greenfield (2004a), the research on social development and the Internet conducted to date indicates that, rather than leading children into social isolation and deprivation, the Internet can provide a positive environment for social development. Children continue their face-to-face relationships when separated, possibly in much the same way as they would on a telephone. Indeed, Internet technologies provide children with more opportunities for social interaction than possible with a telephone; children can simultaneously communicate with a large number of peers on a large number of topics through e-mail, chat, and instant messaging. Children who feel socially isolated in a face-to-face setting, are depressed, and/or lack self-confidence are able to communicate in a socially safe environment rather than keeping their concerns to themselves. Furthermore, children are able to "try out" different personal identities, discuss personal concerns, and obtain personally relevant information without embarrassment or disclosure.
UNWANTED EXPOSURE TO PORNOGRAPHY AND HATE

Very little research has been conducted on the effect on children of pornography and hate sites on the Internet. Pornography is prevalent throughout the Internet; pornographic images are available on millions of Web sites and through hundreds of thousands of Internet sources. While pornographic material is generally quite obvious and easily agreed upon, hate is more insidious; hate can be difficult to find and define.

Children access pornography in many ways, some intentional and many unintentional. Children can intentionally access pornography though Web searches (e.g., searching for sex on Google) or typing in possible URLs (e.g., http://www.sex.com). Children are much more likely to access pornography unintentionally, however. This may occur through innocent combinations of multiple meaning keyword searches (e.g. boy toy) and through techniques used by pornographic distributors to recruit new customers. Pornographic distributors may send spam e-mails with pornographic content or inviting recipients to access pornography. Many times, the invitation is innocuous, such as an invitation to compete for a laptop computer or learn about livestock. Pornographers also acquire or use common-sounding Web domain names (http://whitehouse.com used to be a hard core pornography site—the correct URL for the White House is http://whitehouse.gov). Pornographers also manipulate spelling of URLs to introduce children to pornography (several common misspellings of http://Disney.com once led to pornographic Web sites). More recently, pornographic distributors have invaded peer-to-peer transfers so that a child downloading the latest Britney Spears audio file from a less than reputable peer-to-peer network might receive a hardcore pornographic video instead. Although many of these techniques are no longer used—regulators have shut down many distributors of pornography and other distributors have developed fee-based Web sites and peer-to-peer Internet downloads—children still can inadvertently access pornography.

Mitchell et al. (2003a) analyzed data from the Youth Internet Safety Survey (Finkelhor et al., 2000). Phone interview questions included inadvertent access to pornography on a Web site, in e-mail, or instant message as well as whether the child was distressed by the exposure. One-quarter of interviewed children indicated they had been inadvertently exposed to pornography, 75% through a Web site and 25% through e-mail or instant messaging. Older children were more likely to have been inadvertently exposed to pornography than were younger children; however, the older children engaged in more Internet activities, including entering chat rooms and engaging in risky Internet behavior, such as chatting with people they had never met offline. Although a quarter of children who had experienced inadvertent exposure indicated they were very or extremely upset by the exposure (this represented 6% of the total survey
sample), very few mentioned the incident to anyone and few revisited the offending material. Although some children were distressed by their exposure, most children simply dismissed the pornographic material.

Children are exposed to sexuality in other media, including music videos, movies, magazines, and television. A large body of research does suggest a relationship for adolescents and young adults between viewing pornography and engaging in risky and/or deviant behavior (cf. Greenfield, 2004b) but this research is correlational in nature. No causal link has been firmly established to indicate that viewing pornography—on or off the Internet—has adverse consequences on children or adolescents. Ultimately, concerns about adverse consequences of inadvertent or purposeful exposure to pornography on the Internet may be simply an urban myth (Potter & Potter, 2001).

Hate, possibly because it is so insidious, is more difficult to understand and investigate. Gerstenfeld et al. (2003) conducted a content analysis of Internet sites hosted by white nationalist, neo-Nazi, skinheads, Ku Klux Klan, Christian identity, Holocaust denial, and other hate groups. Only one-half of the sites included identifiable hate symbols such as swastikas or burning crosses. One-quarter of these extremist sites claimed their group did not espouse hate or racism and over 80% either made no mention of violence or claimed they were opposed to violence. Many of these sites had contradictory language, such as denying racism but exclaiming Whites as the “only” race. Although few sites included resources for children (one notable exception is http://martinlutherking.org/, which is designed expressly for children), the lack of identifiable symbols as well as claims of nonracism and nonviolence or contradictory language regarding racism and violence may lead to confusion among children.

Although Turpin-Petrosino (2002) found that very few high school students reported contact with a hate group through the Internet, Gerstenfeld et al. (2003) argued that the Internet presence of these groups is too subtle for most children and adolescents to understand. This premise is supported by Lee and Leets’ (2002) research on the persuasiveness of hate sites with adolescents. Adolescents, aged 13–17 years, viewed Web pages modified from actual extremist Web resources, then completed a survey immediately following viewing the pages and two weeks later to examine the persuasiveness of the different pages. In some conditions, the Web page was presented as a narrative, with characters and a plot. Other Web pages had less of a narrative structure. In some conditions, the pages concluded with an explicit message and, in others, with an implicit message. Web pages presenting information in narrative form with an implicit message were initially perceived by adolescents as very persuasive. However, the persuasiveness dissipated over time, while pages with low narrative content and explicit messages remained relatively stable over time. In addition, the adolescents’ receptivity interacted with the persuasiveness of the messages. Young people who were originally neutral with regard to the views expressed by the Web pages were initially more influenced by the implicit messages.
Lee and Leets' findings regarding the persuasive effects of implicit messages on na"ive adolescents are particularly important considering that extremist groups use the Internet for recruiting new members (Turpin-Petrosino, 2002). Young adolescents, because they are seeking an in-group with which to identify but lack important critical appraisal skills, may be particularly influenced by the recruitment strategies used by extremist groups on the Internet.

**PREDATION AND BULLYING**

Increasingly, news reports of children being lured into cars seem to be replaced by reports of children being lured on the Internet. Similarly, schoolyard bullying seems to be moving into the Internet. Just as parents historically became concerned as their children began to venture further and further from home, they now become concerned as their children venture further and further into the Internet environment.

Finkelhor et al. (2000; Mitchell et al., 2001) analyzed questions on sexual solicitation from the 1999–2000 Youth Internet Safety Survey. Almost 20% of the respondents aged 10–17 reported receiving an unwanted sexual solicitation through e-mail or chat. Almost all of the solicitations came from someone encountered only on the Internet. Few of the solicitations were direct requests for face-to-face meetings; the solicitations included asking a girl about her bra size, asking a boy to engage in cybersex, and sending sexually explicit drawings.

Older children, aged 14–17 years, in the Finkelhor et al. (2000; Mitchell et al., 2001) study reported solicitation more often than younger children, aged 10–13 years, and twice as many girls reported solicitation than boys. Risk for receiving sexual solicitation was higher for "troubled" children (based on a composite reporting of depressive symptoms, victimization, and family instability). Risk was also higher for children reporting more frequent use of the Internet and engaging in potentially risky behaviors on the Internet, such as posting personal information, using sexually suggestive aliases in chat rooms, talking about sex with someone met solely online, and visiting pornographic Web sites. The characteristics of troubled family and personal life and risky behavior that Mitchell et al. found in relation to Internet predation also characterize children and adolescents targeted by offline sexual predators (cf. Dombrowski et al., 2004). Although the Internet can bring predators into easier contact with children, it does not necessarily alter the children who are targeted.

Finkelhor et al. (2000; Mitchell et al., 2001) also found that controls such as parental rules and filtering software were not related to reports of sexual solicitation. These tools may also not be sufficient to guard against approaches used by predators to monitor a victim. Commonly, Internet predators use a variety of sophisticated techniques to gather information about and eavesdrop on a potential
victim (Dombrowski et al., 2004; McGrath & Casey, 2002). At the technologically simplest level, a predator may search the Web for information about the victim, reading personal Web pages and blogs to gather personal information on the potential victim. Increasingly technologically advanced approaches include using “sniffer” software to eavesdrop on a child’s communications and infiltrating the child’s computer through Trojan and worm viruses. Thus, even if a child attends to and obeys a parent’s rules not to give out personal information, an ingenious Internet predator may be able to obtain that information through nefarious and clandestine means.

Only one-half of the children who reported sexual solicitation in the Finkelhor et al. (2000, Mitchell et al., 2001) study reported the incident to someone and only half of these were reported to a parent. In part, the lack of reporting could have been due to few children being concerned about the solicitation; only 25% of the children reported being upset about the solicitation and these were mainly the younger children in the study. Although organizations such as CyberTipline and Cybertip.ca did not exist at the time of the Youth Internet Safety Survey, few parents or children reported knowing they should report upsetting Internet episodes to their Internet Service Provider or to a law enforcement agency.

Recently, law enforcers have begun masquerading on the Internet as children to combat sexual solicitation crimes. Wolak et al. (2003a) analyzed arrests made in the United States during 2000–2001 for Internet sex crimes involving children and found 508 cases in which an alleged predator used the Internet to lure the child and a further 644 undercover cases in which an alleged predator used the Internet to lure a law enforcement agent posing as a child. Mitchell et al. (2005) investigated a sample of these arrests and found many were successfully prosecuted or led to a guilty plea. Although the characteristics of actual cases and undercover cases differed slightly (e.g., the victim was stated to be slightly younger, more contacts were made in sexually oriented chat rooms, and less time elapsed before the “meeting” in undercover as opposed to actual cases) as did the characteristics of the alleged predator (e.g., the alleged perpetrator was slightly older, more likely to be employed full time, and had a slightly higher mean income in undercover as opposed to actual cases), Mitchell et al. (2005) concluded that the Internet has improved the ability of law enforcement agencies to detect and prevent crimes against children.

Particularly because of its anonymous nature, Internet harassment can be psychologically devastating. In 2002, Ghyslain Raza, an overweight adolescent, used school equipment to videotape himself acting out a Star Wars scene with a golf ball retriever as an imaginary light saber. Several months later, some students found the tape in a locked cabinet and uploaded the recording to a peer-to-peer network and encouraged viewers to post insulting comments about the youth. In 2004, Gary Brolsma created a Flash video while lip-syncing and dancing in his chair in front of his Web cam and posted it on the Web.
Although he originally meant only to share it with his friends, the clip quickly spread across the Web and he became embarrassed and upset by the widespread media attention and comparisons with “the Star Wars kid.” These events focused attention on cyber-bullying and harassment.

The Youth Internet Safety Survey also asked children about online harassment and bullying. Finkelhor et al. (2000) reported that 6% of respondents indicated they had been harassed on the Internet, with older children being more likely targets of harassment. Episodes of harassment ranged from harassing instant messages, chat communications, and e-mails to posting a hate Web site about a 17-year-old. As with sexual solicitation, only half of the children told a parent about the incident.

Ybarra et al. (2004a) analyzed characteristics associated with victims of Internet harassment from the Youth Internet Safety Survey. One-third of the children who reported having been harassed indicated they were very or extremely upset by the harassing incident. Males who reported more depressive symptoms (e.g., decreased feelings of self-efficacy, difficulty completing schoolwork, difficulty engaging in personal hygiene) were more likely to report harassment than were males who reported few depressive symptoms—this relationship was not found with females who reported harassment. Ybarra argued that the relationship between depression and harassment makes Internet harassment an important mental health issue.

A number of children who reported being victims of Internet harassment also reported being perpetrators of harassment. Ybarra and Mitchell (2004b) analyzed characteristics of children from the Youth Internet Safety Survey who reported harassing another on the Internet. Ybarra and Mitchell found that 15% of respondents to the Youth Internet Safety Survey indicated they had made rude or nasty comments to another and 1% used the Internet to embarrass or harass someone in the past year. Consistent with offline bullies, Internet harassers tended to have poor family bonds and engage in risky behaviors such as substance abuse and delinquency—characteristics that, according to Ybarra and Mitchell, are common to offline bullying and harassment. Ybarra and Mitchell (2004a) found that while much Internet harassment may be an extension of schoolyard bullying, some aggressors appear to harass others only on the Internet. Based on their results, and consistent with Greenfield’s (2004a) concern, Ybarra and Mitchell argued that the anonymity of the Internet may allow some children to adopt a more aggressive persona than they express in real life.

In summary, the research on Internet predation and bullying closely resembles that of offline predation and bullying. The Internet provides greater access to children and a larger environment in which to engage in bullying and harassment, however, so the effects of such events can be more devastating to the victimized child.
BECOMING “INTERNET-WISE”

Three approaches have been used to protect children from the damaging effects of the Internet. One approach is to legislate what materials can be distributed across the Internet. The Child Online Protection Act (COPA) was passed by the United States Congress in 1998, prohibiting commercial Internet service providers from distributing content objectionable to minors. Although this law has never taken effect due to court challenges that the law violates the First Amendment right to free speech, many states have enacted similar laws. In response to the potential law, many pornography sites shut down, only to reappear on other domains hosted outside the United States.

As noted earlier, another approach to protecting children from the dangers of the Internet has been the development of software to filter out or block children’s access to offensive resources. In part, this comes from legislation. The Children’s Internet Protection Act (CIPA), passed by the United States Congress in 2000, requires schools and public libraries to install filtering software on all computers in order to be eligible for federal funding. Although CIPA has been partially struck down by the Supreme Court, various states have enacted similar legislation. Many schools and libraries have installed filtering software and commercial companies such as Net Nanny and Cyber Sitter engage in extensive marketing of their filtering programs to parents.

Both of these approaches, legislating content and blocking content, do appear to protect children by attempting to prevent access to objectionable content. Neither is completely successful, however. The Internet is simply too vast to police all the objectionable resources; as one site shuts down another opens up, often in another country that is immune to legislation. Filtering software cannot block objectionable content without severely limiting accessible content. Richardson et al. (2002) found that filtering software significantly blocks access to many health topics important to children and adolescents, ranging from condoms and sexually transmitted diseases to dieting and depression. Similarly, a Consumer Reports (“Filtering Software,” 2005) study of filtering software found that most software blocked pornography very well but also blocked sex education and gender issue sites. The software also blocked hate poorly, allowing results on terrorism, weapons-making, and violence, while blocking drug education resources. Use of filtering software also does not appear to prevent unwanted sexual solicitation (Mitchell et al., 2001). Furthermore, neither legislation nor filtering software credits children with the capacity to appraise and filter objectionable content on their own.

A third, and likely most successful, approach is to teach children to critically appraise on their own. Critical thinking skills underlie almost all decision making tasks and need to be taught and generalized across a wide range of domains,
from making healthy eating choices, to making appropriate decisions about sexual behavior, purchasing, and information gathering.

Children do become more critical of information they find on the Internet as they develop yet they still rely on the Internet as an important source of information. As part of a larger study (Varnhagen, unpublished data), we asked students in eighth and eleventh grade and first year of university which of three sources, an encyclopedia article, the newspaper, or the Web, was most likely to provide credible information. Almost three-quarters of the eighth-grade children indicated that the Web was the most credible source of information whereas fewer than half of the eleventh graders and one-fifth of the university students rated information from the Web to be most credible. Regardless of their beliefs about credibility, however, almost all students indicated they used information from the Web in writing school reports.

Critical appraisal as it regards the Internet requires children to appraise the author and host of the Internet resource; the purpose and target audience for the resource; the accuracy, objectivity, comprehensiveness, and currency of any information; and relevance of the Internet resource to their needs (Varnhagen, 2002). For example, an early adolescent seeking information on the Web about acne will need to appraise the author: is the author knowledgeable? If the author is knowledgeable, the information is likely overall to be more credible than if the author has limited knowledge of acne.

The adolescent will also need to determine the purpose and target of the resource: Is the resource a product advertisement? A source of medical information? An old wives’ tale? Someone’s personal belief? Product advertisements are biased toward influencing and purchasing decisions. A resource with a purpose of providing medical information is more likely to be credible than are resources designed to sell or persuade. Related to the purpose, the child will also need to appraise the authenticity of the information: How accurate is the advice? Is the information based on objective medical information? Is it complete? Is it up-to-date? Acne information has changed over the past several years; the latest medical research shows that drying agents are more likely to excoriate skin and lead to scarring. Also, the child must determine whether the resource is relevant to his or her needs.

Needless to say, children are very unlikely to perform such an extensive appraisal of many of the millions of resources resulting from a search for information about acne. Indeed, Brem et al., (2001) found that adolescents evaluating scientifically valid and hoax Web sites were very uncritical of the information they found. For example, the students relied more on surface features, such as number of links to other sites, in their evaluation of the information. Even though they acknowledged that some authors had an ulterior motive, such as to sell or persuade, the authors’ motives were unlikely to influence accurate reporting of information.
Children may be even less likely to consider critically appraising other types of Internet resources, such as games, chat, instant messaging, music, and videos. For example, children may be more likely to be drawn to an Internet game based on visual and auditory appeal than they are to appraise the host for potential to download viruses or accuracy of the feedback given on performance. They are unlikely to assume a new buddy met in a chat room who expresses shared interests is anyone other than a peer. They are likely to download immediately the latest bootlegged music video than consider what viruses that video might bring with it.

Children need to learn to critically appraise the resources and communications they encounter on the Internet. Librarians and schoolteachers have developed a number of information literacy resources to help children learn to critically appraise informational resources (Schrock, 2001). For example, “Kathy Schrock’s Guide for Educators” (http://school.discovery.com/schrockguide/eval.html), one of the oldest and best known resources, provides a set of yes/no questions for children of different ages to use as they find and evaluate information Web resources. Younger, early elementary-aged children are encouraged to consider whether they agree or disagree with the information; older, high school-aged adolescents are encouraged to critically appraise the content and authority of the information.

Many child safety organizations provide guides and resources for parents and children. WebAware (http://www.bewebaware.ca/english/default.aspx) includes general Internet checklists for children of different ages. In addition to content appraisal, WebAware encourages children to consider whether they are writing rude messages or providing personal information on the Internet. WebAware also includes safety tips for parents of children of different ages, such as using child-friendly search engines with 5- to 7-year-old children and encouraging teens to enter only moderated chat rooms. SafeKids.com (http://safekids.com) and SafeTeens.com (http://www.safeteens.com) provide similar resources for children and parents. CyberAngels (http://www.cyberangels.org/) provides a wide range of resources on various Internet crimes (e.g., child pornography, identity theft) for parents and educators as well as an online form for reporting suspected cases of child pornography.

Some organizations include safety games and quizzes for children. In ID the Creep (http://www.idthecreep.com/), developed by the National Center for Missing and Exploited Children, children engage in simulated e-mail, chat, and instant messaging and identify potentially risky situations and predators. The Media Awareness Network (http://www.media-awareness.ca/english/special Initiatives/games/index.cfm) has developed a number of games available for children, ranging from Privacy Playground: The First Adventure of the Three Little CyberPigs, a game for children, aged 8–10 years, about marketing techniques and protection of privacy, to Joe Cool/Joe Fool, quizzes for adolescents about safe Web surfing.
NetSmartz (http://netsmartz.org), developed by a joint initiative of the National Center for Missing and Exploited Children and the Boys and Girls Clubs of America, is an online training resource that includes evaluation checklists, tips, parental resources, games, and quizzes. In an evaluation of the resource (Branch Associates, 2002), children from ages 6 to 18 improved their knowledge of Internet safety through interacting with the resource and over three-quarters of adolescents indicated they would change their behavior on the Internet as a result of what they had learned through NetSmartz.

The relationship between intentions and actual behavior is complex (cf. Ajzen, 2001), however, and children may not translate their new knowledge of and attitudes toward the Internet to safe behavior on the Internet. Software solutions may help children learn to control their behavior on the Internet by forcing them to critically appraise Internet resources before using them. Just as caregivers teach children to cross the street safely, intelligent software solutions could be created to help children navigate the Internet. Rather than simply blocking resources, new versions of filtering software could allow access to a portion of a resource and require the child to correctly answer a series of critical appraisal questions before continuing to the entire resource. An intelligent chat “buddy” application could point our hurtful posts or potentially unsafe communications. Until intelligent software solutions are developed, simple checklist applications can be created to float over an Internet browser and pose critical appraisal questions that help children stop and think as they explore the Internet. Tools such as these will help children learn to apply what they have learned from checklists, teaching resources, and Internet safety activities and games to the real virtual world of the Internet.

The Internet is a limitless virtual environment with many possibilities for positive child development and exploration. Children can visit many places, explore many cultures, try out many technologies, and communicate with many different people. These experiences help children develop cognitively and socially. The Internet also has a seamy side. Children can be exposed to pornography and hate, harassed, stalked, and kidnapped. By empowering our children to gain critical appraisal skills and to become Internet-wise, we can help them expand their minds and worlds safely through the Internet.

REFERENCES


Ipsos-Reid (2004). The Internet is changing the way in which teens socialize in Canada: Instant messaging, e-mail and online gaming the most common weekly online activities for teens. Ottawa, ON: Ipsos-Reid.


CHAPTER 3

Self Online: Personality and Demographic Implications

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Introduction
New Ways of Thinking About Identity
Online Versus Offline Selves
Personality Online
The Self as a Demographic Online
Social Roles and Inequality Online
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INTRODUCTION

Like all other communications technologies, the advent of the Internet has changed our culture profoundly, but it has also had a strong influence on how we relate to ourselves as well as to each other. It has allowed us to be authentically ourselves or to try on and try out different identities and personalities in ways that are just not possible in face-to-face reality, with both positive and negative effects. The narrow bandwidth of communication, including the lack of visual cues, allows us to relate to others without the judgments of their physical presence which happens in face-to-face communication, but also allows disinhibition, in the form of greater disclosure, sexual content, and aggression. The Internet can create greater self-awareness and become a catalyst for positive change, or it can reinforce mal-adaptive facets of ourselves.

Identity isn’t only in our heads; it is also part of a larger context, including our gender, race, or ethnic heritage, and our socioeconomic status. These have an effect on how we relate to the Internet and how it affects us. Like all new communication technologies, the Internet was initially dominated by those in power, in this case, by relatively wealthy white males. Though this is changing, the effects are still resonating throughout society. In this chapter, we briefly examine self online from our private inner worlds to how demographic identifiers differ online.
NEW WAYS OF THINKING ABOUT IDENTITY

Psychologists believe that we have an identity that is made up of different facets reflecting different aspects of self, depending on our psychological and biological history and our current situation. Although we do not “split off” parts of our personalities in everyday life, as is the case in Dissociative Identity Disorder, we frequently shift who is “on stage,” depending on the situation. Our capacity to integrate various aspects of the self into one identity has long been considered the developmental marker of adulthood. However, postmodern thinking views the notion of multiple selves, rather than one discrete self, as a healthy adaptation to the complexity of modern lives. In contemporary society, alternative lifestyles, types of family structures, and cultural models of identity have become increasingly visible, so the various projections of self online, depending on context, may no longer be seen as inherently maladaptive but rather as an example of explorations of the self.

There are many opportunities for deepening one’s awareness of self online, both consciously, by meaningful discourse with individuals you may never have the chance to meet in person, such as distant family members, and unconsciously, by getting emotionally engaging with someone in ways that rarely occur in face-to-face interactions. For instance, the large numbers of immigrants in North America, as well as their children, can “meet” online relatives in their country of origin and connect, or reconnect, with their ethnic heritage. This contact can make the ethnic facet of identity easier to grow and maintain than would normally be possible in a western mainstream culture.

The Internet can also allow a young gay man to explore his gay identity and become comfortable with it in relative anonymity before coming out to friends and family. Someone who is shy or self-conscious about their physical appearance can open up and explore emotional intimacy in an environment in which physical appearance is, for the most part, irrelevant.

However, the Internet also allows easy access to many potential addictions, including pornography and fantasy role-playing. The Internet also offers a broad stage and easy access to victims for those who engage in predatory behaviors.

Even when a person’s behavior online doesn’t cause direct harm to themselves or others, if the person projected online is radically different from one’s offline personality, it may cause psychological distress, not only to self but to others as well. A prank initiated in fun, such as a woman pretending to be a man online, and leading on a female friend, can lead to hurt feelings and ruptured friendships. These sorts of actions affect not only the initiator.

ONE SELF OR MANY: ADOLESCENT EXPLORATIONS

We all have many aspects of self, in addition to the experience that we are a unified whole. We see the fluidity between these possible selves initially in adolescence when the uncertainty of establishing one’s identity dominates. Teens sometimes
explore radically different identities as a way to assert their independence, often annoying their parents or other adults. They push the limits as a way to be able to leave the comfort of the nest. Blue hair, nose rings, and food fetishes are bodily ways to be unique. The Goth, Skater, Grunge, and Stoner cultures allow kids to explore different selves. However, when children try out different personalities in the offline world, they are limited to only a few realistic choices. Some of these are healthy explorations of the self (like vegetarianism or political activism) while others can be harmful (engaging in illegal activities with peers).

Online, opportunities to explore different identities may be easy, exponential, and unregulateable but they are also becoming increasingly the norm. This has been found by Valkenburg et al. (2005) who surveyed 600 18-year-olds in classroom settings, asking if they had explored their identity online using chat rooms or instant messaging. The social scientists found that “50 percent indicated that they had engaged in Internet-based identity experiments. The most important motive for such experiments was self-exploration (to investigate how others react), followed by social compensation (to overcome shyness) and social facilitation (to facilitate relationship formation)” (p. 383).

Who did the students in the Valkenburg et al. study pretend to be? Most presented themselves as someone older than they were in real life (50%), with other variations including presenting themselves as a real-life acquaintance, an elaborated fantasy person, or a more flirtatious person. A few presented themselves as more beautiful or more macho. These fantasy self-presentation differed as a function of the adolescent’s age, gender, and personality. So that extroverts more than introverts presented themselves as older online than they actually were as did younger adolescents and girls. The real-life acquaintance online alternative self was more common among boys, as was presenting themselves as a fantasy person. These findings are consistent with most adolescent identity theories but point to the important role that the Internet has come to play in such explorations online versus offline selves.

Identity can be viewed in terms of “self-focusing” or “self-awareness”—the degree to which our attention is focused on the self. This perspective on self is closely tied to memory and thinking. Not surprisingly, if we focus on our self, we gain insight into who we are. But mood affects self-focusing: In a negative mood, we are more likely to attend to negative information about self, while the opposite is true if we are feeling positive. Developmentally, our ability to gain insight increases as we move from childhood through adolescence to adulthood. So just as mood regulates what shows we choose to watch on TV, so too it regulates what sites we visit online. Clinicians know that their depressed patients tend to be less physically active and watch too much television. Now, lonely and isolated individuals can reach out to cyberfriends and interact in meaningful ways.

Psychological research comparing online versus offline identities suggests that some of the processes of creating those online and offline identities are similar. Krantz et al. (1997) compared results from identical experiments on men’s perception of
attractiveness of females conducted on- and offline. They point out that “if the same psychological variables drive the results of both data sets, the trends in data should be similar” (p. 264). This is exactly what they found. In other words, how one rated a female in terms of her physical attractiveness did not differ whether done online, or in a more traditional face-to-face (F2F) laboratory setting. How we perceive personal attractiveness as well as various other psychological elements is likely to be the same online or offline. Conducting psychological research online has now become a widespread and accepted practice in the scientific communities, with methodological procedures and caveats noted (Kraut et al., 2004). But there are aspects of the online world which result in a unique experience of self as well.

** Self Expansion or Disinhibition Online **

If our psychological processes are similar online and offline, how come we hear so many stories of people being different or at least projecting very different parts of themselves into cyberspace? Many individuals find themselves acting in uncharacteristic ways online, due to the phenomenon called disinhibition. Disinhibition is defined as the inability to control impulsive behaviors, thoughts, or feelings, and manifests online as people communicating in ways that they would not ordinarily do offline. These communication patterns can be positive or negative. An example of disinhibition online is the propensity for self-revelation that results in people feeling more intimate. This self-disclosure can be either positive and appropriate, allowing for a deepening connection, or negative and inappropriate, such as angry comments or lack of honesty in disclosure. For a discussion of other aspects of disinhibition, see the chapter in this book by Adam Joinson, called “Disinhibition and the Internet.”

Even researchers studying disinhibition can be surprised by the disconnect people seem to manifest after having behaved in a disinhibited manner online. Niederhofer and Pennebaker (2002) were amazed when, in post-experimental interviews, students who had just engaged online in “overt invitations for sex, explicit sexual language, or discussion of graphic sexual escapades” (p. 14) were demure and shy.

Suler (2004) argues that “rather than thinking of disinhibition as revealing an underlying ‘true self,’ we can conceptualize it as a shift to a constellation within self-structure, involving clusters of affect and cognition that differ from the in-person constellation” (p. 321). In other words, it is still us online, but it’s a part of ourselves that we generally keep fairly hidden. In a detailed analysis of the disinhibition effect, Suler highlights six reasons why people extend their emotional expression of the self while online.

1. **Dissociative Anonymity:** Although not a formal pathology, the sense of self while online becomes compartmentalized into an “online self,” which is perceived as alone and anonymous, and an offline self that is different
and separate. Because the Internet feels so virtual and boundaryless, it is tempting to perceive “the other” as not real.

2. *Invisibility*: You don’t have to worry about how you look when chatting with someone online. One need not worry, am I smiling enough, was that sigh of exasperation heard? What you have to write then takes on deeper meaning. Analyzing the textual clues of communication, without the nonverbal, leans heavily on one’s thinking . . . as thoughts can be the precursor to the written word.

3. *Asynchronicity*: For many online communications, one can respond at one’s leisure, and the pressure of an immediate response is gone. Here, Suler talks about “emotional hit and run,” where a scathing message can be left on a message board and the poster never returns to check on the responses or repercussions of their words.

4. *Solipsistic Introspection*: As absorption in an online exchange increases, some experience the online companion as a “voice within one’s head” (Suler, 2004: p. 323). The online friend becomes incorporated into one’s intrapsychic world. Like a character in our dreams, our waking thoughts include stories about various people. Some of these interactions are real and immediate, while others are somewhat less so, such as an imagined comeback to your boss. The boss is real but the exchange is not. The online friend can take on a special status in our imagined internal dialogues, which can result in a felt sense of special closeness existing outside the boundaries of time and space.

But this can result in the opposite effect, too. With the lack of cues such as tone, expression, and body language, additional meanings are read into a message based on the reader’s assumptions, insecurities, and mood, often without the person even realizing that they are doing it. The result can be a fairly neutral or innocently meant statement or question being taken as a deadly insult by a person with low self-esteem or someone who is in a bad mood that day.

5. *Dissociative Imagination*: Some people keep careful boundaries between their online fictional selves and their real-world offline selves. So, for instance, in online role-playing games such as Everquest, when the computer is turned off, the online self as wizard is gone. The online world and the self that inhabits it become a separate realm of being. This provides the online self the freedom to do things which the offline self very likely wouldn’t do, such as flirt outrageously or act aggressively.

6. *Minimization of Status and Authority*: Although you know your boss has a different status from you at work, when responding to his e-mails, that gap minimizes. The playing field seems level when online; thus, authority differences are minimized, and it becomes easy to make a nasty or sarcastic comment by e-mail that would never have been spoken face to face.
These various facets of ourselves which can be revealed through interactions on the Internet, once out, don’t necessarily stay compartmentalized, but can become integrated into our whole selves. Turkle (1995) has argued that rehearsals of unexpressed behaviors can generalize from the virtual world into the real world. She discusses how experiences of multiple user domains (MUDs) can dramatically help or hinder self. Turkle argues that “[t]he Internet has become a significant social laboratory for experimenting with the constructions and reconstructions of self that characterize postmodern life” (1995, p. 180). This media researcher maintains that by interacting in these mostly text-based virtual communities, some people have found unparalleled opportunities to explore self through experiences hard to come by in real life. These range from pretending to be a member of the opposite sex to slaying a dragon. Turkle asks the question: Is MUD play psychotherapy or addiction? She points out that MUDs offer a rich place to act out or work through psychological issues, but notes that when used by someone who has a fragmented self in face-to-face reality, MUDs can be problematic. In some sense, however, all interactions online constitute one massive multiple user domain.

Straus (1997) suggests that Internet culture is “delivering new kinds of blows to our narcissism or self-absorption because it generates questions we cannot answer without immersing ourselves in a crisis of representation in time and space” (p. 96). So now the new media user is not only sitting on a chair in front of their computer, but is simultaneously in another “space,” such as Everquest Kera’s Island Quest at another “time,” a thousand years in the future. Perhaps our new cultural obsession with the Internet offers yet another way to explore our identities in both positive and negative ways. Urban historian Boyer (1996) warns that:

the computer is to contemporary society what the machine was to modernism, and that
this metaphor profoundly affects the way we ultimately grasp reality. But there is ... an
inherent danger here: as cyberspace pulls us into its electronic grasp, we withdraw from
the world and risk becoming incapable of action in a real city plagued by crime, hatred,
disease, unemployment, and under-education.

Many of us, adults and kids alike, know others who have pushed the boundaries between online and offline identity. The Internet’s ability to generate powerful examples of disinhibition and self-disclosure has generated a new breed of concerns that counselors, parents, and teachers are struggling to understand. Some of the new ways of “being” online are exciting, allowing us to develop parts of our personalities that deepen our potential. But other projections of cyber self are more troubling.

PERSONALITY ONLINE

The ability to get to know people who are on the Internet is deeply reinforcing. We are social beings and we thrive on feeling connected to others who
are like us. In Yuen and Lavin’s (2004) recent study of college students’ vulnerability to Internet dependence, the authors found that shy students were more likely to use the Internet compulsively, leading to failing classes and eventually leaving school. Evidently, because shy students preferred online interactions over F2F, their offline social skills suffered. “The Internet provided a safe haven where feelings of social discomfort are alleviated” (p. 382). These shy students cut morning classes because they would surf the web all night. They preferred to sit at their computers rather than participate in F2F social events to make friends. The authors admit that colleges and universities have inadvertently laid the groundwork for unhealthy online behaviors; most college dorm rooms are wired with T-3 lines and even have e-mail accounts, home pages. Ethernet ports can be found among the grass and trees in the quad. The authors propose that “as students enter the collegiate population it is necessary to address the binge drinking, date rape, and the dangers of compulsive Internet use” (p. 382).

Children and teenagers are not the only ones who are vulnerable to online/offline identity issues. As we age, we certainly get a clearer sense of self, but that does not mean that our adult perspective of who we are remains static throughout our lives. Although there are a variety of traits we might use to describe ourselves, researchers have identified some major personality constructs that are relatively enduring for most of us to some degree throughout our lifespans. Called the “Big 5,” the primary personality characteristics are introversion/extroversion, agreeableness, conscientiousness, emotional stability, and openness to experience (Larsen & Buss, 2005). Few of us think of ourselves only in these ways, however; there are other personality characteristics that may emerge as a result of life events. Not surprisingly, given the empirical importance in the personality literature of these constructs, it is the characteristics of introversion and extroversion that have been studied quite a lot in terms of Internet effects.

**Introverts and Extroverts Online**

The most controversial study on the self as a function of life online was done by Kraut et al., (1998). Called the “Internet Paradox Study,” these researchers initially found that Internet use increased loneliness and depression in a sample of people who received free computers and Internet access in the early days of the Internet. Their results, which are now considered almost outdated by Internet research standards, seemed paradoxical given other studies pointing to positive social and personal impacts of Internet use. This study resulted in a lot of dialogue among psychologists interested in this new media, as well as feature articles in Psychology Today and the APA Monitor. Some pointed to various methodological flaws in the Internet Paradox Study as well as noting that statistical difference is not always the same as clinical difference. In other words, statistics may not be accurate when attempting to explain the subtleties of human behavior.
In a 3-year followup study, this same group examined introvert/extrovert personality styles. Kraut et al. (2002) found positive effects for communication, social involvement, and psychological well-being, depending on personality type. They found that in line with their personalities, extroverts increased their social contacts by being online, while introverts who used the Internet extensively decreased social contact. The same result was found with loneliness; extroverts became less lonely with extensive Internet use and introverts became lonelier.

Internet usage is often suggested as a way to practice social exchanges for shy individuals but the research just cited does not seem to support that suggestion.

But extroversion is related to being online as Yang and Lester (2003) examined. A question in their research was the relationship between extroversion and neuroticism and Internet usage for citizens from 18 industrialized nations. These researchers found that extroversion was positively associated with Internet usage while neuroticism was negatively associated. That is, extroverts but not neurotics use the Internet across cultures in the industrialized nations.

However, the findings of the Kraut group are not equivocal since some others have replicated their investigations in part and obtained some different results (Wastlund et al., 2001). Engelberg and Sjoberg (2004) found that “use of the Internet was related to loneliness and adherence to idiosyncratic values (strong effects), and also to poorer balance between work and leisure and emotional intelligence (weaker effects)” (p. 41). However, they did not find any relationship to the Big 5 personality traits.

**Other Personality Types Online**

Needless to say, people differ in the degree to which they are susceptible to the disinhibition effect, just as online situations vary as to how likely they are to elicit this effect. Morgan and Cotton (2003) found that depressiveness was associated with Internet use but depended on the type of use. Specifically, they found that e-mail, chat, and instant messaging were associated with decreased depressive symptoms while shopping, playing games, or information seeking were associated with increased depressive symptoms. The basic difference between the sets of activities is that chatting involves others, while activities that are solitary appear to increase isolation and thus lower mood. In personality research, it has also become clear that the parts of your personality you choose to project into cyberspace are reflected in what you are doing online (e.g., in face-to-face reality, churches or bars elicit very different aspects of self). Morgan and Cotton’s (2003) research also shows that the emotional openness evident in chat rooms can be therapeutic because we feel able to express ourselves and be understood (see the King and Moreggi chapter in this book for an extended discussion of this point). In contrast, no such response typically occurs while shopping or gambling online, since these are solo activities.
Morahan-Martin and Schumacher (2003) found that lonely college students were more likely to report Internet use for emotional support than were nonlonely students. However, such research on individual differences in Internet use is not entirely consistent. Hills and Argyle (2003) found no association between personality type and overall Internet use while Jackson et al. (2003) found an association between personality and Internet use for the first three months of having access to the Internet but no difference thereafter.

In an interesting study on empathy, researchers hypothesized and found that those high in empathy were more able to experience a sense of reality (called tele-presence) in the virtual world (Nicovich et al., 2005). This differed as a function of gender, with empathic men using the interactions of the virtual world to become increasingly engaged while empathic women simply watched the environment for the same effect. Given that empathy is the ability to identify with another’s experience, this is not surprising. It appears that men need more direct engagement to experience empathic presence than do women.

Various studies have examined personality variables as related to problem behaviors online. One study dealt with personal use of the Internet at work (Everton et al., 2005) while another examined misuse of the Internet by children (Harman et al., 2005). Everton et al. (2005) found that “people who use their computers in unproductive ways tend to be men, younger, more impulsive, and less conscientious” (p. 143). They also noted that sensation seekers were more likely to use their computers/Internet to view sexual material at work. Personality and children’s misuse of the Internet was the focus of the work by Harman et al. (2005), who were particularly interested in faking behavior online. Children between 11 and 16 who were more likely to do this “had poorer social skills, lower levels of self-esteem, higher levels of social anxiety, and higher levels of aggression” (p. 1). When one considers that half of children in the study by Valkenburg and colleagues (2005) faked their identities online, this finding is of concern, if perhaps not surprising. Adolescence, the focus of both studies, is a time of growth and change regarding the self. What is also interesting about this finding of Harman and colleagues was that it was not the amount of time children spent online that was associated with these problems in personality but rather what they did online. In this case, they were faking who they were.

Finally, Engelberg and Sjoberg (2004) report no specific personality differences nor did Hills and Argyle (2003). The latter, however, point out that while “gender and age significantly influenced patterns of use, ... there were remarkably few significant associations with individual differences in personality when gender and age were controlled for” (p. 59). Thus we’ll turn our examination of self online to various demographics, including gender and age, which may be a clearer way of determining how self influences and is influenced by the Internet experience.
THE SELF AS A DEMOGRAPHIC ONLINE

Developmental psychologists have shown us that one of the earliest elements in the construction of our sense of self is gender. Also important in developing self are elements of age, race, culture, and socioeconomic status. So, too, online these elements of self inform our experience. It is this view of self that we will consider in the remainder of this chapter.

In 1998, Morahan–Martin noted:

There is a gender gap in Internet use ... from childhood on, males are more experienced with computers and have more favorable attitudes towards computers than females. These gender differences in computer experiences and attitudes as well as the masculinization of the computer culture may be transferred to Internet use and attitudes. In fact, the Internet culture was developed by its earliest users, primarily male scientists, mathematicians, and technologically sophisticated computer hackers. This culture can be disconcerting and alien to females.

While Morahan–Martin argues that this gap continues today, at least in terms of use patterns (personal communication, April 26, 2005), the UCLA group (Cole et al., 2003) reported that the majority of both men and women are now online (73.1% of men and 69% of women).

In this respect, this gendered pattern of Internet usage is not new. The telephone was originally the province of white businessmen, but as women gained comfort and familiarity with the medium, it became increasingly used for female social purposes. A report by Williamson in eMarketer (May 2005) shows that as of 2004, women have become the majority of United States Internet users (51.6%) and that trend is expected to continue. Women have embraced the Internet for use in online games, health content, and music, but increasingly are shifting consumer spending to online.

GENDER AND INTERNET USE

It might be suggested that the origins of male interest in video games, and thus their earlier use of computers and the Internet, may be found in sex-related differences in abilities such as spatial skills. It is probable that the decline of these differences is a result, in part, of the increasing invisibility of the computer as a medium of access to the Internet. After all, women use all the other communication media as much as or more than men, once the use of the medium is demystified. This is happening with the Internet as well.

As the Internet increases its penetration into contemporary society, the social skills once typically the province of women are increasingly necessary for effective Internet usage. This social skills need is especially evident in the incidence of disinhibition, more commonly called “flaming,” seen in some Internet communications.
This sort of rude behavior is less likely to occur when women are part of the communication cycle. Some suggest that the introduction of “netiquette” can be in part attributed to the increase in numbers of women online.

As research mounts addressing gender issues in Internet usage, some trends have been identified. Ono and Zavodny (2003) reviewed several surveys of gender differences in Internet usage from 1997 through 2000. They found that when controlling for socioeconomic differences, “women were significantly less likely than men to use the Internet at all in the mid-1990s, but this gender gap in being online disappeared by 2000. However, once online, women remain less frequent and less intense users of the Internet” (p. 111). Since this report, others have continued to note a consistent, if small, difference in gender use of the Internet worldwide (Cole et al., 2003; Lebo & Wolpert, 2004). Additionally, gender differences in types of usage have been reported by several groups including the Pew group (Rainie & Kohot, 2000). They note:

- 55% of Internet users say their email exchanges have improved their connections to family members—60% of women assert that; 51% of men say that
- 59% of those who email family members report they communicate more often with significant family members now that they use email—61% of women say that; 56% of men say that
- 66% of Internet users say email has improved their connections with significant friends—71% of women assert that; 61% of men say that
- 60% of those who email friends report they communicate with significant friends more often now that they use email—63% of women assert that; 54% of men say that
- 49% of email users say they would miss email a lot if they could no longer use it—56% of women say that; 43% of men say that (p. 7)

One might conclude that women may not use the Internet as much overall as men, but when they do, it’s more for communication. However, these absolute differences are so small that likely they are disappearing.

**Gender and Game Play**

Research has shown that video game play is a strong predictor of later computer and Internet use (Morahan-Martin, 1998). Furthermore, such game play has increasingly has moved online. Meunier (1996) pointed out that males tend to be more interested in computers than are females, but makes some clear statements that this phenomenon stems from socialization both in and outside the schools and different play preferences in video gaming. A 2001 report from the NUA Internet
Survey indicates that the female audience does indeed seek a different gaming experience:

- Women now constitute 50.4% of online gamers, although males represent 55% of total gamers.
- The “Spotlight on Games: Categories and Hardware” study found that men and women prefer different types of games. Women were less likely to play first-person shooter games (12%) compared to men (38%).
- Women preferred board or card games, with 78% having played such games, in contrast to 51% of males. Quiz, trivia, and gambling-oriented games were also more popular with women.

Although females are less likely to play most forms of electronic games, there are some that they play more often. Jones et al. (2003) report that women are more likely to play computer (32%) and Internet (15%) games than are males (19 and 12%, respectively) but less likely to play video games (17% of females versus 53% of males). So, too, reasons for playing differ as a function of gender. Jones et al. note that women were more likely to report playing because they were bored while men played for fun. Also, women were “much less likely to believe that gaming improved their relationship with friends than men believed” (Jones et al., 2003; p. 11).

This is illustrated by a recent Nielsen/NetRatings (2004) study which found that for online gamers 35 or older, it was women and not men who dominated. However, some online games still show the male preference. For instance, Griffiths et al. (2003) report on two very large surveys from online role playing games (Everquest and Allakhazam). With almost 18,000 respondents on a question about gender, about 85% were male.

Goldstein (2003), in a review of the gaming literature, notes that this confound of gender with playing frequency has misled researchers in some of their conclusions about the results of gaming. Results may have more to do with gender differences than gaming playing frequency differences. This is illustrated in another study about online role playing games. “Boys in same-sex pairs interacted with one another through action, rapid changes, and playful exchanges. Girls in same-sex pairs interacted primarily through written dialogue. In mixed pairs, boys wrote more and engaged in less playful exchanges, and girls wrote less and increased their actions.” (Calvert et al., 2003; p. 627). These are play behaviors that are typical of gender and not necessarily of online play per se.

That said, it has been suggested that “female gaming is the last frontier; 2006 is going to be a milestone year” (Dickey & Summers, 2005). In a recent Newsweek story interviewing industry spokespersons, it was pointed out that although 50% of game purchases are made by women, no one really knows the exact percentage of women playing games. It is widely thought that most of the purchases are for males in their lives. The overlooked potential of women as gamers was discovered by the
surprising popularity of Sims among women. Fully half of players online and off are women who enjoy the relationship and the creative aspects. In Sims, the players can make their own home and engage in various social interactions. But also, to the surprise of the industry, “girls and women started flocking to the fantasy landscapes of sword-and-sorcery universes like World of Warcraft” (Dickey & Summers, 2005). These, as well as other newer online role-playing games like Facade and Second Life, are bringing in female gamers.

In a related study and contrary to common assumptions, Anderson et al. (2003) found few gender effects on how violent media affects aggression. They note that previous research revealed strong gender differences, with boys more affected by violent content in games than girls. Boys were found to enjoy violent video games more than do girls. However, we know that game designers cater to male characters and interests, with the heroes and action characters always male. Research now shows an interesting gender difference: girls generally prefer fantasy violence, while boys prefer human violence. These are, of course, in line with traditional sex role play preferences and consistent with the gender differences in online role playing games noted earlier in this chapter.

THE INFLUENCE OF AGE, ETHNICITY, CULTURE, AND POVERTY

As noted earlier, when age and gender were controlled for, personality seemed to make less difference in determining Internet use. This is because self is also informed by one’s age, ethnicity, culture, and socioeconomic status. In this section, we consider these variables in terms of Internet use. The chapter in this book by Varnhagen on children and the Internet covers an important component of how age influences people’s engagement of the Internet with self. Here, we first take a brief look at the elderly and the Internet.

Elderly

The segment of the population least represented among users of the Internet is the elderly. They represent only 18% of households with Internet access, according to the U. S. Census of 2000 (Newburger, 2001). By 2003, the UCLA report (Cole et al., 2003) says that the 65+ group has 34% users. Clearly, Internet usage among the elderly is growing. Noel and Epstein (2003) report upon an online survey of use of the Internet by those 50 years of age or older. They note that “In a comparison of highly social Internet users versus low-social users, we found that high-social users spent more time on-line and reported more physical and mental health problems. However, the groups did not differ in amount of or satisfaction with social support they received” (p. 35).
In a recent report from the Pew Internet and American Life Project (Fox, 2004), 436 seniors who use the Internet were interviewed by telephone. The author reports these highlights:

There have been big increases since 2000 in the number of online seniors doing several key activities. It is important to stress, though, that even with these high growth rates, it is usually the case that online seniors have done these online activities at lower rates that younger Internet users.

- 66% of wired seniors had looked for health or medical information online at some point in their online life by the end of 2003. That is a 13-point jump since 2000, and a growth rate of 25%. And online seniors are much more likely than other Internet users to have logged on to get information about Medicare and Medicaid.
- 66% of wired seniors had done product research online by the end of 2003. That is an 18-point jump since 2000 and a growth rate of 38%.
- 47% of online seniors had bought something on the Internet by the end of 2003. That is an 11-point increase since 2000 and a growth rate of 31%.
- 41% had made travel reservations online by the end of 2003. That is a 16-point increase since 2000 and a growth rate of 64%.
- 60% of wired seniors had visited government Web sites by the end of 2003. That is a 20-point jump since 2000 and a growth rate of 50%.
- 26% of wired seniors had looked for religious and spiritual information by the end of 2003. That is a 15-point jump since 2000 and a growth rate of 136%.
- 20% of online seniors had done banking on the Internet by the end of 2003. That is a 12-point increase since 2000 and a growth rate of 150%. (p. ii)

Despite these advances, the elderly are still the least likely to go online among various demographic groupings (Madden & Rainie, 2003). Although it may be a steep learning curve, as the baby boom generation ages, it is likely that more and more will be online.

**Socioeconomic Status and Culture**

It is not surprising that Internet technology is proving to be the province of the North American middle class, (and, until recently, the male middle-class), which by world standards is well-to-do. Historically in Western culture, new communication technology has always been controlled by the economic and social elite.

Enthusiasm about the potential of the Internet to bring the world’s peoples together must be tempered by sobering statistics. Norris, in her book *The Digital Divide* (2000), points out that the areas of the world with more money are the areas with more Internet usage. In addition to financial differences, it reflects a general cultural difference. Psychologists point out that the world’s cultures can be
conceptualized along the dimension of collectivism versus individualism (Larsen & Buss, 2005). Some emphasize the individual’s rights while others emphasize group responsibilities. Western, industrial, and Internet-connected cultures, in general, tend to be wealthy and individualistic while Asian, Middle Eastern, South American, and African cultures, which have much lower percentages of Internet connections, tend to be collectivist. The most extreme individualist culture is the United States, with one of the highest levels of Internet connections. Thus, the Internet reflects to a large extent the primacy of self.

Relative to other mass media, worldwide, radios have the widest dissemination, but only 40% of the world’s population have radios. Thus, Internet users represent a very small, if influential, segment of the world’s population. The Internet is another mass communication technology that may be perpetuating the gap between the haves and the have-nots. Thus, the question of socioeconomic class as well as gender, which has historically related to the power and well-being of an individual, becomes crucial to our understanding of the psychology of the Internet.

On a hopeful note, some data in the early days suggested that Internet use by disadvantaged populations allows them to access electronic mail and information services that can mediate some of the negative circumstances of their lives (Bier, 1997). More recently, Spooner and Rainie (2004) of the Pew Internet and American Life Project reported that the digital divide for African-Americans, who are one of the largest poverty groups in the U.S., is narrowing. There are other places as well where Internet usage among the poor is relatively high, including Sweden and Korea (Lebo & Wolpert, 2004). By relatively high, we mean between 40 and 50% of the poorest individuals in these countries go online. In most other countries, the figure is lower, according to this Pew Project report.

**Ethnicity**

The ethnicity of online users is also changing, as the following results from NUA Internet Surveys (2001) indicate:

- The number of home Internet users in the U.S. increased by 33% in 2000, with African Americans leading the online growth.
- According to figures from Nielsen/NetRatings (2004), the African American online population increased by 44% to 8.1 million between December 1999 and December 2000.
- Internet use among Hispanics grew by 19% to more than 4.7 million people, while the number of Asian American Internet users reached 2.1 million, an increase of 18%.
- Caucasians remain the largest ethnic group online, currently accounting for 87.5 million of America’s home Internet users.
- NetRatings attributed the growth in Internet use across ethnic groups to the lowering cost of PCs and cheaper Internet access. (www.NUA.ie)

In spite of these improvements, the Internet remains a relatively privileged environment, with ethnicity, class, and gender linked to Internet usage in our society.

For example, Badagriacco (1990) has shown that ethnicity affects computer access, use, and attitudes. She found that, just as men have had more computer experience and more favorable attitudes toward computers than have women, so whites have had the most and Hispanics the fewest years of computer experience. Coley notes (1997):

For college-bound seniors from the class of 1996, word processing exposure was the most frequent type of coursework or experience. Minority group seniors were less likely to have courses or experience in word processing and computer literacy and less likely to use computers in English courses and to solve problems in math and science.

While 85% of U.S. schools surveyed for the study had multimedia computers and 64% had Internet access, Coley found that poor and minority schools had less access. In addition to the economic disadvantage often experienced by nonwhites in getting access to communication technology, the content of the Internet can be a factor. Because it is unregulated, the Internet provides unprecedented opportunity for the distribution of pornographic and racist texts. Such material may, perhaps, cause a person to avoid the medium or to pause before revealing his or her ethnic background. In this way, the Internet may indeed provide an opportunity for blacks and other minorities to reaffirm their rights in Western society.

In a more recent report by the Pew group (Spooner & Rainie, 2004), the racial difference between blacks and whites in the U.S. was examined. Similar to the results shown in previous studies, blacks (36%) do not use the Internet as much as whites do (50%; data from 2000) but when they do, they report higher incidence of usage across a broad band of activities. Specifically, these authors say:

- Online blacks are 69% more likely than online whites to have listened to music on the Web.
- Online blacks are 65% more likely than online whites to have sought religious information on the Web.
- Online blacks are 45% more likely than online whites to have played a game on the Web.
- Online blacks are 38% more likely than online whites to have downloaded music files from the Web.
- Online blacks are 38% more likely than online whites to have sought information about jobs on the Web.
- Online blacks are 30% more likely than online whites to have sought information about a place to live on the Web.
- Online blacks are 20% more likely than online whites to have conducted school research or gotten job training on the Web. (p. 2)
SOCIAL ROLES AND INEQUALITY ONLINE

For nearly 400 years after the invention of the printing press, most Europeans were illiterate. It was only after the advent of compulsory primary education in the mid-nineteenth century that the ability to read became a psychological, social, and economic value. Until very recently, computer literacy was ancillary to individual success in Western society.

However, on a global level, the social ground has shifted. The ability to operate computers and access the Internet has acquired an economic and moral force. As a society, we are beginning to feel that we ought to know how to use these technologies, and that we are somehow intellectually lax if we do not; intellectual slowness has taken on an almost moral overtone. In this climate, traditionally disadvantaged groups (such as women, minorities, and the poor) have a doubly difficult task—mastering a new technology that has been developed for and is still controlled by the gender, cohort, race, and social class that has traditionally controlled everything else.

Many forms of communication technology have been associated with a particular sociopolitical organization. In the history of Western communication technology, the alphabet and the printing press have been lauded as harbingers of democracy and free speech. Many people make similar claims about the Internet; there is a wild and woolly “everyman” aura about the Internet that some people find very inviting. Its seemingly chaotic environment is especially appealing to a young computer-literate generation.

Yet, there is a paradox. The virtual land of free speech and personal freedom has restricted access. The Internet is a racially, sexually, economically coded technology that can prove daunting to many members of society at large. Access to the technology for these people requires a heavy psychoemotional investment that some people may not be able to afford. The payoff for those who do manage to push past the doors of privilege and prejudice is access to a certain kind of power to change their own environment.

REFERENCES


