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Online news : uses and gratifications and displacement hypothesis

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ONLINE NEWS: USES AND GRATIFICATIONS
AND DISPLACEMENT HYPOTHESIS

A Thesis
Presented to the Faculty
of the School of Journalism and Mass Communications
San Jose State University

In Partial Fulfillment
of the Requirements for the Degree
Master of Science

By
Seema Swamy
May, 1997

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ABSTRACT

ONLINE NEWS: USES AND GRATIFICATIONS AND DISPLACEMENT HYPOTHESIS

by Seema Swamy

This thesis focuses on how online news affects usage of other traditional sources of news--newspapers, television, radio, and news magazines. It examines the amount and type of usage of online media as a function of gender. In addition, this research examines the amount and type of usage of online media as a function of socioeconomic status. The survey of a random sample of Cupertino, CA residents also focuses on the relationship between familiarity with computers and time spent on online media.

Survey results showed that there was a negative relationship between time spent accessing news online and time spent on newspapers. However, there was a positive relationship between news online and news magazines, and no significant relationship found between accessing news online and news on television, or news on radio. Men are more likely to use different online services than women, although there is no significant difference between total usage of online media between men and women.

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This thesis resulted from changing the direction of interest of this student from development communication and political communication to the field of new media, especially online media. Professor Diana Stover convinced me that I would not have to choose new media over political communication. Instead, I could integrate the two fields of communication to research the impact of online media or the internet on how people process political information. This study, however, is limited to how people use online media and what changes are brought about in the media mix. I am deeply indebted to Professor Stover for providing guidance, facilitating academic growth, and motivating me to pursue research in new media. She has mentored me and enabled me to grow and realize my potential for which I will always be appreciative and obligated.

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CHAPTER 1

INTRODUCTION: USES OF ONLINE NEWS

Societies have always been shaped more by the nature of the media by which men communicate than by the content of communication.

Marshall McLuhan (1967)

Purpose of the study

This study examined the impact of online media, particularly online news on the usage of newspapers, television news, radio news, and news magazines. It examined audience behavior to see if there is a change in media behavior with the inception of online news. The researcher also looked into selective exposure of online news-readers to specific news of individual interest.

Since online media are a form of computer-mediated communications, familiarity with computers may help overcome reluctance to use online media. The relationship between computer usage and online usage was examined. The researcher also examined gender and age differences in the use of online media. As the hardware required for this kind of communication is expensive, the researcher looked into demographic characteristics of users, to determine whether there is a relation between socioeconomic status and use of online media for news.

Since there is very little primary research in the field pertaining to online media, this research will help bridge the gap and update literature on usage of online media.

Background

Technological change has placed communications in the front lines of a social revolution (Paisley, 1985). Computer technologies are currently the dominant force shaping the future and redefining the manner of communication dissemination and reception.

Computer networks connected online have emerged over the past decade as a major source of information and communications. Online media offer platforms for retrieving, exchanging, and publishing information, unimpeded by physical-geographical constraints (Ashley, 1992).

Online media serving news is a new media technology. Rice & associates (1984) used the term, new media, to refer to a broad class of recently available communication technologies. However, these media are new only to the generation first experiencing them. Ultimate consequences of a new communication technology are seldom known and cannot be very accurately predicted when the new media first become available (Pool, 1983; Rogers, 1986).

McLuhan (1967), a technical determinist, stated that it is impossible to understand social and cultural changes without a knowledge of the workings of media. Online services encompass e-mail, electronic bulletin boards, chatrooms, cyberspace discussion groups, and online news, among other things. Online services provide information on a computer screen, via a modem and a telephone line that are hooked up to a central network system.

Whitehouse (1986) defined online as a means of delivering print and graphic information to viewers through a video multiplexing technique.

Different versions of online technology were developed in the late 1970s, of which the main component is the computer. Moghdam (1978) noted that in the next few years, all newspapers, large and small alike, will be affected by time-sharing and the computer utility concepts. To appraise these new ideas with an open mind is absolutely necessary.

Individual media attributes influence the use of different media. Some communications experts believe that online news may replace the traditional newspapers, while others feel that it may simply alter the way people seek information from different sources. In any case, it is expected to affect the use of various media and cause a shift in the way people use different media (Rogers, 1986).

Online media serving news are hybrid media that incorporate characteristics of both print media and video. They closely resemble newspapers and news magazines in format and function. This study examined whether news online merely supplements the newspapers or is replacing them as the primary source of news. The onset of television changed the format of newspapers. The most notable change was the introduction of color in news pages (Rogers, 1986).

This research was designed to determine differential patterns of usage of media with the inception of online media. As Comstock's (1989) study found, television with both sound and visual features, replaced radio as the primary source of entertainment. This study focused on whether online news is supplementing or replacing the daily newspapers, television news, radio news, and news magazines. These empirical assumptions were examined with the constancy hypothesis in mind.

Although some of the functions may overlap between media, the uses made of different media are to some extent specific to the media themselves. Inherent characteristics of the media may determine, to a great extent, uses made by people. Uses and gratifications provides a theoretical base to study testable statements relating to the utilization of online news and its ability to gratify the needs of the users.

There may be gender differences in use of online media which is a form of computer-mediated-communications. Gender expectations with stress placed on proficiency in use of technology by men may show greater usage of online media by men than women. The element of affordability can act as a strong deterrent to the widespread use of online news. Advanced technology is generally used more by the well-educated and those with higher incomes. This study used survey research to examine the relationship between use of online media for news and use of traditional media for news. It also examined use of online media as a function of gender and types of usage of online media by men and women. The study examined the association between length of usage of computers and use of online media. This research also examined the relationship between social economic status and use of online media.

CHAPTER 2

THEORY AND LITERATURE REVIEW

Online news is a form of computer-mediated-communication, where messages are retrievable, and controlled by users, more so than with media such as newspapers (Danowski, 1982). There are very few studies on the uses of online technology. The literature review will focus on major studies of online communication, and other related media. The main theoretical underpinnings for the research will be uses and gratifications theory and Scripps' constancy hypothesis.

Early Studies

Prior to online news there were other fairly similar news media such as teletext and videotext. A study was conducted by Weaver (1983) on teletext systems in Holland to gauge their impact on newspapers. Weaver found that only 18% of the respondents reported using the electronic newspapers frequently to update information received from newspapers and other media. About 61% said that they had read an item in a newspaper that they probably would not have otherwise read except for seeing it first on teletext and vice versa.

The accepted definition for teletext and videotext was given by Tydeman, Lipinski, Adler, Nyhan, & Zwimpfer (1982),

who defined teletext and videotext as: "Systems for the widespread dissemination of textual and graphic information by wholly electronic means, for display on low-cost terminals (often suitably equipped television receivers), under the selective control of the recipient."

The study by Weaver (1983) suggests an overlap in content and usage between teletext and newspapers in Holland. The study implied that teletext viewing affects newspaper consumption, depending on whether the reader wants to know more about the subject being written about. It also indicates multiple usage of newspapers and teletext.

Teletext primarily serves cognitive needs by providing information relevant to the seeking audience, rather than fulfilling the function of diversion (Weaver, 1983).

Williams (1982) noted that videotext systems will probably grow much more for services dealing with information which has a good market if it can be constantly updated, easily indexed, and usable in modest-sized amounts such as stock reports, news headlines, directories, schedules, sports results, and weather forecasts. In competition with newspapers, videotext is efficient for news such as horoscopes, and especially classified advertisements.

Rogers (1986) cited a study on displacement in usage of media, an unpublished dissertation by Caron in 1985, which

looked into the impact of home computers on peoples' television viewing habits. The study found that the adoption of a home computer in households led to a decrease in the number of hours spent watching television. In the average American household, the television set is turned on for seven hours a day. The viewing time was reduced by 34 minutes a day, after the adoption of the computer, which represented a major shift in the use of time.

These two studies by Weaver and Rogers show a pattern of adjustment in the time spent on existing media with the arrival of new media. There was a distinct displacement in the use of traditional media. In the first case, the newspapers had to compete with teletext for readership. Likewise, although the home computer did not replace television, it did displace some of the time spent on the older media. The onset of new media led to a shift in the nature and extent of consumption of various media.

Williams (1982) has suggested that the printed paper is not likely to disappear soon. He said that it does not seem likely that new media technology will replace the printed paper where the reader wants to browse through a great deal of information or read at a steady and fast pace, especially with the charge meter running. Yet, certain types of information services where selected information has to be

retrieved and where information is frequently updated may be served well by new media technology.

The Constancy Hypothesis

McCombs (1972) explicated Scripps' (1965) constancy hypothesis in which he postulated that the amount of money spent on mass communications is relatively constant. He asserted that the level of spending on mass media by consumers and advertisers is determined by the general state of the economy and that any change in the level of the U.S. economy causes a parallel change in spending on mass media.

McCombs (1972) noted that the overall impression is that what is spent on mass communications has not increased with the advent and spread of new media such as radio and television. The money to create two ubiquitous broadcasting systems, first radio, and later television, appears to have come more from changing media habits and general economic growth than from any fundamental shift in consumer habits--such as allocating mass media a larger share of personal income.

McCombs (1972) noted that the close relationship between general economic conditions and spending on mass communication media underlie a behavioral principle, the principle of relative constancy. It describes a major constraint on the growth and expansion of American mass media. The principle appears to hold under a wide variety

of historical conditions and communication technologies, although some researchers have delineated some exceptions.

McCombs (1972) cited Bogart's (1969) study that concluded that the total media mix in the United States is not a random mix of technologies and sociological patterns. The composition of this media mix exhibits some regularities. If one conceives of mass media as serving a social and psychological need of each individual in their audience, then the appearance of another medium that serves that need better will result in shifts among the audiences. Over time, for example, radio, movies, and television successively took over portions of the news, information and entertainment functions of the newspapers. Similarly, online communication could subsume most of the functions of traditional media such as newspapers, news magazines, radio, and television and affect the amount of time spent on them to acquire news.

Studies on the effect of television on the time that people spend on other activities have preoccupied media scholars from the time of its introduction (Himmelweit, Oppenheim, & Vince, 1958; Maccoby, 1951). The displacement hypothesis assumes that time budgets are full and finite entities. Therefore, the introduction of something new must force out time spent previously on another activity (Mutz, Roberts, & Vuuren, 1993). However, Maccoby (1951) found

that school children spent much more time on television than they took away from other media. Coffin (1955) also found that the decrease in children's use of other media accounted for only 50% of the additional time spent watching television. These scholars attribute additional time spent on television to other nonmedia activities (such as intellectual, social or physical growth) that were not measured in their studies.

In response to the question of how the introduction of new media influence patterns of media use and other leisure activities, communication scientists point to the aspect of functional similarity. People to some extent gave up those activities that less effectively satisfied the same needs that television serves. Television serves escapism needs and fantasy facilitation, the same functions attributed to movies, resulting in the decline in movie attendance (Rogers, 1986).

Henke and Donohue (1989) stated that in a functional scheme, new media are viewed as displacing existing media at a societal level because they are able to deliver services, content, and entertainment more efficiently, attractively, or conveniently. They stressed that functional displacement at an individual level recognizes that (1) individual patterns of media use depend on individual needs and motivations; and (2) which medium one uses to satisfy a need

can change rather rapidly as new media or technological innovations emerge.

The notions of functionally equivalent mass communications and complementary shifts in mass media audiences are compatible with the idea of economic constancy in consumer support of the mass media. The notion of functional equivalence, is simply a way of describing the alternatives considered by the consumer or the audience. According to the uses and gratifications model, the audience actively decides and chooses the media and the message.

The consequence of the introduction and use of video cassette recorders in the United States has affected viewership of network television (Henke & Donohue, 1989). The share of viewing audience attracted by ABC, CBS, and NBC dropped from 92% in 1977 to 72% in 1991 (Neuman, 1991). Some of the former network TV viewers defected to cable TV, but many are watching videotaped programming (Rogers, 1986). This has also resulted in a change in the media mix.

Belch and Belch (1995) noted that newspaper readership has been on a steady decline for the past two decades with steady competition from other media, especially television. The percent of adult population reading newspapers on the average weekday has declined from 70% in 1970 to just over 60% in 1995. This decline also reflects trends among the

younger generation that has found functional equivalence for newspapers in other media.

Himmelweit et al. (1958) suggested that, unless functionally similar activities are transformed to serve different needs, they will be displaced to the extent that they disappear. Mutz et al. (1993) noted that radio exemplified this principle in the United States. To survive television's inroads, radio content, programming and strategies changed. This idea is seen as a derivation of functional equivalence principles. Change in the nature of the old activity is likely to reduce functional similarity between the two activities, thus making it more likely that the two can coexist.

Characteristics of online users

The use made of technology can only be as sophisticated as the peoples' knowledge in using it. For most people there is no functional need for computers at home.

A study by Rogers and others in 1982, found that of 77 Silicon Valley owners of home computers, most were technical and socioeconomic elites; 28% had Ph.D.'s and 20% were scientists or engineers. The average personal income was \$38,000, the average age was 36 years and 89% were males. It is still fairly expensive to subscribe to online news, which requires a computer, a modem and a telephone line;

technologies that only people belonging to a higher socioeconomic group can easily afford.

Rogers (1982) found that one of the most serious social problems in the information society are unemployment, poverty, and functional illiteracy, a finding in accord with the constancy hypothesis. One of the main problems of home computers is to learn how to use them. Consumers find computers expensive and complex to learn to use. Perceived complexity of new media can be a deterrent to its being used (Rogers, 1982). However, computers serve as a conduit in bringing information into the home, but only 15% of home computer owners had a modem in 1995 and utilized their equipment for communication (Cameron & Curtin, 1995).

A study by Venkatesh and Vitalari (1984) found that users of home computers belonged to higher socioeconomic groups. A functional literacy of computers is necessary to use online media.

Previous research testing the constancy hypothesis, lends credence to the assumption that people belonging to higher socioeconomic status can afford to purchase new media technologies. McCombs (1972) reported the Willey and Rice (1933) study in which they found a parallel between personal income and the early diffusion of radio sets. With few exceptions, the cities in which three-fourths or more of all families had receiving sets were residential suburbs of

larger cities, in which, accordingly average economic status is unusually high. Less than two decades later the same pattern was repeated in the diffusion of television sets. Early purchase was clearly related to income.

In addition to the high cost of the technology itself, users are charged for the amount of time they spend on online media beyond an allotted number of hours. This additional expense may compare unfavorably with the subscription of a newspaper. However, added expense may not be of much consequence to the better off among those who own online technology.

Carter and Cullen (1983) noted that widespread use of a new technology takes time. Online news is not yet a successful proposition, as it is relatively new and will take time to find wider acceptance, if it is more fortunate than teletext and videotext which fizzled out, at least in the United States. Its success depends on the use of the new media by a "critical mass" (Williams, Rice, & Rogers, 1988) of users to make it a viable proposition. The critical mass is determined in part by the technology and the characteristics of the users to whom the technology may have utility. The perceptions and demographic characteristics of the users as well as the attributes of the technology itself assume great importance in determining the use of new media technologies.

Uses and Gratifications Approach

Uses and gratifications is a theoretical concept with the central assumption that the audience is active and seeks gratification of its felt needs; and individuals' media behavior is goal-directed. This approach essentially (structural and functional) argues that people manipulate the media more readily than the media content influences them.

The theory is audience based and it is the receivers choice, reception, usage, and response to the media and the message that is more important, than the message generation, transmission, or the content itself (McQuail, 1991).

It assumes that individuals have certain motives and needs, which they seek to satisfy, using various media or alternative sources of fulfillment. The selection of the media and content are dependent on the social and psychological predisposition of the users (Katz, Blumler, & Gurevitch, 1973). The balance of investment has already swung from center to periphery, from publishers to receiver, from producer to audience, in the electronic era, and the pendulum will swing farther yet, in the same direction if printed information is to reach a sizable section of the readership by way of the new devices (Smith, 1980), such as news online.

Katz et al. (1973) defined the concept of uses and gratifications theory as one concerned with: (1) the social and psychological origins of (2) needs, which generate (3) expectations of (4) the mass media or other sources, which lead to (5) differential patterns of media exposure (or engagement in other activities), resulting in (6) need gratifications and (7) other consequences, perhaps mostly unintended ones.

Independent measurement of gratifications sought and received is also crucial to the development of an adequate theoretical understanding of the role of motivation in media effects (McLeod, Bybee, & Durall, 1980). The drive/drive-reduction model probably best represents the relationship between media use and satisfaction. This assumes that people can abstractly recognize what they are seeking and develop expectations based on past experience with various media sources. The level of actual satisfaction or drive reduction can be roughly indexed by the degree of fit between each gratification sought and its level of perceived provision by the media source (Palmgreen, Wenner & Rayburn, 1980). Uses and gratifications theory has historically been applied to mass media but it has always held promise for the study of other media including new technologies (Williams, Phillips, & Lum, 1985).

McQuail (1991) stated the purpose of the paradigm: "The origins and underpinnings of uses and gratifications include a simple wish to know more about the audience; an awareness of the importance of individual differences in accounting for the audience experience; . . . and at the power of popular media to hold and involve their audiences; and an aid to psychological modes of explanation."

Grounded in the assumption that activity is a significant intervening variable in media uses and effects, Rubin and Perse (1987) noted that predictable links may be found among motives or gratifications sought and three types of audience activity: intentionality, selectivity, and involvement. Intentional media use is purposive and planned. It is a goal-directed behavior with a sense that the content is important and audience members intentionally choose to procure news.

Audience activity may also be conceptualized by the degree to which content is chosen selectively (Rubin & Perse, 1987). Katz et al. (1973) conceptualized selectivity as an individual's initiative in linking perceived needs and communication choices. Television may be viewed as a passive media whereas online media requires active participation by the users and thereby needs greater involvement or active processing of content.

McLeod et al. (1980) noted that there should be at least moderate correlations between gratifications sought and level of exposure to appropriate media content and strong correlations between gratifications sought and their level of provision. If a person has a highly specific motivational pattern, information-seeking should be more efficient because it will be focused.

Williams et al. (1985) noted that the proliferation of new communication technologies may affect the structure of communication in society and make available a greater range of choice for satisfying communication needs. New media uses may complement uses already studied. Further, the uses and gratifications approach incorporates concepts that provide a base for developing a framework for research into the adoption of new technologies.

Atkin (1972), a researcher who was interested in the cognitive function of uses and gratifications, linked an individual's anticipated mode of interaction with the complexity of information sought. He identified the specific motive of social prestige with the cognitive function of acquiring knowledge. Social prestige is one of the components of the socioeconomic status of an individual. Atkin (1972) categorized information-seeking behavior into two modes of message exposure: (1) *information search*, which refers to the seeking behavior of an individual approaching

a new . . . media source such as online news, to become familiar either with the general content or a specific message; and (2) *information receptivity*, which describes receptive encounters with topic-related cues during scanning of the message environment (which includes the medium of the message among other things). Rubin and Perse (1987) found that seeking information, but not entertainment, and more perceived news realism contributed to news involvement. Greater news affinity contributed to intentional news procuring.

Almost no form of communications research has been more consistently pursued by the media than the study of their present, potential, and future audiences. Comstock (1988) found that many of the analyses fall under the rubric "uses and gratification" and the topics include:

1. Media use and the demographics of that use;
2. Determinants of media use as a function of demographics;
3. Processes of choosing among available media options;
4. Trends in media consumption as a function of available media, and financial resources on the part of consumers;
5. The marketplace reception for emerging media, such as in-home electronic delivery of newspapers and other traditionally print-based information; and

6. The future configuration of the media as the emerging media enter the marketplace in a manner analogous to the entry of television in the late 1940s and 1950s.

These topics are investigated in this study. The uses and gratifications model takes into account spending on the media, interests and needs of audience members, program supplies and costs, habits of media use, and satisfaction with available media. Varied and substantial data indicate that:

1. Spending on the media has decidedly finite limits, so that new media can gain only at the expense of old media unless all media become more cost-effective.

2. The media are used variously by the audiences depending on the particular features of the medium in question, i.e., there is a media mix.

3. Media habits are not readily changed (Comstock, 1988).

Attributes and uses of online media

Communications is of increasing significance to society. Katz et al. (1973) stated that existing and perceived attributes of the media determine to a great extent, uses made of them. Williams (1982) noted that the display of text on a screen does have several disadvantages likely to affect usage. First, only limited amounts of text are on each page because of screen limits, space needed for

page labels, as well as space for the menu for what can be chosen to read. It is faster to skip over many more headlines on a printed newspaper page and browse much faster.

Listing the advantages of new media technologies, Koch (1991) cited a study by Kernan in 1987, in which he found that a result of the acceptance of new media technologies such as online news, was "the (textual) authenticity that is probably the absolute mark of a print culture, a generally accepted view that what is printed is true, or at least truer than any other type of record." By fixing a fact, idea, word, or dialogue onto a page that can be read, reread, and considered by many people over time, print allowed individuals for the first time to see and consider an occurrence or idea as stable and discrete. This ability is in Kernan's words, the "power of print to fix and objectify." These characteristics would apply in the case of the printed newspapers too.

Online news, a relatively new communication technology, appears to embody some core organizing principles, according to Dutton, Blumler, and Kraemer (1987):

1. The new media have inherent biases toward more decentralized and democratic modes of communication. Democratic modes of communication refers to the freedom of

selection and manipulation of the media that is possible by the consumers.

2. Communication should be viewed as an electronic highway.

New communication technologies such as online news are "technologies of freedom" (Pool, 1983). They demassify communications; provide more channels of communication; a greater range and diversity of offerings; easier access to large volumes of information and entertainment offerings; opportunities for asynchronous communication at the time of one's choosing; and new facilities for interactive communication. Features of the media independent of its content, are responsible for its democratic bias. These include the inherently more horizontal, interactive, asynchronous, and abundant character of the new communications media.

Horizontal communications are defined as opportunity provided by new media for decentralizing control over the content of communication by emphasizing point-to-point communication among members of a community, as against communication top down, as with the traditional media. Asynchronicity of communication is ensured by allowing individuals to determine the time at which they wish to communicate, downloading of data or programs, that move away

from centralized scheduling of communications" (Dutton, et al., 1987.)

Demassification by new media, means that a certain degree of the control of mass communication systems moves from the message producer to the media consumer (Williams et al., 1988.) The concept of news, and its daily delivery is changing. Users of online news are no longer solely dependent on traditional sources of news. Instead, it is they and not the newsprint editors or television news directors who decide what stories are important based on their own interests, and cater to those interests by accessing a new digital media: raw feeds from major world wire services, automatic article-clipping folders, and a paperless electronic newspaper. Online news consumers can even interact with the digital media as broadcast and print outlets bring their stories, staffers, and the occasional name-in-the-news into the realm of the modem. This "new" news is instantaneous, global, and interactive, resulting in a paradigm shift of radical proportions. However, on the downside, users who specifically tailor their news intake can insulate themselves from issues that nonetheless affect their lives (Galvin, 1994.)

New communication technologies have vast data banks of information as they are dealing with cyberspace and not physical limitations such as paper, printing presses, and

ink. Vast information networks allow readers control over content and enables them to scan news of interest to them in great depth, unlike the traditional newspapers which limits the content to that published. The electronic highway can provide universal service from politics and sports, to finance, to a local community rather than a specialized service to a particular market segment.

Online media are also endowed with special attributes that allow the users greater flexibility in choosing the content of news. In effect, they are the editors of their paper. Williams et al. (1985) noted that such structural considerations are important in determining the path a person will take to gratify a communication need.

Print media occupies the space domain, and electronic media occupies the time domain (Neuman, 1991). Cyberspace allows transmission of a great deal of information. The constricting element is the availability of time to read the material. However, in some aspects the printed newspapers have an edge over online where--a person has to sit at one spot to access information and it is perceived to be less aesthetic visually, whereas newspapers are easily procurable and can be carried with ease and there is greater visual satisfaction. It is also much cheaper and more convenient to buy and carry a newspaper from a vending machine than it

is to carry a laptop computer and modem that is cumbersome and expensive.

Radio was the dominant technology of entertainment and was secondary to newspapers as a source in delivering news to the audiences. Those functions changed with the advent and development of television. Television has moving pictures and, combined with sound, was perceived to have an all pervading effect. It was believed that both newspapers and radio would have little use to people. However, television had the most serious impact on films. It also managed to change the function of radio to serve as a background media. The reason television did not have a devastating effect on newspapers was because it was perceived by the active audience to be a media of entertainment rather than a major source of delivering news.

McLuhan (1962) defined the process by which knowledge is transformed through the diffusion of printed materials from open, oral data to closed, abstract, fixed, and isolated information as the "interiorization of technology."

During the past few decades, the electronic revolution has existed side by side with the print media industry. In many ways, the electronic media moved in to take over some of the earlier functions of old media such as the news breaking trend. New media may cause dislocations in existing media by opening new channels of communication.

With so many channels available to all the pluralistic views and tastes of society, there will be an emergence of a true libertarian press system (Merrill & Lowenstein, 1971). Libertarian press system as defined by Merrill and Lowenstein as the liberty or freedom that people have of choosing any news that they want, which they can access by punching in key words of subjects of interest to them.

The manner in which the news is disseminated and absorbed is changing. It is no longer the traditional fare of morning newspapers prioritizing the day's events with lead stories above the fold and television anchors deciding what events are worth examining. Instead, digital news allows readers to decide what issues they deem important. It also allows the readers to get news in whatever format and time frame suits their needs (Rose, 1994). People have greater choice because the problem of space domain is overcome by cyberspace to a large extent. The main restricting factor is availability of time.

Inherent and perceived characteristics of media may be responsible for an audience's shift from one media to another for cognitive purposes. McCombs (1972) noted that the principle of relative constancy held during the years that television saturated America. That is, the proportion of consumer money flowing to mass media remained fixed, and despite significant economic growth--a 50% increase in

personal incomes--television's share of the consumer dollars was wrested away from other mass media. Greater expenditure on a particular media perhaps leads to less time being spent on other media.

In the case of online news, it is the subscriber who decides what news he or she doesn't want to view without having to scan the entire section, and in what order he or she wants to read whatever interests them. In a newspaper, the reader does not have that much flexibility and, at least, has to scan news items before making a selection. The gratification obtained in being able to select news is greater for online news than for newspapers.

Carter and Cullen (1983) stated that widespread use of a new technology takes time. Inherent features of the technology itself may be responsible for widespread use of online media and displacement of time from other media. The ease with which different communications media connect with each other, . . . the development of user-controlled electronic information processing systems lead strongly in the direction of diverse, pluralistic communication flows controlled by the citizenry (Neuman, 1991). The media revolution which is electronic and specialized in nature, allows the individual to download any information he needs, and print any picture or message from the computer screen. Each person, in the McLuhanesque sense, will become his own

publisher. It also allows newspapers to reach audiences beyond its existing geographical circulation boundaries. Publications could reach circulations impossible to achieve within the confines of newsprint (Merrill & Lowenstein, 1971).

Social effects of the new media

Blumler, Gurevitch, and Katz (1985) stressed that individuals come to media constrained by social and psychological attributes: gratifications sought and obtained are neither random nor individualistic but patterned and clustered. Audience research must take affective and social functions into consideration in addition to cognitive ones.

Some of the social effects of new media that will be examined in this study are summarized as follows:

1. New media have increasingly displaced general-interest, mass-audience media such as radio, newspapers, news magazines, and television, with more specialized narrow-interest media such as online news

2. New media have changed the fundamental mass-audience orientation to a new audience-oriented system in which special-interest audience segments pay the producers directly for what they want to see and hear (Neuman, 1991).

3. Major factors slowing the procurement and utilization of home computers, which is a vital component in subscription of online news, is high cost, problems with

obtaining, understanding, and using personal computer software. These are related to the socioeconomic status of the audience.

4. The capabilities of this technology are expected to create new opportunities for individuals and perhaps augment different patterns of access to information, and allocation of time.

Many of the social impacts of the current crop of new communication technologies on existing mass media cannot be fully understood for several more years. A historic analysis of the impact of television in the 1950s and the effects of this then-new media on existing mass media such as radio and film will help provide an understanding of usage of online media. The rapid diffusion of TV directly affected leisure time use, as it took away large segments of time devoted to radio-listening, reading, and movie-attendance. Radio was pushed from the center stage of home entertainment to become media for providing background music, and the authority and credibility of newspapers began to fade. However, both radio and film reacted differently in the face of new competition. The film industry got bigger screens and introduced three-dimensional viewing and special sound effects. Still television proved to be a more attractive alternative for the consumers. Although the audience of films has shrunk, it has not disappeared

because, no matter how innovative television is, it cannot take over all the attributes of film. To survive, radio simply shifted its functions. Radio's role is to provide background music and news while driving, working, studying, and when people are otherwise occupied (Rogers, 1986).

Television was slated to replace the traditional newspapers. But newspapers survived and even flourished with some modifications. Publishers started printing pictures and colored graphics in newspapers. But the mental block that several people have of a television screen is that it is essentially a media of entertainment, and does not have much cognitive function. This is, however, not true of online news which serves the cognitive function almost to the extent of newspapers.

There is a gender bias working against women who are expected to be less proficient in math and sciences. Men are expected to be proficient in using technology such as computers. These expectations may be a strong deterrent against widespread use of new media technologies such as online media. Therefore, women may continue to depend on newspapers as the primary source of news. Rogers (1986) noted that adolescent girls did poorly compared to boys in using computers in school programs, although in pre-adolescent years girls performed as well as or better than boys in math and sciences. This research offers an

opportunity to test if gender expectations affect the degree of usage of online media in adults.

But other deterring factors for subscriptions to online news is the high expense for necessary equipment and the need for at least a functional knowledge of computers, which accounts for the complexity of the medium. Both researchers of constancy hypothesis and uses and gratifications covered inquiries into the allocation of time to different media by audiences. The difference is in the belief of activity of the audiences that is the basic tenet of the uses and gratifications approach. Audience choice and reaction were selective in systematic ways (McQuail, 1991). Media use, though, is tempered by social and psychological characteristics of individuals. Uses and gratifications provides the framework for the audience's receiving behavior (Rubin & Windahl, 1986), which supports the testable statement that individuals who use online services are more likely than newspaper readers to read only items of specific interest to them.

In Summary

Previous research has shown that the amount of time people spend on all media, essentially remains the same (McCombs, 1972; Neuman, 1991; Rogers, 1986). However, there is a reallocation of time spent on various media, especially with the advent of new communication technologies. Hence,

time spent on new media is at the expense of time spent on corresponding traditional medium.

New communication media have features of selectivity built into them by which users can exercise greater selectivity in choosing items of specific interest. It is possible for the users to bypass scanning of items of no apparent interest to them, thanks to the ability to retrieve information of their selection (Dutton, 1987; Neuman, 1991).

This researcher is interested in the differential patterns of media exposure, i.e., how people use various media. Online media require an active audience which is the central component of uses and gratifications. It is the audience that is actively involved in seeking information about issues and matters of interest to them. People are turning to online news services to satiate their need for news through news-wire feeds, clipping folders, interactive publications, electronic newsletters, and more. This media offers greater freedom, diversity and power to make a choice.

This researcher would also like to examine, whether this technology encourages users to avoid even glancing at topics of no apparent interest to them, and concentrate on only items of specific interest to the readers.

Online media is complex with the technology including a computer, a modem, and a telephone line. The users at the

very least must have a functional knowledge to utilize the technology which requires some education. Inherent bias against women's ability with technology may discourage use of online media. Men are expected to be proficient in using computers. These expectations may lead to greater use of online media, by men than by women. In addition, these technologies are expensive and only people belonging to a particular socioeconomic status can easily afford to own a computer and modem. Hence, it is hypothesized that higher the socioeconomic status and education level of the people, greater the use of online media.

Hypotheses

1. The more time people spend on online media for news, the less time they spend reading newspapers.
2. The more time people spend on online media for news, the less time they spend listening to news on radio.
3. The more time people spend on online media for news, the less time they spend watching news on television.
4. The more time people spend on online media for news, the less time they spend reading news magazines.
5. Individuals who use online services are more likely than newspaper readers to read only items of specific interest to them.

6. The greater the familiarity people have with computers, the greater will be the time spent on online media.

7. Men use online media to a greater extent than women.

8. Men are more likely to use different online services than women.

9. As socioeconomic status increases, use of online media increases.

CHAPTER 3

METHOD

Survey research was employed to study patterns (Babbie, 1992) in the usage of online media and its impact on the usage of other media such as newspapers, television, news magazines, and radio. In his evaluation of communication research, Comstock (1988) stated that survey is the most prominent method in the study of audience behavior.

Analyzing the positive and negative aspects of this method, Williams et al. (1988) noted that among the strengths of surveys is that they can measure many variables, thus allowing statistical analysis of multiple and complex relationships. They can be used to refine hypotheses and questions. Among the weaknesses is that surveys do not reveal the different underlying motivations or interpretations that lead to similar responses on a questionnaire. Also, they emphasize analyses of an aggregated set of individuals. The goal is often the explanation of shared variance at a point in time instead of the process of a phenomenon.

Data collection for this research was cross-sectional. Although data collected over time provide better answers to questions typically addressed cross-sectionally (Mutz et

al., 1993), this study was limited to a one-time data collection because of the constraints of time and money.

The data for this study were collected in telephone interviews. The interviewers were trained, and the structured questionnaire was pilot tested before it was administered to the sample.

The survey population was the residents of Cupertino who enjoy a higher socioeconomic status than the national average. The city also has an information highway called Citynet that links residents with local governments, schools, and businesses. It was theorized that consequently, they would be able to afford communication technologies such as computer and online media (Rogers, 1982).

The sample was a randomly selected sample of residents having both listed and unlisted phone numbers so that the results could be generalized to the population. This was essential because at least 60% of the telephones in Cupertino are unlisted. Each interview lasted between 10 to 12 minutes. The survey was conducted as part of an undergraduate research class taught by Prof. William Tillinghast. A total of 378 telephone interviews were successfully completed for a response rate of 64%.

Testing Variables

The independent variable in the first hypothesis, "the more time people spend in using online media for news, the less time they spend reading newspapers," is time spent on online media reading news. The dependent variable is the time spent reading newspapers. The independent variable was measured by asking, "on an average day, how many minutes do you use online services for news?" The dependent variable was measured by the question, "on an average day, how many minutes do you read newspapers?"

In addition, respondents were asked to express opinion on a five-point Likert scale that ranged from strongly disagree to strongly agree on the following statements: "The widespread access to electronic newspapers will displace newspapers as a major source of news," "I prefer reading newspapers to using online news services," "I like online news because I get news faster than through other news media," "no matter how much they improve the screen, reading news on a computer is too much trouble," and "I prefer newspapers to online news because I can take the paper with me almost anyplace." Interviewees who said that they used a computer either at work or at home were asked if the amount of time they spent reading newspapers had increased, decreased, or stayed the same, since they began using a

computer. The additional information sought gave the researcher a better insight into media behavior.

In the hypothesis "the more time people spend on online media, the less time they spend listening to news on radio," the independent variable is time spent on online media and the dependent variable is time spent listening to news on radio. The independent variable was measured by asking "about how many minutes do you spend online in an average day," and "how many minutes do you use online services for news on an average day?" The dependent variable was measured by the questions "how many minutes do you spend listening to radio news daily?"

The respondents who stated that they use a computer were asked if the amount of time they spent listening to radio had increased, decreased, or stayed the same as a result of their use of a computer.

The independent variable in the third hypothesis "the more time people spend on online media, the less time they spend watching television," is the amount of time spent on online media. The dependent variable is the amount of time people spend watching television. The independent variable was measured by asking "about how many minutes do you spend online in an average day," and "how many minutes do you use online services for news on an average day?" The dependent variable was measured by the questions "how many minutes do

you spend watching news on television daily?" and "on an average day about how many hours do you watch television?"

To measure perceptions of the respondents, they were asked to indicate on a five-point Likert scale if the widespread access to electronic newspapers would displace television as the major source of news. Users of computers were also asked if the amount of time they spent watching television had increased, decreased, or stayed the same since they began using a computer.

The independent variable in the hypothesis, "the more time people spend on online media, the less time they spend reading news magazines," is the amount of time spent on online media. The dependent variable is the amount of time people spend reading news magazines on an average day. The independent variable was measured by asking "about how many minutes do you spend online in an average day," and "how many minutes do you use online services for news on an average day?" The dependent variable was measured by the questions "how many minutes do you spend reading news magazines daily?"

In the hypothesis, "the more time people spend on online media, the less time they spend reading news magazines," the independent variable is time spent using online media, and the dependent variable is time spent reading magazines. The independent variable is empirically

measured by the questions "about how many minutes do you spend online in an average day," and "how many minutes do you use online services for news on an average day?" The dependent variable is empirically tested by the question, "in an average day, about how many minutes do you read news magazines?"

In the hypothesis, "individuals who use online media are more likely than newspaper readers to read only items of specific interest to them," the independent variable is usage of online media and the dependent variable is reading items of specific interest. The independent variable is measured by the average number of minutes spent online by the respondents and the average number of minutes they spend reading online news daily. The dependent variable is measured by responses to the statements, "a major advantage of online news is you don't have to see news you aren't interested in," and "with online news you don't come across interesting news by chance," on a five-point Likert scale.

The independent variable in the sixth hypothesis, "greater the familiarity with computers, greater will be the time spent on online media," is conceptually defined as familiarity with computers and the dependent variable is defined as time spent on online media. The independent variable is empirically measured by the questions, "on an average day at work, how many hours do you use a computer,"

and "on an average day, about how many minutes do you spend on the computer at home?" The dependent variable is measured by the average number of minutes spent on online media and the average number of minutes spent on online media for news daily.

The seventh hypothesis that states, "there is a difference in the amount of usage of online services as a function of gender," the independent variable is gender. The dependent variable is the amount of usage of online media. The dependent variable is measured by the question "on an average day how many minutes do you spend on online media," and "on an average day how many minutes do you spend on online media for news."

In the eighth hypothesis, "there is a difference in the type of usage of online media as a function of gender," the independent variable is gender and the dependent variable is type of usage of online media. Independent t-tests between the independent variable and dependent variable were used to determine whether there is a statistically significant difference in the type of usage of online media as a function of gender.

In the hypothesis, "as socioeconomic status increases, use of online media increases," the independent variable is socioeconomic status and dependent variable is use of online media. The independent variable is measured empirically by

the questions "How much schooling have you had?," "What is your occupation?," and "Indicate your total household income before taxes." The dependent variable is empirically measured as the number of hours spent in an average week on accessing library information, using bulletin boards, chatrooms, e-mails, shopping, using online databases, surfing the internet, and other uses.

Further data analysis was done with the variables age and presence of children in a household and total time spent on online media.

Statistical analysis

Correlation and linear regression analyses were done to determine whether there is a statistically significant relationship between the independent variable, time spent on online media and the dependent variable, time spent on newspapers, time spent on radio news, time spent on television news, and time spent on news magazines. Linear regression analysis done between variables familiarity with computers and extent of online media usage to determine significance of relationship.

Oneway ANOVAs helped determine if there is a significant difference in the usage of online media as a function of reading items of specific interest to the respondents. Tests for statistically significant differences in the amount of usage of online media as a

function of gender, and in the type of usage of online services as a function of gender was determined by independent T-tests. An independent T-test also helped determine a significant difference in usage of online media as a function of socioeconomic status.

CHAPTER 4

RESULTS

Descriptive statistics

A total of 378 respondents were interviewed for a response rate of 68%. The distribution of gender was fairly even with about 51% men and 48% women. The ages of respondents ranged from 18 to 91 years with the average age being about 46 years. A majority of respondents (about 70%) were white, while Asians comprised about 22% and the rest were Black, Hispanic, or belonged to other races.

A majority of households (63%) did not have children under the age of 18 years living with them. The sample reflected a well-educated population of Cupertino residents. Only about 10% of the respondents had never attended college. About 23% of respondents had obtained some college education, more than 35% had a baccalaureate degree, 27% had masters' degrees, and 5% of those interviewed had a doctorate or professional degree such as medicine or law.

A sizable proportion (47%) of the sample worked in the high tech industry. The proportion of non-working residents of Cupertino in the sample was low at 16%. Retired people constituted about 2%, housewives about 4%, and students more than 10%. Unskilled laborers comprised of 2%, skilled laborers about 4%, sales/service/clerical staff about 15%,

managerial/executive about 17%; 40% were professionals in fields such as engineering, teaching, and medicine.

Census records for 1992 indicate that there is a sharp difference between residents of Cupertino and the nation in general. According to the United States Bureau of Census (1995) reports, the average age of an American is 34 years (1994), as compared with the average age of a Cupertino resident (42 years) (1990). The sample's average age was close to 46 years. There is more racial diversity in Cupertino than in the nation as a whole. Census figures indicate that, although there are about 74% Caucasians in Cupertino, there are 83% caucasians in the country. Blacks constitute only 1% of the population in Cupertino, as compared with the 12.5% black population in the country. The population of Asians in Cupertino is considerably higher at 23%, whereas it is part of 7.6% representing all races other than Caucasians and blacks throughout the country. About 46% of American citizens hold a college degree, as compared with 62% of Cupertino residents. In the sample used in this study, about 67% of the residents had a college degree. The median income of an average American was \$24,000 a year as compared with the sample's median income that ranged from \$60,000 to \$79,000. The sample demographics are comparable to the Census figures. In fact,

they may be more accurate considering that the information is recent while the Census figures regarding Cupertino were compiled from information collected in 1990.

More than 53% of the sample's income fell evenly in three categories lying between \$40,000 to \$99,999 a year. Those earning between \$100,000 and \$119,999 comprised of 12%, those earning between \$120,000 and \$139,999 about 6%, those earning between \$140,000 and \$159,999 about 3%, while those earning more than \$160,000 annually were about 3%. Only 8% of the sample earned less than \$19,999 a year, while about 13% earned between \$20,000 and \$39,999.

Close to 80% of the respondents use a computer at work or at home. About 43% of the respondents have used online media at some point in their lives, while about 28% of them continue to use them. However, only 19% of online media users have used it for news. The average number of years respondents have used online media is 3.4 years.

The average number of minutes that a respondent used online media when he/she first used online services was about 43 minutes daily. This increased by 10 minutes to 53 minutes for those who continued to use the media. However, the respondents spent an average of only 6 minutes using online services for news daily. The average number of hours that respondents used computers at work was close to 5 hours

per day while the average number of hours they used computers at home was about one.

The average number of hours that respondents watched television daily was a little over two hours while the average amount of time they spent watching television news daily was about 41 minutes. The average number of minutes that respondents listened to news on radio daily was about 38 and the average number of minutes they spent reading the newspapers daily was about 33 minutes.

Of the 80% of the respondents who said they used a computer at work or at home, 71% agreed that they preferred newspapers to online news because they could take the paper with them almost anywhere; 74% agreed that they preferred reading newspapers to online news service; 43% agreed that no matter how much the screen was improved, reading news on a computer was too much trouble. However, 63% of those respondents who expressed an opinion, also admitted that they could get news faster through online news than through other news media.

Opinion was almost evenly divided on the statement "I prefer watching television rather than using a computer," with about 41% disagreeing and about 39% agreeing.

Hypothesis #1

The hypothesis, the more time people spend in using online media for news, the less time they spend reading newspapers was statistically significant at $p < .05$. It is a weak negative correlation ($r = -.11$). The mean number of minutes spent everyday reading newspapers and news online were 34 and 6 (SD = 30 and 14, respectively). The hypothesis was supported by the data. Interestingly, this is contrary to the perception of the majority of respondents (60%) who disagreed with the statement that online news will displace newspapers as a major source of news. This was further supported by the 74% of computer users who agreed that they preferred reading newspapers to using online news services.

However, the relationship is not statistically significant between the total number of minutes spent on online media for all purposes and the number of minutes spent reading newspapers. More than three-quarters of the respondents who use computers reported that the amount of time they devote to reading newspapers has remained the same since they began using computers. About 18% of the respondents reported a decrease in reading newspapers while about 6% reported an increase in usage of newspapers since they began using computers.

Table 1

Linear Regression Analysis of Media Usage (in Minutes)
Variables by Number of Minutes Spent Reading News Online
(N = 378)

Variable	<u>B</u>	<u>SE B</u>	β	<u>R²</u>
Newspapers	-.23	.12	-.10*	.01
Radio	.37	.19	.10	.01
Television	.37	.20	.10	.01
News magazines	.15	.07	.12*	.01

* $p < .05$.

Hypothesis #2

The hypothesis, the more time people spend on online media for news, the less time they spend listening to news on radio, was not supported statistically. There was also no significant relationship between total time spent online and number of minutes spent listening to news on radio. The mean number of minutes spent daily listening to radio news daily and total time spent on online media daily were 38 and 53 (SDs = 50.48 and 93, respectively).

More than 79% of the people who use computers in some capacity stated that the amount of time spent listening to the radio had remained unchanged since they began using computers, providing further support for the analysis above. For 16% of the respondents, use of radio had actually decreased. Only about 5% of computer users reported an increase in the usage of radio since they began using a computer.

This finding probably reflects the disparity in the two media. Radio is audio in nature and online media is a print media with some visual graphics. Also, many people listen to the radio when they drive and consequently, there isn't much of a displacement in usage between the two media. Moreover, radio has already reinvented its function and

found its niche as a background media since the inception of television (Rogers, 1986). This would explain why a greater percentage of people reported an increase in the amount of usage of radio since using online media, while only about 5% of people reported decrease in usage. Those people who reported an increase in usage of radio, perhaps use it as a background media when using online media.

Hypothesis #3

The more time people spend on online media, the less time they spend watching news on television. Bivariate correlations and linear regression analysis of the variables time spent online reading news and time spent watching television news, did not support this hypothesis. There was also no statistically significant relationship between total time spent online and number of minutes spent listening to news on television.

Results of this study did not indicate a statistically significant relationship between time spent on online news (independent variable) and total time spent watching television (dependent variable). The relationship was not significant when tested for total time spent online (independent variable) and total time spend watching television (dependent variable).

Almost 66% of respondents disagreed with the statement

that the widespread access to electronic newspapers will displace television as the major source of news, while only about 19% of the respondents agreed with the statement. Among computer users (79%), more than 26% reported that time spent watching television had decreased, while only about 3% of the respondents said that they watched more television since they began using a computer. A majority of computer users (71%) stated that the time they spent watching television remained unchanged.

The lack of significant relationship between time spent on online media and time spent on television may be explained by the inherent features of the two media. Television is essentially passive while online media requires active participation. Television is considered an entertainment media while online media essentially serves the cognitive function. It is more suited to information-seeking than providing relaxation. It also supplements interpersonal function with participation in chatrooms, e-mail, etc. Fatigue at the end of the day's work contributes to apathy toward working on a keyboard. Handling the remote control device (RCD) is much easier and visually gratifying.

Hypothesis #4

The hypothesis, the more time people spend on online media for news, the less time they spend reading news magazines was statistically significant at $p < .05$. However, Table 1 shows that the correlation was positive, i.e., the greater the amount of time spent on online media for news, greater the amount of time spent on news magazines ($r = .12$). When the total time spent on online media and time spent reading news magazines were statistically analyzed, the results indicated no significant relationship.

Hypothesis #5

A oneway ANOVA using time spent on online news and lack of viewing interesting news online by chance indicated a statistically significant difference of the independent variable as a function of dependent variable between groups at .0001. Those who neither agreed nor disagreed with the statement "With online news you don't come across interesting news by chance," used online media for news significantly less than those who strongly disagreed with the statement ($M = 3.5$ vs $M = 25$; $t[147]$, $p < .001$). There was no significant relationship found between total time spent online and lack of viewing interesting news by chance.

Results indicated that there was no statistically significant relationship between either time spent on online

news or total time spent online and the perceived advantage of online news where the user doesn't have to see news that is not interesting to him/her.

The belief that people cannot read interesting news by chance on online media is a perceived disadvantage of using the media. Owners of online news services will have to work around the problem. Perhaps this problem can be overcome with additional features introduced into the technology.

Table 2

Oneway Analysis of Variance for Number of Minutes Reading
Online News Daily and Absence of Viewing Interesting News
Online by Chance

Source	<u>df</u>	<u>F</u>	<u>p</u>
Between Groups	4	4.95	<.0001*
Unweighted Linear Term	1	1.71	.19
Weighted Linear Term	1	3.56	.06
Deviation from Linear	3	5.41	.01
Total	151		

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*p < .0001

Pooled Variance Estimate

	Value	SE	<u>t</u>	<u>df</u>	<u>p</u>
Contrast	35.87	9.46	3.79	147	.0001

Hypothesis #6

The hypothesis, the greater the familiarity people have with computers, the greater will be the time spent on online media was partially supported by the data collected. Analysis showed a statistically significant positive correlation ($\underline{r} = .22$) between the number of hours spent on a computer at work and amount of usage of online media for news at $\underline{p} < .001$ (Table 3). However, there was no significant relationship between amount of time spent on the computer at work and the total time spent online.

When the variables time spent on computer at home and time spent on online media were correlated, results indicated no presence of a significant relationship.

Table 3

Linear Regression Analysis for Amount of Usage of News
Online by Amount of Usage of Computer at Work (N = 378)

Variable	<u>B</u>	<u>SE</u>	β	<u>R²</u>
News online	.04	.01	.22*	.05

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*p < .01

Hypothesis #7

The hypothesis men use online media to a greater extent than women was partially supported by the data. Results of independent T-tests shown in Table 4 revealed a significant difference in the amount of time spent on online media for news between men and women. Men used online media to access news ($\bar{M}$ = 8.61 minutes) far more than women ($\bar{M}$ = 2.56 minutes). Women, as shown in Table 5, used newspapers more than men to read news. However, there was no significant difference in the total time spent on online media between men and women.

The preference of different media for news is a function of gender with men using online media more than women for news and women using newspapers more than men for news. These gender differences in preferences for different media for different functions validates previous research that found that adolescent boys used computers far more than adolescent girls (Rogers, 1986). This could be a result of the expectations of boys and men to be naturally adept at using machines and technologies such as computers and accessing online media for information-seeking. Lower expectations of women's ability with computers may be a deterrent in extensive use of new communication media for cognitive needs. However, lower expectations of women's

ability to use technology may not be the reason in this case as results do not indicate a significant difference in total usage of online media between the sexes. Instead, this difference could be explained by the psychological understanding that women are more tactile than men and hence, prefer holding a newspaper rather than scrolling and scanning the computer screen for news.

Table 4

Independent t-test for Difference in Use of Online Media (in Minutes) for News as a Function of Gender

Variable News Online	<u>n</u>	<u>M</u>	<u>SD</u>	<u>SEM</u>
Men	184	8.61	16.98	1.25
Women	172	2.56	8.36	.64

Mean Difference = 6.05

T-test for Equality of Means

Variance	<u>t</u>	<u>df</u>	<u>p</u>	<u>SE_{diff}</u>
Unequal	4.31	270.68	.001*	1.41

*p < .001

Hypothesis #8

Analysis showed that there was partial validation of the hypothesis, there is a statistically significant difference in the type of usage of online media as a function of gender. The independent t-test analysis in Table 5 showed that men accessed online media for library information far more than women.

A statistical test for differences in the use of online media for bulletin boards (BBs) showed no significant difference in the use of BBs by men and women. There was no significant difference in the usage of chatrooms measured in minutes by men and women. Independent t-tests did not reveal statistically significant differences in the use of e-mail between subgroups of gender. There were no significant differences in (1) the use of online media for shopping between men and women and (2) in the use of online databases between men and women. There was no statistically significant difference in surfing the internet by men and women.

Table 5

Independent t-test for Difference in the Use of Online Media
(in Minutes) to Access Library Information as a Function of
Gender

Variable Library	<u>n</u>	<u>M</u>	<u>SD</u>	<u>SEM</u>
Men	85	2.25	6.41	.70
Women	33	.42	.94	.16

Mean Difference = 1.83

t-test for Equality of Means

Variance	<u>t</u>	<u>df</u>	<u>p</u>	<u>SE_{diff}</u>
Unequal	2.55	92.77	.01*	.71

*p < .01

An independent t-test revealed no significant difference in time spent using online media for other purposes by men when compared to women. Other purposes included using it for e-trade or trading of stocks online, banking, teleconferencing, telecommuting, etc.

Hypothesis #9

As the socioeconomic status increases, use of online media increases. Results of tests for differences showed significantly higher use of online news services by people employed in the high-tech industry ($p = .0001$) than those who were not (Table 6). However, there were no significant differences found in the use of total time spent online as a function of job in a high-tech industry or in the use of online media as a function of income.

Table 6

Independent t-test for Difference in the Use of Online Media
for News (in Minutes) as a Function of Occupation in a High
Tech Industry

Variable				
News online	<u>n</u>	<u>M</u>	<u>SD</u>	<u>SEM</u>
Hightech	166	9.40	17.30	1.34
Not hightech	184	2.19	7.73	.57

Mean Difference = 7.21

T-test for Equality of Means

Variance	<u>t</u>	<u>df</u>	<u>p</u>	<u>SE_{diff}</u>
Unequal	4.94	223.30	.0001*	1.46

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*p < .0001

Oneway analysis of variance showed a significant difference in the amount of usage of online media for news as a function of level of education between groups (Table 7). Those who had attended or completed graduate school ($M = 9.79$) used online media for news daily significantly more than those who had attended some college ($M = 3.69$) and those who had completed their undergraduation ($M = 4.08$). People with higher education used online services for news more than people with lower education levels. However, there was no significant difference between groups in total time spent using online media.

Table 7

Oneway Analysis of Variance for Difference Between Number of
Minutes Reading Online News Daily and Level of Education

Source	<u>df</u>	<u>F</u>	<u>p</u>
Between Groups	6	2.86	<.01*
Unweighted Linear Term	1	5.73	.02
Weighted Linear Term	1	11.12	.01
Deviation from Linear	5	1.21	.31
Total	353		

*p < .01

Pooled Variance Estimate

	Value	SE	<u>t</u>	<u>df</u>	<u>p</u>
Contrast	11.82	3.40	3.48	347	.001

There is a statistically significant difference in the use of online media for news between races (Table 8). Tukey's HSD contrast showed that there was a significant difference in the daily use of online media for news between Asians other than Chinese ($M = 10.82$ minutes) and Caucasians ($M = 3.98$ minutes). The sample was predominantly white (70%). Asians were second in place representing 22% of the sample. There were less than 2% blacks. However, there was no significant difference in total time spent using online media.

Table 8

Oneway Analysis of Variance for Difference Between Number of
Minutes Reading Online News Daily and Race of Users

Source	<u>df</u>	<u>F</u>	<u>p</u>
Between Groups	5	3.25	<.01*
Unweighted Linear Term	1	.91	.34
Weighted Linear Term	1	3.58	.06
Deviation from Linear	4	3.17	.01
Total	351		

*p < .01

Pooled Variance

	Value	SE	<u>t</u>	<u>df</u>	<u>p</u>
Contrast	-6.84	2.13	-3.21	346	.001

Table 9 shows that there is a significant difference in the use of online media for news as a function of occupation categories between groups of users. Retired people used online media for news for less than one tenth of a minute a day while students used it the most ($M = 10.62$ minutes) a day. The mean amount of usage of online media for news daily by the entire population was close to six minutes. The next highest users of online media for news per day were unemployed people ($M = 9.38$ minutes).

Table 9

Oneway Analysis of Variance for Difference Between Number of Minutes Reading Online News Daily and Occupation of Users

Source	<u>df</u>	<u>F</u>	<u>p</u>
Between Groups	8	2.16	.03*
Unweighted Linear Term	1	.04	.85
Weighted Linear Term	1	6.60	.01
Deviation from Linear	7	1.52	.16
Total	339		

* $p < .05$

Further analysis of data

Further data analysis of the variables age and presence of minor children in a household with usage of online media for news and total time spent on online media was done to determine whether there is a relationship between these variables.

Analysis shows that there is a negative relationship ($r = -.18$) between age and amount of usage of online media for news (Table 10). Not surprisingly, younger individuals use online media for news much more than older people while older people use newspapers more for news ($r = .25$, $p = .0001$). However, there is no significant relationship between total amount of usage of online media and age.

Older individuals use newspapers extensively for news. Statistical analysis shows a positive correlation between amount of time spent reading newspapers and age. Perhaps, older people do not associate online media with news media and depend on newspapers as the primary source of news. However, comparable usage of online media by people of all ages indicates that older people use it for purposes other than news, such as interpersonal communication, and chatrooms.

Table 10

Linear Regression Analysis for Amount of Usage of News
Online by Age of Users (N = 378)

Variable	<u>B</u>	<u>SE B</u>	β	<u>R²</u>
Age	-.17	.05	-.18*	.03

*p < .001

Online media can be used as an educational tool. This research examined whether household members with minor children are more inclined than others to use online media for news.

Individuals who have minor children are more likely than other individuals to use online media for news (Table 11). Independent samples of T-test results showed that use of online media for news by individuals who have minor children was significantly different than those who did not.

Results showed that there was no significant difference in the total use of online media as a function of the presence of children in a household.

Online news services are perceived to have educational value. Parents would be more inclined to encourage use a media for its learning value and as a tool for acquiring knowledge by setting an example for their children.

Table 11

Independent t-test for Difference in the Use of Online Media
for News as a Function of Presence of Minor Children in the
Family

Variable News Online	<u>n</u>	<u>M</u>	<u>SD</u>	<u>SEM</u>
Kids	134	9.04	18.45	1.59
No kids	223	3.65	9.56	.64

Mean Difference = 5.38

T-test for Equality of Means

Variance	<u>t</u>	<u>df</u>	<u>p</u>	<u>SE_{diff}</u>
Unequal	3.13	176.63	.002*	1.72

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*p < .01

CHAPTER 5

DISCUSSION

Residents of Cupertino are not typical of the population of the United States. The city is ensconced in the heart of the Silicon valley. The community is fairly affluent and well-educated. This study on usage patterns of online media in a high-tech community is exploratory and one of the first of its kind. For meaningful comparisons between users and non-users, it was necessary to have comparable numbers of users and non-users. Therefore, this study was restricted to the city of Cupertino because there was likelihood of greater number of people using online media.

Cupertino has its own information highway, Citynet. Residents may be more familiar with links through the computer. This acted in favor of Cupertino city in selection for this study. About 80% of the residents used computers at work or at home. This might influence their use of online media.

About 43% of the sample reported to having used online media at some point in their lifetimes, and 28% continue to use it. Contrary to expectations, there is little displacement in usage of other mass media, especially radio and television. Perhaps, with radio being used as a

background media, there is no noticeable clash with usage of online media.

Results have indicated that, at present, there is a difference in usage of online media only for cognitive purposes such as news reading or accessing library information. Research by Mutz et al. (1993) on the effects of displacement of television by other media showed that the initial burst of viewing among most youngsters encouraged them to take time primarily from movie attendance and radio listening, which they attributed to a novelty effect. However, following the first year of availability, decreases in television viewing did not lead to a return to prior levels of time devoted to displaced activities.

Since television is perceived to be purely an entertainment media, use of online media has not affected time devoted to it significantly. Online media also offers entertainment through games etc. But the inherent difference in audience activity required by the two media probably explains lack of significant displacement of time between the two media.

Perhaps respondents use online media during working hours for entertainment, and personal gratification. This could account for the absence of major shifts in media usage. Perhaps, the amount of time they spend on online

media comes from other activities, such as work, interpersonal relationships, and other leisure activities. This is in accordance with projections of teletext and videotext usage by Williams in 1984, who stated that these media are much more likely to affect many communication activities--such as visiting the library, looking in the paper for the weather report, calling offices for information, and tuning into the news headlines on the radio.

The results confirmed the expectation that use of online media for news negatively affects newspaper reading. Both online media and newspapers require the reading of texts. This accounts for the displacement in use of newspapers by news online. Since news online has still not found its critical mass, it would account for the weak correlations. This early pattern is encouraging for news publishers and entrepreneurs who want to venture into this media. In time, online news services may take away readership from newspapers.

The absence of a significant relationship between total amount of time spent on online media and usage of newspapers is perhaps not surprising because other features of online

and other uses that newspapers do not supply. Use of online media for activities other than accessing news may come from interpersonal communication and other activities. Online news services are still innovations to many receivers. Adaptation of this technology may either come in time, displacing newspapers as the primary source of news or it may remain a supplement to newspapers.

People who read news articles in magazines probably seek in-depth information through online news services for more extensive coverage of an issue. This would account for the positive correlation between the two variables.

Absence of a significant relationship between total time spent on online media and news magazines is perhaps not unanticipated because there is little connection between information-seeking and other aspects of online media such as entertainment, keeping-up interpersonal communication through e-mail, or shopping online.

People who use computers at work extensively are likely to be those who are high information seekers and who feel the need to gratify their cognitive needs through use of news online. It appears that they use online media to serve the news procuring and surveillance function and not as much for other activities such as entertainment, participating in chatrooms, shopping, etc. This behavior can be anticipated

by the characteristics of the residents, especially users of computers at work who are highly educated and who probably use online news services as a tool for political information.

Mean time spent on computers at home (a little over an hour on an average day), is considerably less than the mean time spent on computers at work (almost five hours on an average day). Probably time spent on online media for news comes from time spent on computers at work. People who use computers at home probably use it for entertainment or other non-cognitive activities. Hence, it does not correlate with usage of news services online.

There is a difference in usage of online media with men using it more for cognitive purposes than women. There is no significant difference in use of online media for interactional or interpersonal purposes. Probably women depend on other sources such as books to satisfy their cognitive needs.

Residents of Cupertino are mostly well-educated with a high median income. Since the categories of income did not identify people with really low incomes, analysis did not show any significant differences in accessing online media between people with different income levels.

Directions for future research

Online media usage is a fertile field for research. Identifying the origin of time displaced to spend accessing online media would add to research information. Carrying research on usage of online media for various purposes will reveal changes in usage over a period of time. It will reveal problems with using online media and also identify unintended uses made. Its effect on print media in particular should be further researched. Initial indications bode well for online news services that are having an affect on newspapers and news magazines usage.

Advertising on online media is still evolving. This could mean important revenue displacement from other print media to online media. Perhaps, publishers of magazines and newspapers should consider diversifying into online media in a major way. Online news services that are now in the incipient stages, may become viable media in their own right.

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APPENDICES

QUESTIONNAIRE

1. On an average day, about how _____ Hours
many hours do you watch television?
2. On an average day, about how many minutes
do you watch television news? _____ Minutes
do you listen to radio news? _____ Minutes
do you read the newspaper? _____ Minutes
do you read news magazines? _____ Minutes
do you use online services for news? _____ Minutes
3. Do you use a computer at work or at home? (1) Yes
(2) No
4. Since you began using a computer, has the amount of time
that you spend using daily news media--television, radio and
newspapers--decreased, stayed the same or increased?

Radio time has (1) Decreased (2) Stayed the same (3) Increased
TV time has (1) Decreased (2) Stayed the same (3) Increased
Newspaper time has (1) Decreased (2) Stayed the same (3) Increased
5. Have you ever used an online service? (1) Yes
(2) No

I am going to read some opinions that people have about
online news. Please indicate if you strongly agree, agree,
neither agree nor disagree, disagree or disagree strongly
with each of these statements.

	SD	D	Neither	A	SA
6. I prefer reading newspapers	1	2	3	4	5

to using online news services.

7. I like online news because I get news faster than through other news media. 1 2 3 4 5

8. A major advantage of online news is you don't have to see news you aren't interested in. 1 2 3 4 5

9. No matter how much they improve the screen, reading news on a computer is too much trouble. 1 2 3 4 5

10. I prefer newspapers to online news because I can take the paper with me almost anyplace. 1 2 3 4 5

11. Think back to when you first used an online service. On an average day, how many minutes were you online? _____Minutes

12. Do you use an online service now? (1) Yes
(If no, skip to question 15) (2) No

13. How many years have you been using an online service? _____Years

14. In an average day, about how many minutes do you spend online? _____Minutes

15. In an average week, about how many hours--if any--do you use your computer for . . . (Read list. Responses should be from Zero to . . .)

(1) Accessing library information _____hours/week

(2) Bulletin boards _____hours/week

(3) Chatrooms _____hours/week

(4) E-mail _____hours/week

(5) Shopping _____hours/week

(6) Using online databases _____hours/week

(7) Surfing the internet _____hours/week

(8) Other _____hours/week

16. Have you ever used or are you now using online services for news? (1) Yes
(2) No

17. Do you use a computer at work? (1) Yes
(If no, skip to question 19) (2) No

18. On an average day at work, how many hours do you use a computer? _____hrs/week

19. On an average day, how many minutes do you use a computer at home? _____Minutes

Computer and technology opinions

I'm going to read some opinions that people have about computers. We want to know whether you agree or disagree. Do you strongly agree, neither agree nor disagree, disagree or disagree strongly.

	SD	D	Neither	A	SA
20. I worry that computers will make our society too technical.	1	2	3	4	5
21. Computers will help people be more creative.	1	2	3	4	5
22. Everyone should know how to use a computer.	1	2	3	4	5
23. I worry that I won't have the skills to be able to adapt to a computer revolution.	1	2	3	4	5
24. I keep up-to-date on advances in computer technology.	1	2	3	4	5
25. Computers will have a dehumanizing effect on society.	1	2	3	4	5
26. I use a computer only because I have to.	1	2	3	4	5
27. I consider myself to be on	1	2	3	4	5

the cutting edge of new
technological developments

28. I prefer watching television 1 2 3 4 5
rather than using a computer.

29. The widespread access to electronic newspapers will displace television as the major source of news.

30. The widespread access to electronic newspapers will
displace newspapers as the
major source of news.

Demographics

We would like some information about you as an individual.

31. Are you male or female? (1) Yes
(Don't ask if you know) (2) No

32. How old are you? _____ Minutes

33. What is your ethnic race or origin?
(Don't read list)

(1) White
(2) Chinese
(3) Asian (not
chinese)
(4) Hispanic
(5) Black
(6) Other

34. Do you have children under the age of 18 living at home? (1) Yes (2) No

35. How much schooling have you had?

- (1) Elementary
- (2) Jr. High/Middle school
- (3) Some high school
- (4) High school graduate
- (5) Some college
- (6) College graduate
- (7) Graduate school, or Profession work
- (8) Ph.D or Ed.D
- (9) Professional degree

(law, medicine, etc.)

36. Do you work in a high tech industry? (1) Yes
(2) No

37. What is your occupation?_____

What specifically do you do?_____

(Interviewers: make sure that you have complete answers to Q 7 so we can determine whether respondent's work puts him/her at the forefront of what is happening in the computer industry and /or new technologies.)

- (1) Professional
- (2) Managerial/Executive
- (3) Sales/Service/Clerical
- (4) Skilled labor
- (5) Unskilled labor
- (6) Housewife
- (7) Student
- (8) Retired
- (9) Unemployed

38. Here is a list of income categories. Please indicate which category best fits your household's total annual income. By TOTAL ANNUAL INCOME, we mean the amount of money that all members of your household make before taxes and other deductions are taken out of their paychecks. Please include everybody in your household who lives at home and has an income. Please give me the number of the income category that describes your household's annual income.

- (1) Upto \$19,999 a year
- (2) \$20,000 to \$39,999
- (3) \$40,000 to \$59,999
- (4) \$60,000 to \$79,999
- (5) \$80,000 to \$99,999
- (6) \$100,000 to \$119,999
- (7) \$120,000 to \$139,999
- (8) \$140,000 to \$159,999
- (9) \$160,000 and up

That concludes the interview. Thank you very much.
Good-bye.

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To: Seema Swamy
10828, Alderbrook Lane
Cupertino, CA 95014

From: Adrian Rodriquez, Ph.D.
Chairperson, Human Subjects
Institutional Review Board

Date: February 29, 1996

The Human Subjects-Institutional Review Board has approved your request to use human subjects in the study entitled:

"Uses of Online: Constancy Hypothesis and Uses and Gratifications Study"

This approval is contingent upon the subjects participating in your research project being appropriately protected from risk. This includes the protection of the anonymity of the subjects' identity when they participate in your research project, and with regard to any and all data that may be collected from the subjects. The Board's approval includes continued monitoring of your research by the Board to assure that the subjects are being adequately and properly protected from such risks. If at any time a subject becomes injured or complains of an injury, you must notify Serena Stanford, Ph.D., immediately. Injury includes but is not limited to bodily harm, psychological trauma and release of potentially damaging personal information.

Please also be advised that each subject needs to be fully informed and aware that their participation in your research is voluntary, and that he or she may withdraw from the project at any time. Further, a subject's participation, refusal to participate, or withdrawal will not affect any services the subject is receiving or will receive at the institution in which the research is being conducted.

If you have any questions, please contact me at (408) 924-2480.