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ELECTRONIC PUBLISHING AND INTERACTIVE ADVERTISING: TOWARD A NORMATIVE THEORY FOR MEDIA PLANNING

By

TARA ANNE MICHELS

A DISSERTATION PRESENTED TO THE GRADUATE SCHOOL
OF THE UNIVERSITY OF FLORIDA IN PARTIAL FULFILLMENT
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To

Randy and Drew

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ELECTRONIC PUBLISHING AND INTERACTIVE ADVERTISING: TOWARD A NORMATIVE THEORY OF MEDIA PLANNING

By

Tara Anne Michels

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Chairman: Dr. Kent M. Lancaster
Major Department: Mass Communication

In March 1995, *Sun.ONE*, the electronic, interactive version of *The Gainesville Sun*, published in Gainesville, Florida, went online. While both provide news and entertainment, the electronic *Sun* differs in one critical aspect: It provides advertisers with a superior opportunity to assess advertising exposure. In the paper version, an advertiser has only a vague idea of whether a reader has seen a particular advertisement. The electronic version, however, eliminates the guesswork. With *Sun.ONE*, each time a reader calls up a news story or an advertisement, the event is recorded. Thus an advertiser can be relatively certain that a reader is exposed to the message.

Knowing whether or not a reader has been exposed to a particular advertisement has long been a problem for media planners, who attempt to determine whether a particular vehicle is efficient or cost-effective relative to the alternatives. While media planners know how many people are exposed to a publication or program, they do not know the precise number of readers or viewers exposed to a particular advertisement. Instead, they try to estimate exposure using various quantitative methods.

The purpose of the present study is to assess these traditional methods of media evaluation with respect to new interactive media and electronic publishing and to discover whether new evaluative methods will emerge.

The study found that traditional media evaluation tools apply to online advertising. The key difference is that online publishers can record each action or exposure. The concepts of advertising inquiry (click-through) rates and identifying high usage times are new media planning criteria that can be used to assess advertising in electronic publications. Advertising inquiry requires some level of involvement by users and is most akin to patterns of coupon clipping. Pinpointing peak traffic patterns could allow advertisers to pay for

advertisements based on daypart, much like traditional broadcast media. The evaluation of interactive advertising permits the use of traditional tools while the development of new techniques holds promise not only for electronic publications, but for raising syndicated data quality supporting traditional media.

CHAPTER 1

INTRODUCTION

> Working and playing in Cyberspace will change our relationship to time, abstraction, and people. It will change our values perception, and addictions.
> (Press, 1993, p. 23)

The purpose of the present study is to assess traditional methods of advertising media evaluation with respect to new interactive media. Electronic publishing is the medium under investigation. This study questions whether current advertising media planning techniques are applicable to online publications or whether different methods of assessment will emerge.

For clarification, online publishing is synonymous with electronic publishing; dial-up services are interchangeable with bulletin board systems (BBS); the World Wide Web (WWW) is the graphical "windows" interface of the Internet.

Attempts at online newspapers failed in the 1970s and 1980s mostly because of the expenses involved with online subscriptions and costly computer equipment, as well as the slow transmission of data. These problems

have been substantially reduced. The use of computers has risen dramatically over the last decade, and as a result, millions of people are getting online. This change in the home PC market directly affects the feasibility for electronic publishing's success. According to a recent survey by the Software Publishers Association, the estimates of Americans with home computers hovers around 30 percent and continues to rise. As computer prices continue their downward trend while speed and power increase, the home PC market will proliferate. Affordability along with new technological advancements in the computer industry mean change and opportunity for all types of content providers who will supply entertainment and educational programming, games, and sports among others.

Electronic publishing has become increasingly important and is manifested in different formats. Some current content providers of news and information offer their online versions of their newspapers or magazines through commercial service providers such as America Online, Prodigy, and CompuServe, while others have opted to put up sites on the Internet and World Wide Web (WWW)

or provide their own software dial-up service/bulletin board system (BBS).

The main differences between using a commercial service or going it alone are content and advertising. Publications (newspapers and magazines) that sign up with commercial services can be restricted in the amount and type of content they provide. These restrictions affect advertising. Currently, these online publications are not permitted by online services to subsidize their costs with advertising (this includes classified advertising) because commercial service providers are afraid of negative feedback or criticism from their customers, as was the case with Prodigy's advertising venture. Therefore, it is likely that the consumer pays the entire cost for content. Thus, the independent approach to online publishing via the Internet, WWW and BBS is fast becoming viable (and often preferable) alternatives to commercial services. Initially, newspapers and magazines rushed to the commercial service providers to negotiate deals for their online publications. However, this hasty move on the part of some publishers came at a time when the World Wide Web was in its infancy. With faster modems, graphic, motion, and sound capabilities, the

World Wide Web is becoming more attractive to publishers. Times Mirror, owner of *Newsday*, the *Los Angeles Times* and other publications, will soon be leaving Prodigy to set up its own *TimesLink* site on the Web. In the past 18 months, anyone with the knowhow or wherewithall could set up their own Web site. There are currently an estimated 5 million addresses on the Web (Ciolli, 1995).

When the Internet opened its doors to commercial traffic in 1991, commercial services proliferated. As with any new medium, it did not take long for the business community to recognize the enormous marketing potential. Initial efforts were thwarted by threats from long-time "cyberheads" touting "netiquette." Early advertisers found that using the Internet for commercial gain could result in all out "flame wars" or "mail bombing." The infamous case of Canter and Siegel (1994) exemplifies this.

However, with the advent of the World Wide Web (WWW) and Web browsers like Mosaic, Cello, and Netscape, advertisers are establishing Internet presence. Online publications like Time, Inc.'s *Pathfinder* are popping up with corporate "sponsors." Today, all one has to do is

point and click to be directed to online publications with advertising.

Even in its infancy the Internet shows a promising future for advertising. There are many who believe that the Internet will change not only the way we do business but how we perceive business. And online publishing is just one of many businesses on the Internet. This is not a traditional medium. It will not operate under the same rules and guidelines as its predecessors. A whole new world of opportunity will open up for businesses who adapt to its nontraditional ways.

Amidst the chaos and mania surrounding the hype of the information superhighway lie practical questions for advertisers about the users, how many there are, and how to measure their media usage and the effects of such usage. Although traditional media advertisers cannot assess those who actually attended to the message, there are media planning tools designed to estimate the size of the target audience, how many individuals are exposed to a message and how many times. Online publishing allows for this type of message-centered evaluation. An interactive medium unleashes new possibilities for evaluating media that are unexplored. The feasibility

for innovative means of audience measurement are the focus of this study.

This study will examine *Sun.ONE*, the electronic version of the *Gainesville Sun* newspaper, as a model for online publishing in the independent arena of Internet/WWW and BBS. Important questions for media planners will be explored such as, will media planners follow the same normative framework as in traditional media choices or will different patterns emerge? Advertisers often attempt to assess likely campaign effects by estimating vehicle and message reach, average frequency, effective reach, cumulative and non-cumulative exposure distributions, cost-per-thousand (CPM), cost-per-rating point (CPP), among others to be defined in Chapter 2. Can online advertising be assessed in the same systematic manner as other media such as radio, television, newspaper, and magazines?

How does *Sun.ONE*, as an example of electronic publishing in general, stack up against advertising alternatives when viewed from normative theories of media planning? What unique characteristics are also available that are not captured by traditional media evaluation factors?

CHAPTER 2

REVIEW OF THE LITERATURE

Traditional Advertising

Advertising in traditional print media is bought according to advertisement size, location and use of color among other factors--all of which can vary considerably across publications. There is also a wide variation in audience size from publication to publication. In traditional print publications, advertising subsidizes the medium. It would otherwise be cost prohibitive for consumers.

Newspapers and magazines offer great flexibility for advertising creativity because of numerous advertisement shapes and sizes. While newspapers tend to be more current, local, and selective media, magazines have a more national reach and a geographically specialized audience.

Assessments of the size and share of market for a brand as well as other information that comprises situation analysis of media can be obtained from a number of syndicated research services and from periodicals,

association reports, government, and media. The most widely used audience data research services are A.C. Nielsen Company, Arbitron, Scarborough, Audit Bureau of Circulation (ABC), Standard Rate and Data Service (SRDS), Mediaweek's Guide to Media (MGM), Simmons Market Research Bureau (SMRB), and Mediamark Research, Inc. (MRI).

The type of audience information obtained from these services ranges from circulation figures, to weekly cumulative half-hour audience ratings, to average minute ratings. Ratings are the most useful kind of audience measurement for advertisers which refer to the percentage of an audience exposed to a typical publication issue or broadcast program. Advertisers need to keep in mind that these type of data indicate how many people were exposed to the medium and not necessarily the message.

Media Planning

Several academic surveys have appeared which characterize traditional media tools and concepts (Lancaster, Kreshel, & Harris, 1986; Lancaster, Pelati, & Cho, 1991; Kreshel, Lancaster, & Toomey, 1985). These concepts are embodied in the literature which is being described here as normative (Lancaster, 1989; Lancaster &

Katz, 1988; McGann & Russell, 1988; Rust, 1986; Scissors & Bumba, 1996). In addition, media planning models illustrate these theories of normative concepts and are synthesized using computer programs such as ADplus. ADplus is representative of mainframe and PC-based software that analyzes media schedule data, including audience ratings, costs, and number of insertions in order to provide estimates of reach, effective reach, CPM (cost-per-thousand), CPP (cost-per-point), etc.

Media planning is an important function in advertising. Its purpose is to evaluate different media vehicles (television programs, magazines, newspapers, radio programs, outdoor billboards, etc.). The difficulty in considering effective media purchases lies with selecting the most efficient media vehicles given the numerous choices available. The ultimate goal of advertisers is to help increase sales or improve market share. This goal cannot be achieved if the advertisement does not reach the intended target audience, no matter how creative or brilliant the advertising campaign.

Media planning has evolved over the past several decades into a complex, sophisticated, and essential element of the advertising industry. Computer programs

have alleviated the complicated and tedious task of evaluating media schedules. The media planner is able to evaluate millions of possible media schedule combinations in a matter of seconds and ascertain their likely impact on the target audience. Estimation of audience size, number of exposures, total impressions or rating points, and cost-per-thousand can be assessed in preparation of an advertising campaign to approximate a schedule's effectiveness. These complex media models consisting of algorithms, formulas, and equations are now easily applied through the use of computer programs in making media planning decisions.

Process

Media planning is a complex process which involves analyses of the marketing situation, advertising situation, and the media planning strategies for the brand or product under consideration. Complex advertising and media research, schedule evaluation and optimization, and media appropriation are involved in the process of media buying.

Buying media space and time in an advertising schedule is the primary function of media planning.

Moreover, research about the target audience for the advertising message, evaluation and testing of the message, scheduling options, assessment of media vehicles, the advertising environment of the product in relation to its competition in the marketplace, and examination of the marketing situation of the product and of the company are components of the process. The media planner must take into consideration marketing, advertising, and media concepts and know where to locate sources of information in order to be able to forecast advertising effectiveness, such as awareness, exposure, recall, or purchase intent (Katz, 1988).

Concepts

Media planning norms are embodied in several fundamental concepts such as reach, effective reach, average frequency, advertising audience, vehicle audience, rating points, gross rating points, gross impressions, and exposure distributions, which are described in the following paragraphs.

Reach (1+) is defined as the number or percentage of the target audience exposed one or more times to the vehicles or messages in a media schedule. It is important for media planners to know not only who the

advertisement reached but also how many times they were exposed. This is known as *average frequency*.

Effective reach (3+) is the number or percentage of the target audience exposed three or more times to the vehicles or messages in a schedule. Media planners attempt to more accurately assess advertising effects by noting that in order for an advertisement to have any measurable impact it must have some minimum number of exposures. Naples' (1979) research revealed that optimal exposure frequency seems to be at least three exposures. However, the research failed to identify whether exposure levels referred to the vehicle or the advertisement. The naive assumption is that the audience is automatically exposed to a scheduled advertisement if they are exposed to the vehicle.

The *advertising audience* is the number or percentage of the target who actually see or hear the advertisement. Most services that provide audience measurements estimate the audience in a particular vehicle, such as a magazine or television program. The *vehicle audience* is reported as a representative measurement.

Rating points refers to the audience of a particular program or publication at a specific period of time

expressed as a percent of the audience population. Media measurement services such as Nielsen, Simmons, and Arbitron provide ratings information for radio and/or television. Readership, ratings, and circulation data for newspapers and magazines are supplied by companies such as Simmons Market Research Bureau (SMRB), Mediamark Research, Inc. (MRI), Audit Bureau of Circulations (ABC), Scarborough, and Roper Starch Worldwide.

Gross rating points (GRPs) are the aggregate total (sum) of the ratings delivered by a schedule and are the product of reach and frequency of the schedule. In making media buys, media planners often heavily rely on GRPs to evaluate whether there will be a sufficient number of rating points exposing enough of the target audience to the advertisement to have the desired effect. GRPs are a crude measure of audience coverage because it does not take into account duplication of exposures (individuals in the target audience who are exposed to the same advertisement in subsequent issues of the same publication or both the publication and another publication, broadcast, or cable spot).

Gross impressions are calculated by multiplying GRPs expressed as a percentage times the target audience size.

This number represents the total audience exposure to a media plan. This figure can exceed the target audience size because it includes duplication. The problem with using gross impressions to evaluate a plan is that it tells the advertiser nothing more than how many total exposures the plan delivers. Gross impressions alone cannot be used to make comparisons between plans or vehicles.

The *exposure distribution* tells media planners not only how many individuals see or hear vehicles or advertisements in a schedule but also what percent are exposed at each frequency level. This is important because most media plans have multiple insertions in many different vehicles. These calculations are performed by computer using a variety of media exposure distribution models.

The main purpose of advertising in the media mix is to achieve some level of communication effects (i.e., recognition, recall, awareness, purchase intent, etc.). Advertisers and agencies place advertising in various vehicles in order to obtain these various communication goals.

Obtaining the optimal mix of media can be a difficult task because the optimum level depends on many factors including desired communication goals and plan objectives. To obtain high levels of reach in a given plan, there need to be a number of different vehicles. Adding new vehicles increases reach, but the amount depends on the level of duplication among vehicles.

The problems associated with traditional media planning concepts are that evaluation of media effectiveness in terms of GRPs, reach, and frequency have conflicting practical definitions. Some studies have suggested that Krugman's (1972) three-hit theory is the minimum level of frequency needed to obtain communication effects. As academics search out quantifiable prescriptions for assessing media plans, practitioners in the field rely a great deal on intuition and experience to ascertain plan effectiveness (Schoenfeld, 1991).

The ultimate goal of a media plan is to get the message (advertisement) seen, read, heard, viewed, etc. Yet many planners simply rely on vehicle data in making assumptions about message (or communication) effects. The numbers which are typically used for evaluating media schedules account for vehicle data, not message data.

Advertisers and advertising agencies often ignore the fact that not every individual who is exposed to an advertising vehicle is exposed to the message. Therefore, use of vehicle data alone overstates the effectiveness of the media campaign.

There are many variables and extraneous factors which can influence or alter the message effectiveness of a media plan. There are a few syndicated research companies such as Starch that provide data about advertising message recognition. However, not all companies provide advertising message diagnostics across all media. Therefore, planners rely on beta binomial exposure distribution media model estimates which are available through various computer programs to assess likely message effects.

Unfortunately, many planners do not report exposure distributions based on message data. More often, it is the vehicle data which are reported and shown to the client. This is partially due to the fact that message data tend to assess schedule effectiveness substantially lower than vehicle data. Discouraging as those figures may be, they are more realistic than vehicle data in estimating the "true" communication effectiveness of a

plan. For example, some message-to-vehicle ratios for various media categories are: 45.0 percent for a full-page four-color insertion magazine advertisement, 13.1 percent for a 1/4-page newspaper advertisement, 32 percent for a 30-second television advertisement, and 16 percent for a 30-second radio spot. Thus, for 1/4-page black and white newspaper advertisement there is a 13.1 percent chance that newspaper readers are likely to see or read some of the advertisement. Research studies support these estimates (Lancaster & Helander, 1987; Lancaster, Kreshel, & Harris, 1986).

Advertising Response

More than just the numbers, advertisers are also interested in consumers' response to various elements of the advertising message and the effects vehicles, message format and position have on the advertisement.

Starch and Gallup & Robinson test consumer reaction to advertising copy. Testing advertising *content* provides planners with data to make comparisons between campaigns. The *context* of the advertisement is also an important element that can affect consumer response to an advertisement. *Context* refers to the quality of the placement--*Time* magazine versus *People* magazine--or the

quantity--whether or not a 30-second television commercial is placed in a flight with several others. Just as covers of magazines dictate higher prices because they are seen more, commercials that are first in a flight are remembered more often.

Positioning is another factor that can affect if or how an individual pays attention to a message. For instance, when an advertisement appeared in a more involving program, brand and message recall were lower (Soldow & Principe, 1981). The authors used learning theory to explain the results; the higher the level of involvement in the program, the more the commercial message is viewed as an infringement and not attended to (learn from) the message. In another study, Krugman (1983) found that recall of the message increased when an entertaining message appeared at an expected break in a show.

Variables such as color, type size, or page position are referred to as *execution* factors. Execution factors, used in regressions with message variables such as source, appeal, and product claims, were found to have a positive relationship in predicting Starch scores (Holbrook & Lehmann, 1980). Verbal and visual factors as

well as nonverbal elements can also influence response rates (Rossiter, 1981; Haley, Richardson, & Baldwin, 1985).

Finding the optimal level of frequency for maximum impact has been of great interest to planners since the early years of modern advertising. Learning theory proposed that an increased number of insertions would lead to greater response because information was gradually learned. However, later studies suggested that increasing the number of insertions would have an impact on response up to a point, then produce diminishing returns. Krugman (1972) and others postulated that for an advertisement to have an impact, the minimum number of exposures is three. Hubert Zielske's (1959) classic study found increasing the number of exposures decreased the rate of forgetting.

However, in today's advertising-cluttered environment, media planners need to be even more concerned with the effect of clutter on message impact. The increase of advertising clutter on television has had a significant impact on recall and brand identification (Bogart & Lehmann, 1983). Clutter was also found to cause irritation with viewers (Aaker & Bruzzone, 1981).

The *carry-over* effect is another factor in the media mix. *Carry-over* refers to the level of advertising effect that carries over into the time period (week, month, quarter, etc.) following the media campaign. Many studies suggest that the amount of carry-over from one month to the next is roughly 36 percent (Lancaster & Katz, 1989). Due to viewer boredom, irritation, or inattention, the impact of an advertisement incrementally declines over time. This is the problem of *wearout*. Calder and Sternthal (1980) found that the more commercials in a flight (number of advertisements in one commercial segment), the more negative the evaluation of the message by respondents. One way to reduce *wearout* is to vary the message, which allows consumers the opportunity to obtain more information and new associations.

Gainesville Sun ADplus Evaluation

As an example of a media schedule evaluation using the ADplus computer program, the print version of the *Gainesville Sun* can be evaluated using normative theories of media planning. Spending $49,830 on a 30-day schedule involving half-page, black-and-white advertisements

against Alachua County adults, yields the following ADplus results table (see Table 2-1).

These normative concepts are embodied in an interactive media planning program called ADplus. ADplus is distributed worldwide by Telmar Information Services, Inc. (*http://www.telmar.com*).

Interpretation of Results

The vehicle column is based on the estimated potential delivery of the newspaper, which overstates the delivery of the typical message because not all audience members see or read the actual advertisements. Because the message column provides more realistic assessment of a plan's effectiveness, these scores should predominate in the evaluation of the plan.

With this in mind, the efficiency of the vehicle is calculated in the CPM-MSG category. For this schedule it costs $111.41 to expose 1,000 adults to the typical 1/2-page, black-and-white advertisement in the *Gainesville Sun* daily paper.

Table 2-1. ADplus Media Evaluation of *The Gainesville Sun*

ADplus(TM) RESULTS: PRINT NEWSPAPERS

Tara Anne Michels
Dissertation Research
Typical Month

Target: 151,100
Alachua County Adults

Message/vehicle = 16.5%

	Frequency (f) Distributions				
		Vehicle		Message	
	f	% f	% f+	% f	% f+
	0	5.3	100.0	24.6	100.0
	1	1.4	94.7	18.4	75.4
	2	1.5	93.4	14.3	57.1
	3	1.7	91.9	10.7	42.8
	4	2.1	90.2	7.9	32.1
	5	6.2	88.1	5.9	24.2
	6	3.5	81.9	4.4	18.4
	7	2.7	78.4	3.4	13.9
	8	2.3	75.7	2.6	10.5
	9	2.0	73.5	2.0	7.9
	10+	71.5	71.5	5.9	5.9
	20+	54.5	54.5	0.1	0.1

Summary Evaluation

Reach (1+)	94.7%	75.4%
Effective reach (3+)	91.9%	42.8%
Gross rating points (GRPs)	1,832.0	302.3
Average frequency (f)	19.3	4.0
Gross impressions (000s)	2,768.2	456.7
Cost-per-thousand (CPM)	18.00	109.10
Cost-per-rating point (CPP)	27	165

Vehicle List	Rating	Ad Cost	CPM-MSG	Ads	Total Cost	Mix
Daily Sun	59.80	1,661	111.41	25	41,525	83.3%
Sunday Sun	67.40	1,661	98.85	5	8,305	16.7
		Totals:	109.10	30	49,830	100.0%

Now for the frequency distributions at the top of the printout under the *Vehicle* heading, the *f* column shows the number of times an individual in the target audience might be exposed to the schedule. This is related to the percentage (% *f*) exposed at a particular frequency level. For instance, it is estimated that 1.4 percent of Alachua County adults will be exposed to the schedule exactly once, etc. The (% *f*+) column represents the percentage of the target audience that is likely to be exposed *f* or more times to the 30 vehicle insertions in this schedule. In this plan, 94.7 percent of the target will be exposed one or more times to the schedule, and so on.

Reach (1+) estimates the percentage of the target audience exposed one or more times to the schedule's vehicles. *Effective reach (3+)* is the percentage exposed three or more times. The *Message* columns are interpreted in the same manner as vehicle except that the numbers report exposure levels to the message, not just the vehicle.

To simplify the results, while most planners look at vehicle data to assess media plans, message data, while sobering, is far more accurate in evaluating potential advertising effectiveness.

Electronic Publishing

> Computers and television are coming together: digitisation dictates that. Computers are continuing their relentless march towards greater power at lower cost; that is how microprocessors work. Some giant industries are betting billions on the new TV business: more deals loom. These facts alone guarantee a revolution in television. Whether it arrives in five years or 15 is almost irrelevant. In the history of communications, 2010 is tomorrow. It will not be the first revolution of its kind. In the past two decades PCs, VCRs, satellite dishes and camcorders were all dismissed by skeptics and then went on to change millions of lives, in ways large and small. Each did so by liberating consumers to manipulate information; to have a bit of control over mass entertainment; to escape the constraints of distance....("It's the end," 1994, p. 17)

There is mounting evidence that electronic distribution is becoming increasingly feasible and is beginning to create a visible marketplace demand. Newspapers with large development budgets, such as the *Atlanta Journal & Constitution, The San Jose Mercury*

News, and *The Raleigh News & Observer* have put a full-featured electronic newspaper online with a dedicated editorial, advertising, and technical staff. Some papers have assigned their own committees to set up the electronic-version publication while others have chosen commercial vendors like America Online, Prodigy, and CompuServe. *The New York Times* is on America Online, the *Los Angeles Times* is with Prodigy, *and The Washington Post* is working with ZiffNet. Still others are going up directly on the Internet (WWW--see Table 2-2 for sample listing) or have local dial-up services (BBS--see Table 2-3 for sample listing)(Dale, 1995).

Online publications have an advantage over traditional media with respect to evaluation because of the two-way, interactive nature and the ability to poll readers online to determine why they entered, what they were looking for, whether or not they found it, and what improvements in content and format they might suggest. As news managers and advertisers learn more about how to reach markets through electronic publishing, both can use the new revenue opportunities to pay for any resulting increases in complexity (Dale, 1995).

Table 2-2. A Sample of Newspapers on the Internet

Publication	Description	Address
Academe This Week	The Chronicle of Higher Education Guide to news and information about higher education.	WWW http://www.chronicle.merit.edu
The Columbus Dispatch	Columbus, Ohio Available through local Freenet. Provides news and weather.	TELNET freenet.columbus.oh.us
The Knoxville News-Sentinel Online	Knoxville, Tennessee Provides news and weather.	GOPHER Gopher.OpUp.org TELNET mamaclaus.OpUp.org
The Middlesex News	Framingham, Massachusetts Provides news and local information.	GOPHER gopher.world.std.com
The Palo Alto Weekly	Palo Alto, California Provides news, restaurant reviews, real estate, etc. to the Silicon Valley area.	WWW http://www.service.com/PAW/home.html
The News and Observer	Raleigh, North Carolina Provides news and information ($15 monthly charge)	TELNET merlin.nando.net

(Source: Online Access, September 1994)

Table 2-3. A Sample Listing of Online (BBS) Newspapers

Publication	Description
Albuquerque Tribune	The Electronic Trib Price: Limited free access; membership $20 for three months; $35 for six months; $50 for one year. Modem #: (505) 823-7700 or (505) 823-7701 Contact: Roy Buergi at (505) 823-3664 Launched: 1990
Charlotte Observer	Observer Online. Price: Currently free. Modem #: (704)358-5072. Contact: Gary Nielson (704) 358-5249. Launched: 1992
Danbury News Times	The News-Times BBS Price: Fee for non-subscribers. Modem #: (203) 792-6397. Contact: Rich Joudy (203) 744-5100. Launched: 1993
Fort Worth-Star Telegram	Startext Price: $9.95 monthly. Modem #: (817) 878-9800. Contact: Maureen Hathaway (817) 390-7854. Launched: 1982
Newsday	Newsday Online Price: Free. Modem #: (516)454-6959. Contact: Fred Tuccilloo (516) 843-2020. Launched: 1985
The Middlesex News	Fred the Computer Price: Free. Modem #: (508) 872-8461. Contact: Tom Zupda (508) 626-3800. Launched: 1987
Poughkeepsie Journal	Poughkeepsie Journal BBS Price: Free. Modem #: 914) 437-4936. Contact: Anthony Debarros (914) 437-4885. Launched: 1992
Raleigh News and Observer	NandO.net Price: $30/mo. for up to five users IDs (includes unlimited Internet access) Modem #: (919) 829-3560. Contact: Bruce Siceloff (919) 829-4527. Launched: 1994
Salt Lake City	Utah Online Price: Free to newspaper subscribers; otherwise $29.95 for three months or $100 per year. Modem #: (801) 237-2069. Contact: John Jordon (801) 237-2083. Launched: 1994.
Spokesman-Review/ Spokane Chronicle	S-R Minerva Price: Free for some uses; $8 monthly for full access. Modem #: (509) 459-5233. Contact: Shaun Higgins (509) 459-5060. Launched: 1992

(Source: Online Access, September 1994)

Some publishers are beginning to bypass online service providers and go directly to the Internet since they have discovered the ease of the World Wide Web (WWW). Ultimately, their goal is to control their publishing engine in the exploding electronic marketplace. The new electronic products provide new vehicles for advertisers to learn about their customers because of the incredible demographic information that can be obtained about the readers (Kimball, 1995).

Magazines such as *Time* and *Wired* have unveiled their first attempts at publishing on the Internet's emerging standard for interactive text and graphics, the World Wide Web. With its global accessibility and ease of use, the burgeoning Web can circumvent not just traditional production and distribution obstacles of print, but also national online services such as America Online (AOL), CompuServe, and Prodigy.

Publishers are back to the standard business model of delivering an audience to advertisers, said Andrew Anker, president of *Wired's* Web publication, *Hotwired*. Bruce Judson, Time Inc.'s general manager for multimedia, believes that the Internet is a distinct community that has the potential to become significant because

Pathfinder was receiving more than 70,000 hits a day within their first few months online.

Hotwired and *Pathfinder* have advertisers on their Web sites. *Pathfinder's* first advertiser was AT&T. The advertisement only appears as a link to its own "youwill.com" site.

Hotwired is the Internet's most successful online advertising venture and the current model for selling online advertising space. Fourteen sponsors--ranging from AT&T and MCI to Volvo and Club Med--paid as much as $30,000 each for a one-inch high banner across the top of *Hotwired* screens. The banner then linked to the advertiser's own Web pages, where one could dabble in AT&T's world of "You Will" or browse an electronic version of Club Med's Caribbean brochures (Wice, 1994).

During the past year, many magazines have gone online. America Online carries the most publications but others are already venturing out to the developing World Wide Web on the Internet. The Electronic Newsstand, featuring several Internet magazines, is more than year old at *gopher//gopher.enews.com*. A recent estimate on the number of online "zines" is about 200. Newslink Associates is a clearinghouse of media sites. They

currently list 181 newspapers, 136 magazines, 165 broadcasters and 159 special links sites on their World Wide Web page at *http://www.mixcom.com:80/newslink/.*

According to Robert Metcalfe, Ethernet developer and former publisher of *InfoWorld,* advertising will play a major role in supporting online publications because users will not want to pay the full cost of supporting a publication through subscription fees. Just like newspapers of today, readers have their subscriptions heavily subsidized via advertising income. Metcalfe predicts that the kind of "overt" advertising now found in newspapers and magazines will become acceptable once users can quickly clear advertisements from their screens just as they can now turn the page on a print advertisement (Gaffin, 1994).

Sun.ONE

The *Sun.ONE* (Online News and Entertainment) experimental interactive news project went online to the public on March 1, 1995. Developed for the *Gainesville Sun* by the Interactive Media Lab at the University of Florida College of Journalism and Communications, *Sun.ONE* is a model for other mid-sized newspapers who are interested in exploring the feasibility of electronic

publishing. Established as a (BBS) bulletin board system, the online newspaper is available in three interfaces: text, graphics, and Internet/WWW access (*http://news.jou.ufl.edu*).

Currently, users are divided into two groups: paid subscribers and members. A member is anyone who signs up with the service. This allows for a maximum of 30 minutes free use per day. Paid subscribers pay a monthly flat fee for 3 hours of usage per month, which also provides Internet access. During its first month (March 1995), *Sun.ONE* answered 26,489 calls and signed 3,701 users. Nearly one year later, there are roughly 5,500 users.

Content for the electronic newspaper is obtained from the Associated Press, the New York Times News Service, and Scripps Howard News Service. The local and classified advertising comes from the *Gainesville Sun*. The daily stories are edited and updated by students in the Applied Electronic Newspaper class and the Interactive Media Lab staff at the University of Florida. All types of news and information are contained in the electronic version. The categories include sports, world news, national news, local news, business, entertainment,

weather, and classified advertisements. In addition, *Sun.ONE* also offers users the opportunity to interact with other users and staff through e-mail and discussion forums.

After its first 31 days in operation, *Sun.ONE* reported that advertising revenues ran ahead of projections. Companies such as First Union Bank, Red Lobster, and Gainesville Regional Utilities are a few of the advertisers. The advertisements appear in a one-inch banner located on the bottom of the screen. To access the entire advertisement, the user must click on the banner.

The types of data that can be obtained from the electronic logs and which might be of interest to advertisers are the number of users, how often they log on, time of day, categories of news selected, length of time, and those who click on an advertisement banner. Demographic data such as age, gender, income, and education are also available from the logs.

The Internet

Advertising Age magazine reported in its March, 13, 1995, issue (Williamson, 1995a) that they covered more stories about the World Wide Web in the first two months

of the year than they had during all of 1994. Given its tremendous growth, the Internet as the private playground for "computer geeks" and scholars may well be a thing of the past. It did not take long for marketers to recognize the potential of the Internet gateway. And it is still in its infancy.

Although no one knows just how many people log onto the global network of computers, experts estimate that the Internet serves 20 million to 30 million users. The article in the March 13, 1995, issue of *Advertising Age* quoted Forrester Research as saying that there are now about two million Web users, and by 1998 there will be 11.2 million; however, it was unclear whether or not those figures included Prodigy, AOL, and CIS users (Williamson, 1995a). Other resource centers such as Matrix Information and Directory Services estimated that as of October 1994 there were 7.8 million core Internet users who could log into interactive services such as TELNET, FTP, or WWW; 13.4 million consumer Internet users who could use Web browsers such as Netscape and Mosaic; and 27.5 millions who could exchange electronic mail ("New Data," 1994). And still others estimate the number jumped by almost five million when major commercial

networks, such as America Online and CompuServe, gave their customers access to many Internet services.

More recently, a study released in October of 1995 by CommerceNet and Nielsen Media research indicated that 24 million people in the U.S. and Canada use the Internet. In the same article, consulting firm FIND/SPV released their study's findings in January 1996 stating that only 9.5 million Americans use the Internet("New Study," 1996). No one seems to agree on just how many people log onto the Internet. However, FIND/SPV found that 51 percent of all Internet users surveyed reported that that their first Internet use began in 1995. The debate over the number of users will continue to drag on, but one thing is certain--the numbers will continue to increase. Online usage statistics would be incomplete without including commercial online subscribers (see Table 2-4).

Table 2-4. A comparison who is using online services

	CompuServe	America Online	Prodigy	World Wide Web
Total Audience	3.2M	3.0M	1.2M*	**
Age	42	***	36	35
Household Income	$93K	$75K	$60.5K	$60K
College Education /Degree	94%	***	75%	NA
Male	90%	79%	60%	82%
Female	10%	21%	40%	18%

(Source: Pohly, D. Marketing Tools, November/December 1995)

* Number of subscribers. Prodigy claims 2.4M users 2 users per subscription
** 300M (potential), Based on the number of people who can access WWW via direct dial Internet
*** Age: 18-34, 37%; 35-44: 34%; 88% have attended college

Eager to tap into such a huge market, hundreds of companies have established computer outposts on the Internet. They post computerized product information on electronic bulletin boards and attempt to close sales online with people who are using their computers to "surf" or browse the "Net." And publishers are there to tap in as well.

World Wide Web (WWW)

Developed at a Swiss physics laboratory, the WWW provides a way around the difficulty of navigating on Internet and enables people to post colorful images, photos and graphics (hypertext) instead of just plain text. Users connect to web sites--computer servers--simply by clicking "buttons" on their monitors. They can move from web site to web site effortlessly, with no need to learn cryptic computer addresses like *http://info.archlab.tuwien.ac.at/das andere.html* for the Internet Sources Architecture and Building.

Defining who the Web users are is the subject of much discussion. A study of 4,777 web users by James Pitkow and Mimi Recker at the Georgia Institute of Technology indicated that 56 percent were between 21 and 30 years old, 94 percent were male, and 88 percent use UNIX (a computer operating system used mostly by college students and technical workers). The study also showed that the largest number of web users--46 percent--were either university students, faculty, or staff (Eckhouse 1994).

In a follow-up study by the Institute in the fall of 1994, 3,522 valid responses were used. The results

indicated that 44 percent were between the ages of 26 and 30, 90 percent were male, over 51 percent gained access through the educational sector, and 30 percent from commercial services. At the time of this writing, the researchers were planning for their semi-annual survey to start in April (Pitkow & Recker, 1994).

The heart of the Web's appeal is that no matter how powerful traditional searching tools like gopher can be to users familiar with the Net's terrain, the Web hides the chaos of the Internet behind an easy-to-use, mouse-driven interface with software like Netscape, Mosaic, and Cello. This software makes Internet exploration more like navigating by use of signposts than the typical trial-by-error typing of arcane commands and addresses. Internet providers are making their services even easier to utilize. Because setup can be complicated for the individual user, more service providers offer packages with names like "Internet in a Box" to help new users get online and to entice them into using the services. Most of these packages include the Windows version of Mosaic, the freeware version developed by the National Center for Supercomputing Applications (*http://www.ncsa.edu*) at the University of Illinois at Champaign-Urbana (Lewis, 1994).

With the increased demand for Internet access and high-speed Windows browsers, such as Netscape and Mosaic, the potential audience for online publishers becomes more plentiful.

Commercial Cyberspace

New Media

In 1980, one of the first conferences about issues related to electronic publishing was held at Indiana University. "Electronic Home News Delivery: Journalistic and Public Implications" discussed implications of advertising in the electronic marketplace. Albert Gollin from the Newspaper Advertising Bureau said that advertisers' interest in delivering tailored messages to specific target consumers groups was growing. Gollin said,

> Advertisers can enter the electronic marketplace in several ways: as information providers themselves, responsible for supplying their own large-volume content (e.g., supermarkets or chain stores). Or advertisers can be customers of information providers such as newspapers, piggybacking on or linking their messages to others' programming. Whatever the form, the key interest of any advertiser is in the documented market penetration achieved by the new media which will grow slowly enough to minimize the drain of ad revenue for some time. (Gollin, 1980, p. 66)

Although Gollin might not have realized the full capability of the new electronic media, the possibility of adaptive (interactive) advertising was spawned. According to Gollin, one advantage of online advertising would be that advertisements could be archived and updated as needed. The potential to increase the number of insertions (this notion of being able to continuously update advertisements at no extra cost) would be an attractive proposition for advertisers.

In 1988, when the Internet was still viewed as a communications tool for researchers and the World Wide Web was not even conceived, Hsia's (1988) predictions about the future of online advertising were prophetic. He believed that advertising and news messages would merge into one, where neither would be replaced but supplement the other. He forecasted that online publishing would circumvent the tedious process involved in creating and placing traditional media by permitting users to control advertising message exposure (allowing the user to identify only those advertisements which would be of interest to him/her). Flexibility in creating and updating advertisements, the feasibility of lowering the costs involved in advertising delivery, and

the ability to produce instantaneous analyses of advertising effectiveness are only a few of the opportunities that online advertising will afford the industry.

These early forecasts by Hsia are much like the concepts that have been coined "one-to-one marketing" by Peppers and Rogers (1993). The premise of one-to-one marketing is that advertisers will invite and pay consumers to visit their sites (see and hear their messages or advertisements), that customers will advertiser their own needs to advertisers, and that advertising will become integrated or fused with other marketing and promotional efforts.

With the interactive future on the horizon, not everyone supports its future. Some believe that the hype of interactive online systems, such as the WWW and the Internet, will fall to the wayside, and the conduit for the public's "infotainment" needs will be met with interactive TV (Evans, 1994; Cohen, 1994; Cook, 1994). Yet, what some skeptics may fail to realize is that the future of new media will merge television and computer technology so that the consumer ends up with something that resembles both media. It is probably a moot point

and either a matter of semantics or tenacity that both sides of the issue are referring to the same concepts about an interactive future looming on the horizon. What form evolves is not as important as is the conceptual theory.

Business Online

Online publishing entrepreneurs are not the only business ventures exploring commercial avenues on the Internet. The nation's first consortium promoting Internet-based commerce appeared in June of 1994. CommerceNet quickly expanded to more than 50 members, including Lockheed Corp., Bank of America, Citicorp, Xerox Corp., Apple Computer, Inc. and Allen-Bradley Co. Its goal: 1,000 member companies by 1995. Meanwhile, the big three online services, CompuServe, Prodigy and America Online, announced expanded Internet support. Major computer vendors, including IBM, Apple, Sun Microsystems, Inc., AT&T Corp., Microsoft Corp. and Lotus Development Corp., have begun touting new tools and services aimed at helping large companies expand electronic commerce, much of it on the Internet. It is easy to see the appeal of an estimated $300 billion online market. Analysts say catalog sales and home

shopping, a $60 billion business in 1993, could quintuple by decade's end. Some predict online shopping could explode into a $5 billion sales channel in a few years. And selling goods electronically can be 40 to 50 percent cheaper than by conventional means (Maglitta & Booker, 1994). This same savings can be applied to online publishing costs as well.

Business-to-business use may be even more promising. Some 2,000 companies connect to the Internet each month, according to Gartner Group. Market researcher Dataquest, Inc., in San Jose, Calif., says 60 percent of large companies and 30 percent of medium-size companies will use electronic commerce by the year 2000. An estimated 400 commercial enterprises, ranging from small privately owned flower shops to AT&T, have created online advertisements called "pages," or order forms, on the World Wide Web. While few companies are basing their entire electronic commerce strategy on the Internet, it is increasingly being evaluated as a viable adjunct to existing sales channels (Maglitta & Booker, 1994). Some critics argue that electronic publishing will completely erode traditional print; however, many see the

proliferation of electronic publishing services as inevitable.

Several factors have conspired to spur business interest in the Internet, among them the declining cost of PCs and modems; the proliferation of Internet service providers; the increase of Internet-savvy college graduates into businesses; and the emergence of software tools for exploring the Internet. The days when getting on the Internet meant typing cryptic command lines are declining. Although it still has a long way to go in terms of ease of use, the Internet is becoming a colorful, graphical web where text, pictures, and sound can travel at high speed to users all over the world simply by the click of the mouse. In January 1994, there were 750 Web servers in operation; by June that number had risen to 3,250.

Doing business online is not just confined to the Internet. There are many opportunities to use commercial online services and private bulletin boards for legitimate business purposes such as online publishing. In addition, many companies engage in customer support online, advertise, conduct surveys, offer special promotions, and otherwise do most of the things that you

can do over the Internet. In the popular trade press it has been speculated that while some businesses are visionary and others are bold, still others are rushing to the Internet simply out of a fear of being left behind.

Commercialism versus Net Culture

The dilemma exists between the Internet's traditional culture--a means of noncommercial use and the free exchange of information--and as a communications tool--an information resource and an advertising vehicle (Moran, 1994).

It has been suggested that it will not be long before corporations bypass passive Web billboards and become more aggressive. As they push the Net toward a pay-per-byte model, we will face a larger number of unsolicited advertisements attempting to influence opinions. It will be a world of online billboards and tollbooths, and the quest for knowledge will be squeezed out by the quest for the almighty dollar. Work is under way at the National Science Foundation network (NSFnet) to separate research and commercial bandwidth on the Net, but it addresses only the technical aspect of academic

interests being overwhelmed by commercial ones. It does not create a barrier or even a buffer between research and profiteering (Levin, 1994).

Furthermore, NSFnet is undergoing tremendous upheaval in how it operates. It has replaced by a new architecture that will further segregate commercial and research and development traffic. There will be a separate network, the very high-speed Backbone Network Service, dedicated to research and development. Because of the way traffic is routed, business users will not even bump into the academic traffic. Academic propaganda that the federal government's Acceptable Use Policy (AUP) prohibits commercial traffic over the Internet has fallen by the wayside. The government backs business use of the Internet. Tony Villasenor, who co-authored the NSF's AUP and now manages the NASA Science Internet, said that the government absolutely encourages commercial entities to hook into the Internet. Villasenor also said that advertising on the Internet does not constitute a violation of the AUP. The AUP applies to only the backbone traffic of federal agencies. Under the new architecture, the AUP does not even apply, so the issue

of trying to curtail advertising or commercial usage of the Internet is a moot point.

There are successful ways to advertise on the Internet without clashing with the culture of the net. Companies can set up a World Wide Web or gopher site. They can make an announcement on the National Center for Supercomputing Application's "What's New" home page. They can use a "mailbot," which sends an automatic reply when an incoming e-mail message is received.

Advertising Via World Wide Web

The World Wide Web offers a forum for unobtrusive advertising. Many believe that the Web will soon become the best means of advertising on the Internet, as more people become equipped to log on. In a nutshell, the Web is an area of the network where users can "jump" among databases devoted to various topics and companies.

Unlike advertisements in discussion groups, those posted on the World Wide Web are not mailed out indiscriminately. Only users interested in a particular company or topic will see an entry--also called a "home page"--for that topic. A "home page" is a store front complete with doors and signs advertising services or

merchandise. It is designed to lure customers inside to browse.

To decide where to go on the Web, users simply check an index. The index lists content on the Web by company, category of information and date the information was posted. Users who are interested in downloading a particular Web posting need only type a command or click an icon--each Web posting has its own address (Higgins, 1994).

Thousands of companies have set themselves up on the World Wide Web. They range from global giants like AT&T Corp. to small publishers like Lonely Planet, which sells travel guides.

Retailers are creating "electronic storefronts" to sell everything from airline flights to lingerie. Publishers are posting a broad and quirky assortment of things to read, from home-brewed newsletters to *The New York Times*. MCI Communications Corp. announced it would build high-speed network links for businesses and an electronic shopping mall. Yet entrepreneurs who have worked online warn that it is a world like no other, not like the magazine or broadcast industries to which it is

often compared. Cyberspace is a new medium with new problems.

When it was apparent that the government would not continue to finance the infrastructure of the Internet, it was opened for commercial traffic. Advertising on the superhighway will be inevitable and will serve as both a potent marketing tool and a means to finance the infrastructure. Threats of litigation will not affect the way people on the Internet communicate. The Internet, or a network like it, is seen by many as the single most important new way to do business since the advent of the telephone. An estimated 25 million people now access the Internet. And that number is growing frantically at the rate of 10 to 20 percent a month. This represents a market too enticing for advertisers to ignore.

Madison Avenue, with its one-way messages and penchant for mass-market overkill, would seem the very antithesis of the Internet culture. Today, though, the Internet is becoming a hotbed of advertising and commercial activity, and yet its culture seems to be surviving. Advertisers are experimenting with ways to get their messages across on the World Wide Web with its

eye-catching graphics. But there is zero interference with the Net's bulletin boards, e-mail, or other services because users do not see any commercial messages on the Web unless they actively seek them out.

Some of the first advertisements appeared in October 1994 on *Hotwired* and the University of Illinois' National Center for Supercomputing Applications, creator of Mosaic Web browser. What began as a slow drip soon became a downpour when the popular Nescape Navigator Web browser began selling advertising space on its Web site. Since the beginning of 1995 many popular sites such as *Yahoo, SportsZone, ZDNet, Playboy,* and others have established rate cards (Rafter, 1995).

With the arrival of online publications such as *Hotwired (http://www.Hotwired.com)* and *Pathfinder (http://www.timesinc.com)* major advertisers such as MCI, AT&T, and Volvo have increased their exposure on the medium.

Creating useful and interesting virtual spaces to draw potential shoppers is what online entrepreneurs have to do. With millions of new users entering the Net and looking for a shortcut to all of its treats, dozens of companies are creating "electronic malls" and other

"places" on the Web that provide easily understood doorways into the Net.

When consumers see an advertisement will they bother to click on it? It has been suggested that they only will if they are offered useful information or something novel. Users also like the latest "techno-goody." For instance, thousands downloaded a 60-second digitized video from Oscar Mayer Foods Corp.

It is important to bait the "cyberhook," said Larry Chase, president and founder of the Online Advertising Agency, a New York startup. Working closely with the New York Web, an Internet consulting firm in Manhattan, Chase has signed clients such as apparel maker Esprit, 1-800-Flowers, and Radical Media, a video-production company. He came to the Internet after years of consumer-goods copywriting at DDB Needham Worldwide Inc. and Young & Rubicam Inc.

In late 1994, many of the Internet advertisements were mainly those of startup companies, most of them with roots in Silicon Valley, not Madison Avenue. If the Net should prove as effective a medium as many believe, the major corporations will quickly jump into the game (Verity, 1994).

Whether or not skeptics believe it, the interactive future is here. Many publishers and advertisers have found their niche and have been able to attract huge numbers of visitors to their site. The key to their success: offering something new for consumers.

Disappointed that the online BBS version of the *Atlanta Journal and Constitution*, *Access Atlanta*, had only attracted 20,000 subscribers, the director of interactive services took his "show" to the Web. When the Atlanta Braves looked certain for world championship contention, *Access Atlanta* rushed to put up a free Web site. They offered interviews with players and the latest scores and statistics. The *Fastball* site was accessed 2 million times (Ciolli, 1995).

In another interactive advertising venture, InfoSeek's World Wide Web directory, which allows users to select key words, sells advertising on all of its words. The site receives 4.6 million search queries daily. The concept is simple. Advertisers can buy a key word such as "Christmas," "presents," or "cars" and each time that word is searched the advertiser's banner appears across the top of the computer screen. InfoSeek measures and prices each word. Current prices are $1,000

per word or $40 per 1,000 for what they call "platinum" words ("Internet Advertisers," 1995).

The Riddler, is probably one of the most successful advertising Web sites. Taunting visitors with the chance to win up to a $10,000 cash prize, the game features trivia quizzes, puzzles, and brain-teasers that are designed to keep users linking across corporations' Web sites. Created by Interactive Imaginations, *The Riddler* site is considered the only Web site that regularly offers free games and cash prizes from a number of advertisers. IBM, Silicon Graphics, AT&T, Sprint, and Capitol Records are sponsors of different games, including a treasure hunt game where clues are hidden on their own Web pages. Puzzles can take anywhere from a few hours to a few days to solve. The intent by marketers is to keep visitors coming back and back again. The Riddler site has been very successful since its April 1995 debut and boasts 400,000 daily visits (McDonnell, 1995). From offering games to free screen savers, marketers are drawing in audiences and targeting their efforts to specific demographic segments, much like interactive direct mail.

Online publishing combines the advantages of both newspapers and magazines. Because of its global reach, electronic magazines, "zines," can serve a dual purpose. Where content no longer becomes an issue because it can have local, regional or national interest, a "zine" can have specialized content to reach just about any type of audience. Space constraints could be virtually eliminated as well because users can click into an indefinite number of pages. The timeliness factor for newspapers can also apply to online publication. News and information can be instantly updated allowing for more flexibility on deadlines. Another advantage to online publishing is access to interactive classified advertising. The Post Co.'s *Digital Ink* online publication offers an interesting approach to classified advertising. A reader can search the classified for specific items and mark the items for a future offer of the item. For instance, a user could search the classified for a used 1990-1994 Ford Explorer, color preferences--blue or gray, 4-door, air conditioning, power window and locks, and 4-wheel drive. The request will be stored so that any future advertisement for the product or service matching the user's criteria will be

automatically forwarded to the subscriber's mailbox (Kaiser, 1995).

While there are infinite possibilities for electronic publishing, no established norms, guidelines, or research services exist to aid publishers in evaluating audience measurement.

Normative Theory

General

Early social scientists recognized the fundamental role of norms in our society (Sherif, 1936). The basic theory has been applied to the various branches of social sciences, including social psychology, political science, law, and economics (Heide & John, 1992). Although the body of literature may differ in application of principles, there is agreement on basic constructs.

Norms are a representation of shared expectations for behavior(s). Social scientists use norms as a means for understanding human behavior (Berkowitz & Daniels, 1964). In the academic arena, *norm* has more than one meaning (Schaffer, 1983). A norm can refer to what is customarily done (normal) or what is customarily approved (socially sanctioned). Within a given social group,

norms which characterize the understanding of what most people do are known as descriptive norms (Cialdini, Kallgren, & Reno, 1991).

Cialdini (1988) asserted that descriptive norms are an information-processing shortcut when making decisions. Because descriptive norms motivate groups or individuals by providing evidence as to likely effectiveness in a given situation, one can simply "follow the leader" by imitating their actions. This may explain why advertisers frequently show mobs of people rushing to stores grabbing products off the shelves in their television commercials. In this manner, advertisers do not have to convince the audience of how good their product is but that many other consumers think so--which is often good enough (Venkatesan, 1966).

Marketing literature offers another perspective in the use of norms. Macneil (1980) found that there are significant differences in the extent to which norms predict behavior between individual (discrete) versus group (relational) goals. The classification represents the differing behavioral expectations of each. While discrete norms make expectations about an individual's competitive interactions and autonomy in pursuit of

individual goals, relational norm expectations are based on reciprocity and mutual benefits for the good of the relationship or shared goals.

We can use both Macneil's (1980) relational norms and Cialdini's (1991) descriptive norms and apply them to the area of media planning. Working toward a normative theory, relational norms suggest that different groups (advertisers, advertising agencies, and media organizations) work toward a mutually beneficial goal (standardized evaluation techniques); and the descriptive norms provide the framework for the accepted or traditional approach (Macneil, 1980).

Media Planning

Despite the fact that media planning plays a vital role in the evaluation and placement of advertising, a specific theory is tentative. Thus, the normative theory is applied for a comprehensive framework (Katz, 1988). In the media planning process there are always some variables that cannot be controlled for, such as prices or competition. However, a step toward establishing a normative theory to make accurate assessments of advertising effects includes using all of media planning

tools available to evaluate appropriate media vehicles. Testing all of the necessary elements in the process of electronic publishing by identifying how closely they are related to the ideal "normative" framework will be used to produce an accurate forecast of advertising effects.

Media Planning

> Big agencies make their money buying media, and there's very little to buy in new media. They know they can make money in traditional advertising, so to get their clients to move to interactive from conventional is like eating their young. (Satren, 1995, p. 1).

Interactive

Even though electronic publishing has existed for more than a decade, there have been no academic studies which assess it as a viable advertising medium. More recently, on various advertising and marketing newsgroups, the issue has been brought to the forefront. Many online publishers are deferring to academics to establish an evaluation norm. Yet, even as this issue unfolds there is little agreement as to how this goal might be accomplished. Some argue that "hits" (how many times a user clicks onto a screen) should be the standard measurement while others believe that some kind of path analysis should be incorporated. There are additional

factors such as duplication (same user who is also exposed to the message through another medium) which have not been addressed.

Advertisers have been slow to embrace Web advertising. This is mostly because there are no solid data to support exposure levels (Ciolli, 1995). One advertising executive who tracked the number of users who "clicked" on an advertisement for more information about the product or service found that it only averaged about 2 percent. However, this "click-through rate" increased to about 7 percent if enticements were offered ("Marketers Offer," 1995).

Methods used by a leading Web tracking service, Internet Profiles Corp. (I/Pro), came under attack from Business Publications Audit International (BPA), an organization that conducts circulation audits for thousands of print publications. BPA found that I/Pro was using sampling methods to determine hits that are not as reliable as print publication circulation figures (Frook, 1995). I/Pro, a division of Nielsen Media Research, claims that each action by users is carefully checked and rechecked for errors, erroneous hits, etc. However, BPA found that Nielsen's figures only reported

portions of Web log access files and used algorithms to forecast site usage (Frook, 1995).

There are now a number of companies marketing auditing software through retail outlets and direct mail order. SiteTrack, Market Focus, NetCount, WebTrack, and Open Market are just a few of the companies producing software that offers in-house comprehensive tracking information. However, most media buyers do not trust in-house data.

> All advertising on the Web right now is coming out of discretionary budgets because, without the tools, advertisers can't compare it to other media. Accountability is what is needed to change that. (Frook, 1995, p.1)

Consensus in the publishing community is that in order for interactive advertising to compete with other media, there must be quantifiable data of Web usage in order to draw comparisons. The Audit Bureau of Circulations (ABC) is testing Web tracking software ("Audit Bureau," 1995). The new system is designed to provide more information than just the number of hits.

Streams Online Media Development's, Lilypad, measures response to Internet media advertising placements. Rather than focusing on measurement of hits, Lilypad reports the path, or links, by which Internet

visitors came. Lilypad tells the marketer whether or not a visitor came from a bookmark, clicked on a hyperlink at another site--paid or unpaid, a newsgroup or a local file on a hard drive. In addition, the software can be configured to monitor multiple pages within a web site and can ignore duplicate exposures ("Streams Launches," 1995).

Without concrete data it is difficult to assess or evaluate Web-placed advertising. While it is marketers who want to gauge the effectiveness of online advertising by measuring Web site traffic, it is vitally important for companies that sell Web advertising space to obtain reliable tracking figures because the information can be used to sell the popularity of the sites (Williamson, 1995b). Even though most advertisers agree that measuring exposures is important, not all can agree on how Web advertisements should be priced, whether by cost-per-thousand of by some other measurement (Williamson, 1995b). One problem that Web site owners have noted that has obstructed accurate measurement of their sites is a concept called "cache-ing." *Cache-ing* is a practice used by some commercial online services such as America Online that stores popular Web pages on their own servers for

quick recall. This practice deprives Web site owners of accounting for the user's visit.

Now that the Web is quickly becoming a viable medium, the race for standard measurement tools is evident. The debate is just beginning, pinning the old pros like Nielsen Media Research against the newcomers like Streams Online. While the rapid growth of the Internet lunges forward, standards for data collection are emerging (Cleland, 1995).

Creating An Industry Standard

For media planners to consider buying spots in the electronic publishing arena--whether on WWW, commercial services, or bulletin board systems like *Sun.ONE*--an industry standard for evaluation of the medium needs to be developed. Advertisers are looking for ways to help them take some of the confusion out of online media buys.

Comments from *inet-marketing@einet.net* question whether advertisers should be interested in the length of time users spend in an advertising area (which can be measured online but not in other media), or whether tracking hits (pure number of accesses) provides a more accurate figure. While some believe that hits provide

better measurement, others believe that "time-spent" is more useful. And there are still other avenues of path analysis such as hypertext distance measures within an advertising space, differential analysis of paths, among other useful techniques to be explored in media evaluation. Since we are dealing with such a new medium, there may be other methods of evaluation that have not even been contemplated.

There are users who believe that electronic publishing should be void of all advertisements. Therefore, some online publishers have opted to forego advertisements. Others have included just an icon or small teaser advertisement, which is intended to induce the reader to click on it for the full advertisement. These unobtrusive advertising messages are the subject of much controversy for many advertisers who doubt their effectiveness.

Another question is raised. If all a reader is exposed to is an icon or small teaser, will there be any measurable affect on the receiver. Or can advertisers only count those who opted to select an advertisement icon for more information? While these and other

questions are explored, the world of electronic publishing is rapidly moving ahead.

Interactivity and Design Issues

In the examination of interactive advertising it is important to look at the issues and elements regarding the nature of interactivity. Notions of human-computer interaction, navigation, interface design, learner control, and path analysis have been explored in the study of computer sciences and educational technology, however, little has been addressed with these factors in relation to advertising.

Learner Control

A major thrust in the interactive learning literature is the concept of learner control. In this vein, given the same levels of motivation and ability, in traditional media, such as TV, radio, or printed materials, all learners basically encounter the same learning experience. Therefore, designers of traditional media likely make some assumptions about the invariable delivery of their medium. With traditional media, "users" (viewers, listeners, readers) share a large

degree of commonality of the experience. However, with the advent of interactive technology, lies the capability for designers to produce materials that give the learner flexibility in choosing their own path of instruction or experience. And with this greater freedom of choice comes the opportunity for two learners to obtain the same learning objectives, utilizing the same instructional materials, without having had the same learning experience. New media technologies will bring about a host of new questions for media designers. These changes in instructional methods have numerous implications for advertising, marketing, and consumer research as well.

Path Analysis

One major change with interactive media will be in the notion of the different "paths" a learner can take through the instructional (entertainment, informational, travel) experience. An investigation into these paths will require recording and analyzing each step in the process. The tools used to record these paths are referred to as audit trails (Schwier & Misanchuk, 1990).

Using computer software to record an individual's path is a relatively simple task. Each response is noted

and catalogued at each decision point or node. However, a simple record of the path provides only observational data. Descriptive analysis of the sequence can answer such questions as Do individual paths differ significantly from one another? Is there one path which is shorter or longer than others? What does the selected route tell us about the individual? Is there a common step among all users? These and other questions address the ideas about how learner control and path analysis can play a pivotal role in assessing the effectiveness of interactive media and its messages.

An audit trail consists of every response given by a user during a particular session. The trail may consist of a record of keystrokes, mouse clicks, words, phrases, or sentences that a user inputs into the program. In its simplest form the audit trail is a string of characters (could be letters or numerals) that represent responses made by the user from point to point (Schwier & Misanchuk, 1990). Coding responses under this system, an audit trail could look something like this: 1243, etc. Interpretation of this data would be as follows: At the first node or decision point the user chose response coded "1." At the second node, "2." And so on.

Descriptive analysis of the audit trail provides useful information for researchers in electronic publishing because it tells a publisher what stories (links or pages) were read most and in what order. Understanding the function of path analysis (audit trails) can offer creative and innovative approaches to analyzing data.

One limitation to descriptive analysis of the audit trail is that it cannot answer the questions of why particular choices were made. But within the framework of this present investigation, path analysis can best serve the media planner in evaluating effectiveness of a message or the medium in terms of reach and frequency, and not questions of why.

Computer-Based Interactive Video (CBIV)

Research on interactive educational environments would be incomplete without addressing the issues about interface design. The nature of interactivity and interface design from a user's perspective looks at ideas about conceptual distance, color, object placement, size, etc., that can influence (aid or hinder) the learning process.

Interface design offers another dimension to interactivity. Advertisers should not only be concerned with hard data about the paths users take but also why and how they get from place to place.

"No significant differences" in learning measurement are the common results from educational studies when making comparison between groups of learners and the medium used for instruction. When differences are found, they are likely to be due to confounding factors and not to the medium itself (Clark, 1987). A learner's perception of the information (the medium) can influence the degree of cognitive effort involved in the learning process (Salomon, 1983). Studying the context and environment within the instructional process is also important (Salomon & Gardner, 1986). As interactive media advance and allow for more learner control within a less structured environment, relevant research about the scope of possibilities will be enormous (Linn, 1985). Educational research has shown that the more mentally engaged the learner, the more information is processed, and the more likely one will generate meaning from the message (Jonassen, 1985).

According to Jost, learning is a constructive process whereby interactive instructional designs should encourage more elaborate cognitive effort rather than simply responding to information on a screen. Therefore, when designing interactive lessons, encouraging access to prior learning and relating new material more uniformly should be employed (Jost, 1990). The educational literature also suggests that adaptive designs of computer-based interactive video allow for a variety of alternative instructional sequences based on the learner, content, or situational characteristics. The instructional strategy or content is adaptable to either external (learner) or internal (information) sources. External sources can be influenced by performance, prior learning, learner characteristics, or learner control. Programs which adapt internally are influenced by task requirements, content sequencing and structure, and instructional development.

CBIV is an interactive technology that offers many capabilities for alternative learning strategies (Jost, 1990). The effectiveness of an interactive design is dependent on the level of adaptability of a program. A truly interactive program must respond to the learner and

offer a wide range of options, examples, and choices. Although maximum interactivity is desirable, research has shown that not all learners know what is best for them. For example, those students with low ability tend to hastily move through an instructional sequence while those with high ability tend to exhaust every possible avenue (Jost, 1990). However, the research on learner control has yielded mixed results. There are a number of possible reasons for the inconsistent findings in learner control research. Some possible explanations are due to differences in cognitive design and behavioral approaches to learner control research. While the cognitivist approach allows for more student control in the learning process, the behavioral approach focuses on the characteristics of the individual (Kinzie, 1990). Factors which influence how individuals process and control information can be due to differences in motivation, perception, learning style, student aptitude, degree of inquiry, or prior conceptual understanding (Salomon & Leigh, 1984). The optimal instructional design strategy is based on adaptive instruction, where the computer adapts to an individual's style based on user responses (Milheim & Azbell, 1988).

If marketers were to apply these educational principles to the field of advertising, then user characteristics such as need for cognition, motivation, level of involvement, demographical data, or medium expertise could be accounted for, and the advertising message could be customized for the individual. Understanding principal characteristics of the processes involved in using interactive platforms could have major implications in the design and analysis for interactive advertising. CBIV gives the user the ability to engage in and control the learning environment, allowing for more flexibility, engagement and empowerment, which increases the capacity for a higher level of learning. It appears that designers of interactive media must present information in ways that maximize actively engaged responses from the user.

It is highly speculative to discuss computer-based interactive video in what is feasible given today's standards for electronic publishing and advertising. The inferences drawn from educational technology serve to address likely situations that will emerge as technology progresses to the point where a truly interactive communications, information, and entertainment medium

exists at a relatively affordable cost. It is likely that advertisers will need to design sites that are intriguing and advantageous to potential customers. The literature suggests that mentally engaging a user into an interactive advertisement will increase the amount of information processing and thinking about the product or service. For advertisers seeking to enhance communication goals, an increase in cognitive effort could enhance advertising response factors such as recognition, recall, and brand awareness. This is one way of enhancing the reach and frequency of interactive messages. The recording of target audiences' actions and preferences will allow for the customization of advertising messages. It is this response to users' past performance that will act as catalyst for deeper levels of interactivity of advertising in new media, which will ultimately change advertising to a user-driven relationship.

A discussion of traditional media planning strategies and issues have been addressed in this chapter which outline current practices as well as concerns about optimal levels of reach, frequency, and advertising message exposure. The present normative evaluation

techniques, while useful and appropriate, cannot provide exact measurement of advertising message exposure or response data. The enormous body of literature regarding the explosion of electronic publishing suggests that advertising will be a driving force in the viability and feasibility of online publishing. Given the vast potential of this new medium to capture precise audience data, the quest for standard measurement is of uppermost concern for media planners. This study addresses the questions involved with the debate over evaluation techniques.

CHAPTER 3

METHODOLOGY

Issues raised in the preceding chapter help to underscore the magnitude of the media planning problems in the new media. The following five research questions seek to address this dilemma of how to assess online media--using traditional concepts or establishing new criteria.

Research Questions and Propositions

Research Question 1

Can interactive advertising be evaluated using the same tools as traditional advertising, such as reach, frequency, exposure distributions, gross rating points, cost-per-thousand impressions, and cost-per-rating point, among others?

Advertisers, agencies, and media organizations will likely require that interactive media use the same tested media evaluation factors as more traditional media so that the relative effectiveness and efficiency among alternatives can be directly comparable.

For example, using normative theories of media planning, it is possible to evaluate *Sun.ONE*'s first month online using ADplus, as was done earlier for the print version of the *Gainesville Sun*. From March 1, 1995, through March 31, 1995, *Sun.ONE* answered 26,489 calls and signed 3701 users. There were an average of 854 user sessions per day and 119 user sign-ups per day.

In order to evaluate this schedule using ADplus, it is necessary to determine the *Sun.ONE* rating against Alachua County adults. Because of potential duplication, the upper bound of this rating is 0.565 percent (854 / 151,000). Assuming an average daily cost to advertisers of $50, the following ADplus results are obtained.

This ADplus results table (see Table 3-1) indicates that for $1,500 the typical *Sun.ONE* advertiser is likely to reach less than one percent of Alachua County adults--0.6 percent to be exact. The efficiency of the plan is also revealed by CPM-MSG at $354.95, 3.25 times more expensive per 1,000 exposures than the print version, the *Gainesville Sun*. Such evaluations are critical to sophisticated advertisers who are looking to optimize their expenditures across a broad range of media options.

Table 3-1. Sample Adplus evaluation of *Sun.ONE*

ADplus(TM) RESULTS: ELECTRONIC NEWSPAPERS

Tara Anne Michels
Dissertation Research
Typical Month

Target: 151,100
Alachua County Adults

Message/vehicle = 16.5%

	Frequency (f) Distributions				
		Vehicle		Message	
f	% f	% f+	% f	% f+
0	99.4	100.0	99.7	100.0
1	0.0	0.6	0.1	0.3
2	0.0	0.6	0.0	0.2
3	0.0	0.6	0.0	0.2
4	0.0	0.6	0.0	0.2
5	0.0	0.6	0.0	0.2
6	0.0	0.6	0.0	0.1
7	0.0	0.6	0.0	0.1
8	0.0	0.6	0.0	0.1
9	0.0	0.6	0.0	0.1
10+	0.6	0.6	0.1	0.1
20+	0.6	0.6	0.1	0.1

Summary Evaluation

Reach (1+)	0.6%	0.3%
Effective reach (3+)	0.6%	0.2%
Gross rating points (GRPs)	17.0	2.8
Average frequency (f)	29.9	9.7
Gross impressions (000s)	25.6	4.2
Cost-per-thousand (CPM)	58.57	354.95
Cost-per-rating point (CPP)	88	536

Vehicle List	Rating	Ad Cost	CPM-MSG	Ads	Total Cost	Mix
Daily Sun	0.56	50	354.95	30	1,500	100.0%
		Totals:	354.95	30	1,500	100.0%

Research Question 2

Will the reach of interactive advertising be capped by the total number of system users within a selected time period and demographic group?

The total number of subscribers in a demographic group will likely change through time, but the total number within a relevant time period will represent the upper bound on the total reach of that segment for a particular interactive advertising campaign. The success of an interactive advertising campaign will likely be measured in part by how closely it approaches this upper bound.

Research Question 3

Will the average frequency of a single interactive advertising message be equal to 1.0 within a selected time period and demographic group?

It is unlikely that interactive advertising users will repeat exposures to a given message unless it changes, is especially entertaining, or complex, among other factors. Therefore, across a large number of messages, average frequency will tend toward 1.0.

Research Question 4

Will it require multiple creative executions of an entities' (product, service, individual, idea, organization) advertising message to achieve a message average frequency greater than 1.0?

Advertisers who require high frequency of advertising messages for competitive positioning, image building and the like, must necessarily build large messages pools to obtain high levels of average frequency within a given interactive vehicle.

Research Question 5

What additional media evaluation criteria can be used to enhance decision-making based on the unique characteristics of interactive advertising, such as time of day the interactive advertisement was requested, the identity of the interactive advertisement, and the ratio of banner exposures to actual advertisement exposures among others?

This question addresses the aspect of media planning that is currently a hotbed of controversy, which is the issue of vehicle exposure versus advertising exposure. While many planners evaluate media solely based on vehicle exposure, data on actual advertising exposure

show substantially lower exposure levels. For instance, the ratio of vehicle/message exposure for full-page, four-color magazines advertisements is 45.0 percent, 13.1 percent for 1/4-page, black-and-white newspapers advertisements, 32 percent for 30-second television commercials, and 16 percent for 30-second radio spots.

It would be interesting and worthwhile to note whether or not electronic publishing will yield similar ratios to that in traditional media outlets. There are a number of unique characteristics of the new interactive advertising media, such as sound, video, animation, or links, that many advertisers, agencies and media organizations will want to exploit. These will likely go beyond the capabilities of traditional media requiring new media evaluation standards and report formats.

Web Analysis Tools

A February 1, 1996, Yahoo search of Web auditing tools listed nearly 30 titles. The most prevalent were chosen to provide a framework for the present investigation.

When this study was conceived one year ago, the issue of accounting Web usage was just beginning to emerge. I/Pro was one of the first commercial services

to offer Web site analysis. By mid 1995, Nielsen Media Research took an interest in interactive measurement and merged with I/Pro. Nielsen's I/Pro provides a third-party audit of site usage. The company independently analyzes, verifies and audits an organization's log files. A standard report is furnished to its clients. The I/PRO report provides information about the number of visits per month, average visit length, visits by day of week and time of day, most frequently requested files, visitors by state and country, and visitors by organization name. In addition, Nielsen I/Pro has the capability to provide demographic information using a system called I/CODE. The company promotes the use of contests, sweepstakes, free giveaways, and value added content in order to gain personal identification of users. Giving visitors incentives in exchange for personal information allows companies to move toward a one-to-one marketing relationship with customers.

Another traditional print media auditing organization, Audit Bureau of Circulations, is moving into the interactive arena by teaming up with WebTrack, Inc. to further develop auditing software. The audit software independently measures a publisher's usage and

compares it with the publisher's usage log to flag discrepancies. ABC/WebTrack does not provide accounting software but serves as an independent service that verifies and audits Web site operators' statistics.

Other companies such as WebTrends and NetCount provide commercial Web auditing software. WebTrends retrieves available Web data and presents it in text and graphical format. The software retrieves and posts information about Web site usage and visits. The types of information retrieved are most popular pages, number of users per day--week--month, most active hour(s), users' hardware and software platforms, how visitors access the Web site, type of Web browser used, and user activity by market (*govt, edu, com, org,* etc.). WebTrends reports are colorful charts and graphs that make it easy to visually interpret the data as well as make comparisons between sites and time periods.

NetCount markets its tracking system as a universally recognized ratings system comparable to traditional media. The software is free, but Web operators must display the NetCount icon. NetCount is unique in that it provides information in relation to the top Web sites. In addition, NetCount uses hit standards

in terms of DPO (Distinct Point of Origin) and PIT (Page Information Transfer, which is the successful transfer of a Web page). The data is reported using charts and graphs. The types of unique information provided by NetCount is the number of visitors exposed to an advertisement banner, those who clicked on the advertisement banner (advertising inquiry) and those who did not (non-respondent). The result is a graph that shows the total number of exposures versus the number of users who clicked on the advertisement. In terms of media planning, it is this type of unique interactive data that is absent in traditional media.

Auditing *Sun.ONE*

The procedure for testing the proposed media planning framework utilized *Sun.ONE* tracking logs during a 31-day period from December 30,1995, through January 29, 1996. A data retrieval computer program was written and designed by Kent Lancaster, Ph.D., of the University of Florida. Lancaster has designed similar software for evaluation of traditional media, called ADplus, that is now distributed world-wide by Telmar Information Services Corporation (see *http://www.telmar.com)*. SyTrak

electronic evaluation tracking tool was designed to sort and catalog user information from the *Sun.ONE* audit trails. The Appendix is a sample of the unorganized audit trail. The time-driven logs recorded user activity within one-minute intervals. Attempting to analyze the data without the aid of a computer program to sort the information by user, would have been a cumbersome and daunting, if not impossible, task. For example, a typical 31-day log for *Sun.ONE* contains over 400,000 lines of data such as that depicted in the Appendix. Because of identification capabilities of the logs, an encryption device was utilized by SyTrak to ensure user anonymity. The information contained in the logs is typical of other online audit trails like those obtained from World Wide Web sites.

SyTrak analyses only included users who had successfully logged onto the system. Users were divided into two groups: Regular and Editors. Editors logged on more than the maximum three-hour daily allotment for subscribers and worked on writing, editing and updating stories. Because editors were also exposed to the advertising messages, they were included in the analyses. On the SyTrak printouts, "hits" refer to the number of

items requested in a log that have occurred for a particular user, menu, channel, or advertisement. The total time column for user, menu, and channel was based on the amount of time each user spent on each menu item. This was determined by subtracting the time of the previous menu item selection from the time of the current menu item and then assigning the difference to the previous menu selection. Average time was then calculated by simply dividing total user, menu, or channel time by the total number of hits. Daily reach was measured by the number of unique user IDs associated with a particular menu, group of menus, or day of the week.

One limitation with the audit trails was that activity was recorded minute by minute which could be misleading for short interactions. A second-by-second log was requested but was not available at the time of this writing.

SyTrak reported data that indicated the time and length of usage, which was rank ordered by users' total time spent online during the 31-day period. The User Activity Rank (Table 4-2) also reported user's average time spent online per session, total number of screens

(hits) viewed per user, cumulative percent of total usage time of all users, hits per user, and number of times a user logged on or off.

The Menu Activity Rank (Table 4-7) reported content areas selected most often and rank ordered by reach (number of unique users). SyTrak also reported total number of minutes spent on each menu item, average time spent on a given menu item, total number of visitors per menu item (frequency), the percent of the subscriber base who viewed each menu item, and the total number of hits for each menu item.

Data that indicated how many users actually "click on" the advertisements (advertising inquiry) could be determined from the logs. This interactive feature will provide actual message delivery that is absent in other types of media. The advertisement exposure and advertisement inquiry or "click through" rate were derived from the Menu Activity Rank but were reported separately in Table 4-6.

Channel or domain of user, total and average time each channel was active were listed in the Channel Activity Rank. Channel capacity as a percent of total was retrieved for each hour during the time period. This

revealed top usage time frames which are listed in the Channel Activity reports in Figures 4-1 and 4-2.

Based on traditional publication measurement using circulation as an estimate for audience size, this study used tracker identification (User ID) to assess audience size.

Sun.ONE Menus and Advertisements

Although SyTrak software monitors all user activity, 29 of the 831 separate menu items were of particular interest in the present investigation. Because of the ability to access certain menu items from more than one menu, all of the same-titled individual menus were summed together to form one menu group. For example, if the Entertainment Menu was accessed from the Main Menu it would show up on the data log as Entertainment, but if it were accessed from the News menu it would be listed as Entertainment2. These like menu items were grouped together to form one menu group.

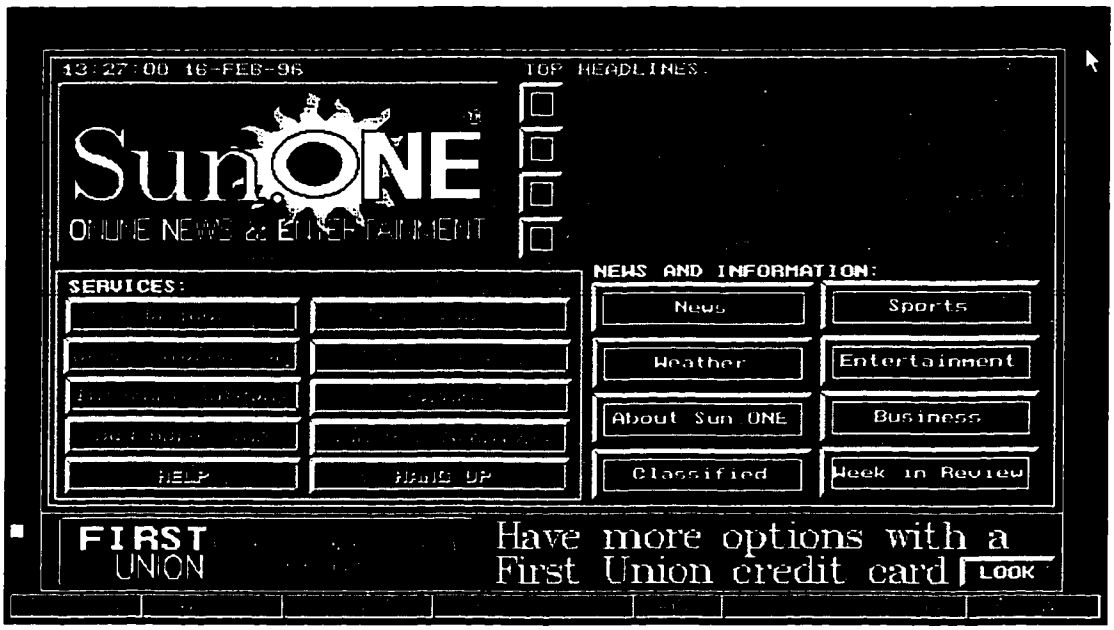
The Main Menu and some of the subcategory menus contained advertisements. News and Information Menu items that also appeared on the Main Menu included News, Weather, About *Sun.ONE*, Classified, Sports, Entertainment, Business, and Week in Review. Also

available from the Main Menu were Services subcategory menu items which included Mail, Chat (teleconferencing), User Info, User Registry (membership), Internet Gateway, Forums, Buy More Time, and *Sun.ONE* Archives (which is not available). Also on the Main Menu page were the day's top four stories, Help, and Hangup. From the Main Menu there were 23 possible actions a user could take (including exit). Each of the eight Services subcategory menu items and the top four news stories did not include advertisements on any of the pages. In addition, during special events such as the Superbowl, the top headlines plus one or two other "special" topic items are listed at the top of the Main menu along with the top headlines. See *Sun.ONE* Main Menu in Figure 3-1.

From the News Menu there were a possible 26 different actions a user could take. These paths included Local, State, Nation, World, Scene Magazine, Politics, Health/Science, Sun Columnists, Sports Extra, Opinion, and Cyberspace. In addition, the News Menu included four items that also appeared on the Main Menu: Entertainment, Week in Review, Sports News, and Business. The News menu also included a side bar with 11 items which allowed users the option to select the following

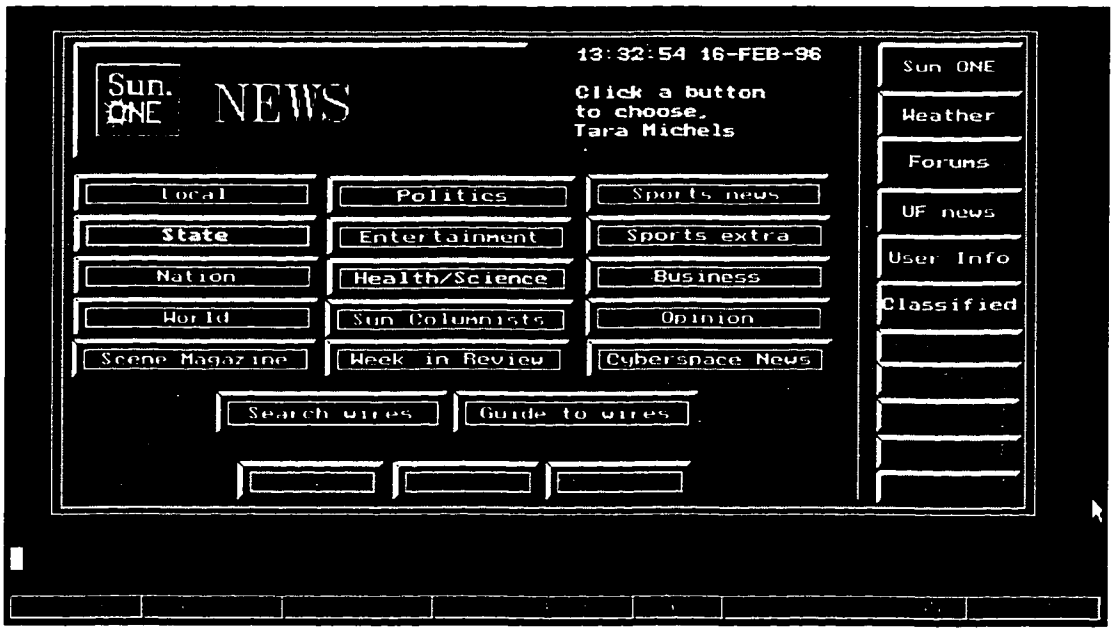
categories: *Sun.ONE*, Weather, Forum, UF News, User Info, Classifieds, Top Menu, E-mail, Chat, Help, and Hang Up. Of these 11 items, 10 were listed on the Main Menu. The remaining one, UF News, did not contain any advertisements nor was it currently available for use. See Figure 3-2 for illustration of *Sun.ONE* News Menu.

Sun.ONE displayed its own banner advertisements on the following menus: Classifieds, Entertainment, Week in Review, State, Nation, World, Scene Magazine, Politics, Health/Science, Sun Columnists, Sports Extra, and Opinion. About *Sun.ONE*, Chat, User Info, User Registry, Internet Gateway, and Forums menus did not contain any advertising displays. *Sun.ONE* Archives and UF Info menu items were not available. Table 3-1 lists *Sun.ONE's* menus and retail advertising space for the selected 31-day period.



Source: *Sun.ONE*, February 16, 1996

Figure 3-1. *Sun.ONE* Main Menu



Source: *Sun.ONE*, February 16, 1996

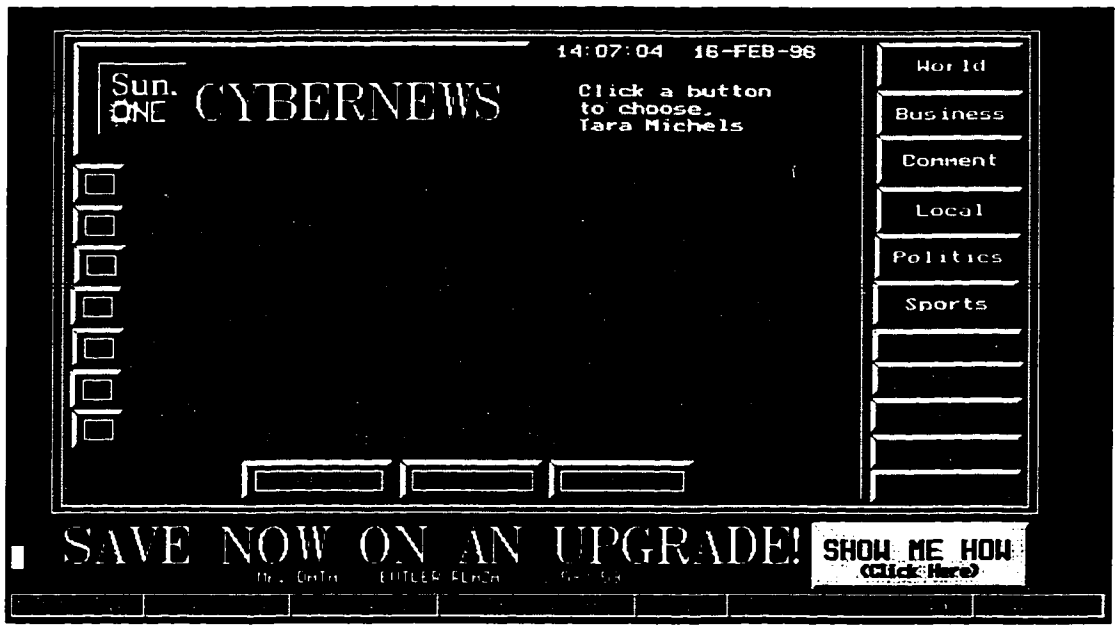
Figure 3-2. *Sun.ONE* News Menu

Table 3-1. *Sun.ONE* January 1996 Retail Advertisers

MENU	ADVERTISER
Main Menu	First Union Bank (banner and click through)
News	Red Lobster (banner and click through)
Weather	Shicar--discount computers (banner only)
Business	ComQuest Designs--graphic designers (banner only)
Local News	Gainesville Regional Utilities (banner and click through)
Cybernews	Mr. Data--computer hardware (banner and click through)
Sports and E-Mail	Gator Football '95/*Sun.ONE* Membership (banner and click through)

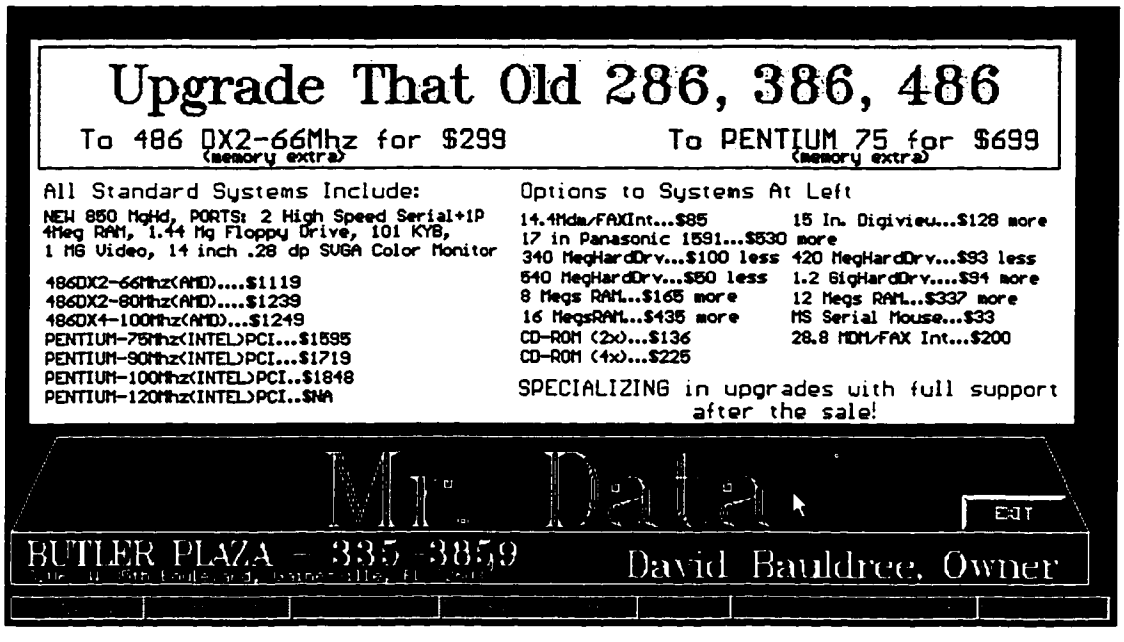
Of the 26 menu items (24 available), there were seven paid advertisements during the selected time frame. A *Sun.ONE* banner advertisement cost $100. Of these, five advertisements--First Union, Red Lobster, Gainesville Regional Utilities, Gator Football '95 (*Sun.ONE* membership), and Mr. Data had the "click-through" feature. The click-through feature (at an additional cost of $100 per month) allowed advertisers to supply additional online advertising pages to potential customers. Users must "click" on the banner in order to access the advertising page(s). Online publishing permits advertisers to know for certain how many people inquired about their products or services. The following Figures 3-2 to 3-8 are representative of the *Sun.ONE* menus and their respective advertisements.

The *Sun.ONE* membership advertisement appeared on two menus: Sports and E-Mail. This advertisement was unique in that it included a two-page process. This example of advertising technique is shown in Figures 3-5 to 3-8.



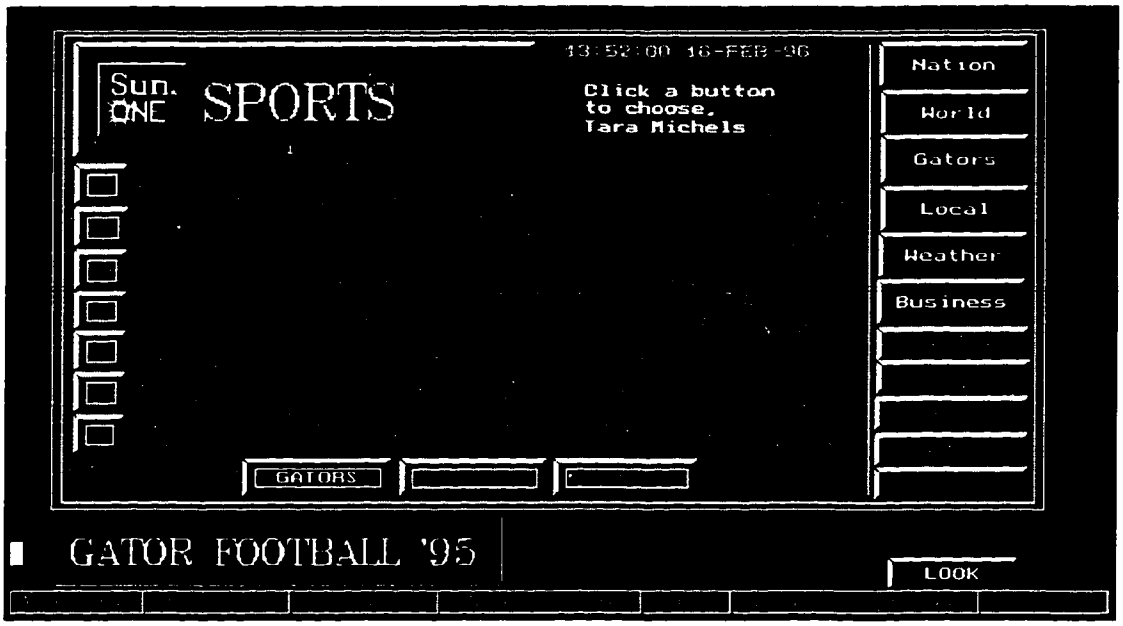
Source: *Sun.ONE*, February 16, 1996

Figure 3-3. *Sun.ONE* CyberNews Menu



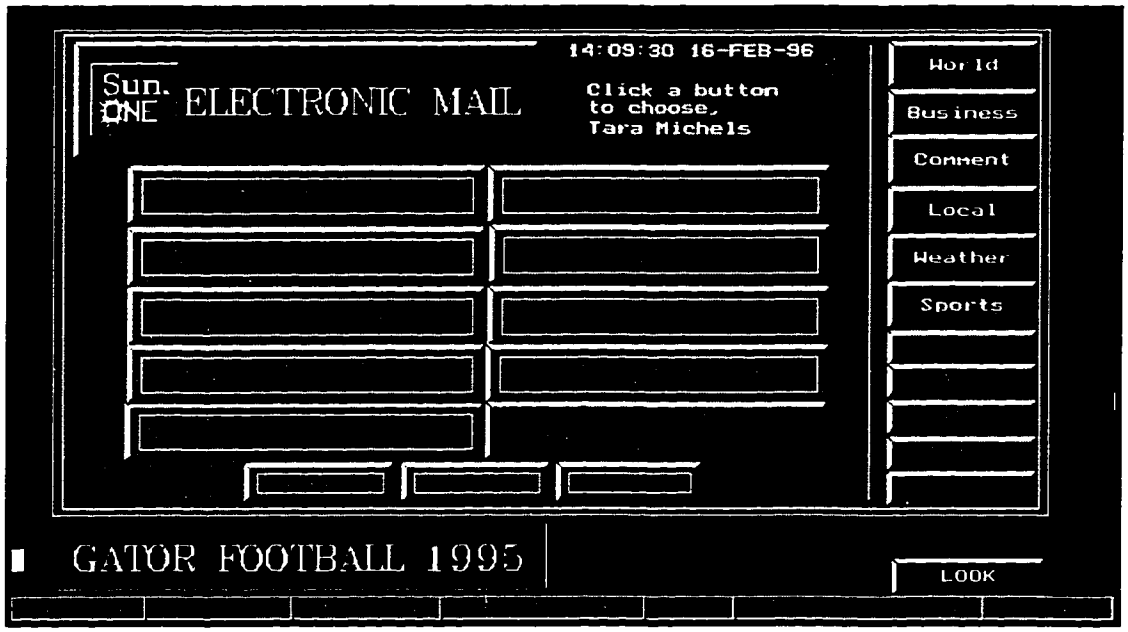
Source: *Sun.ONE*, February 16, 1996

Figure 3-4. CyberNews Menu, Mr. Data Advertisement



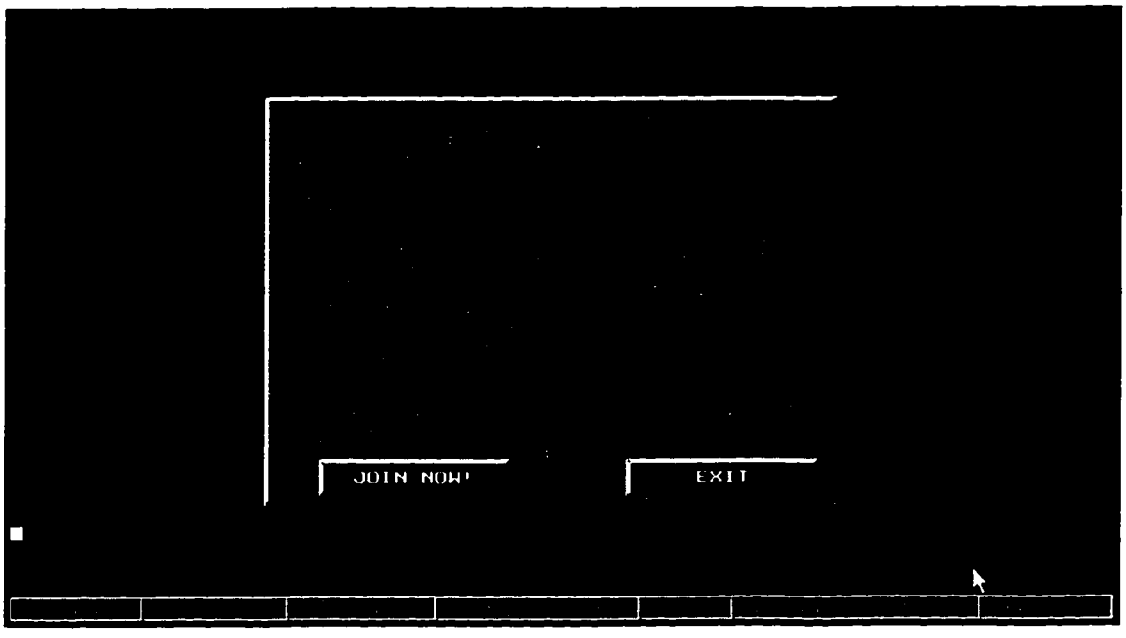
Source: *Sun.ONE*, February 16, 1996

Figure 3-5. *Sun.ONE* Sports Menu



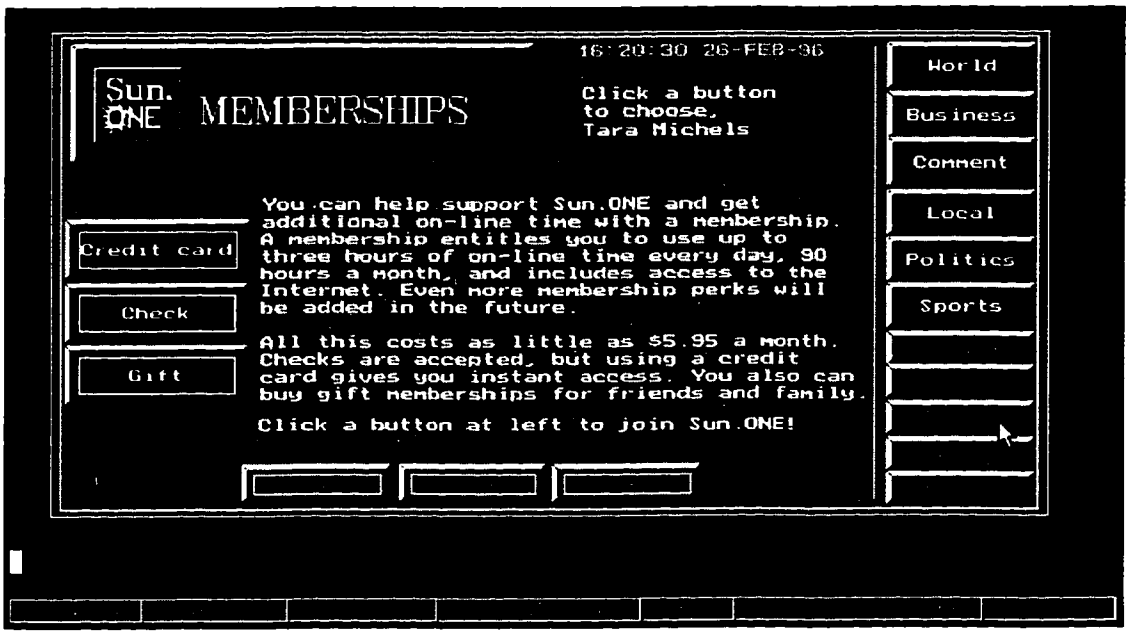
Source: *Sun.ONE*, February 16, 1996

Figure 3-6. *Sun.ONE* E-mail Menu



Source: *Sun.ONE*, February 16, 1996

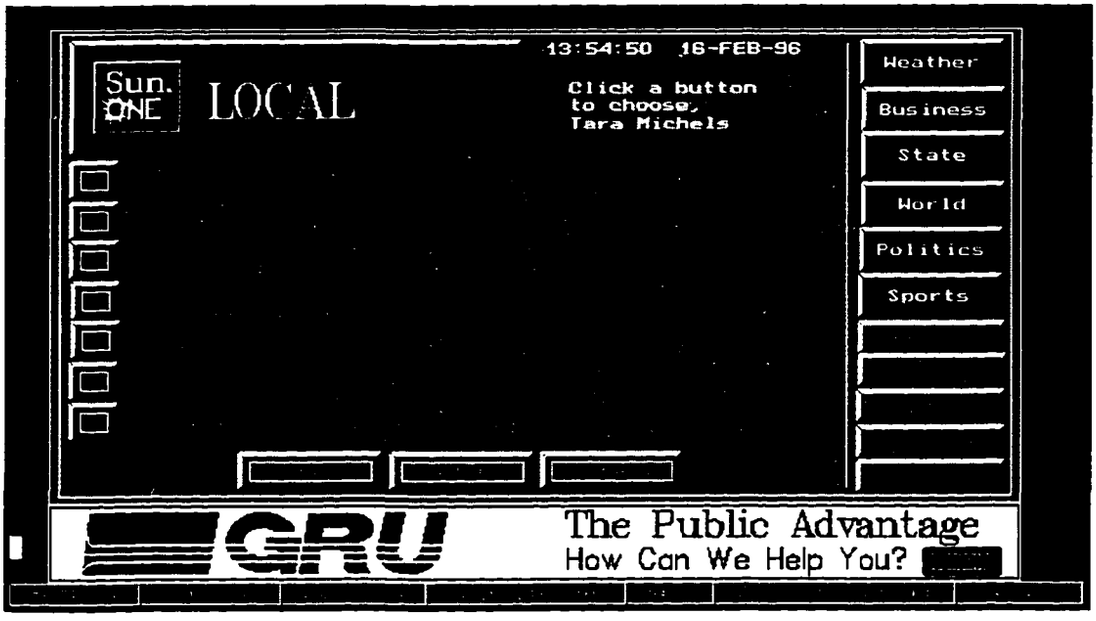
Figure 3-7. *Sun.ONE* Membership Advertisement, Page 1



Source: *Sun.ONE*, February 16, 1996

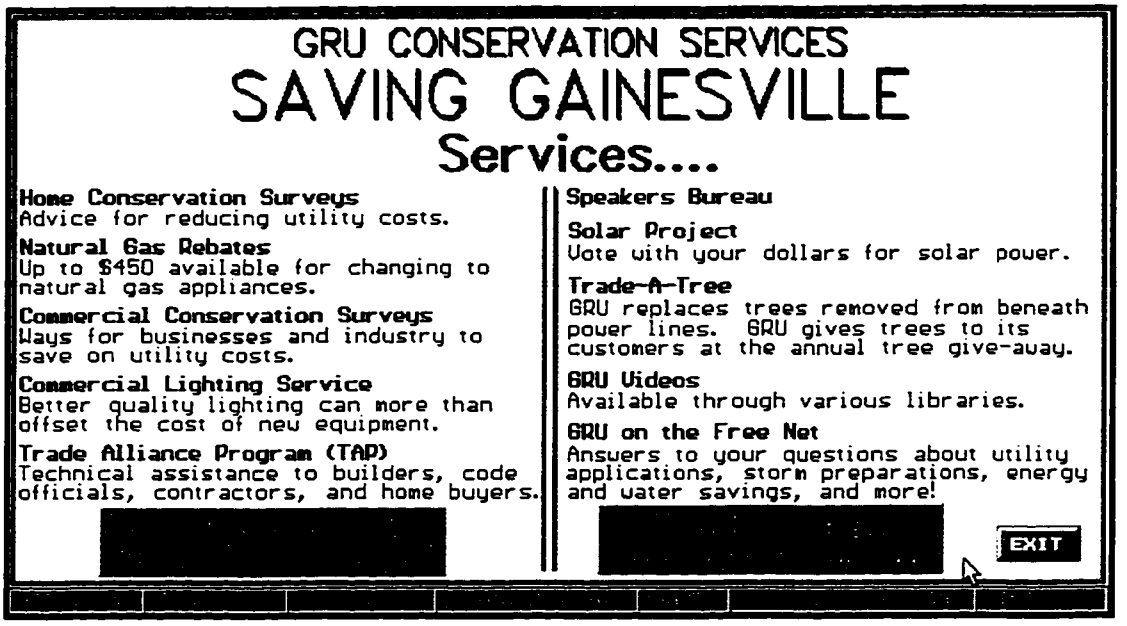
Figure 3-8. *Sun.ONE* Membership Advertisement, Page 2

The Local Menu contained the Gainesville Regional Utilities advertisement, shown as a banner in Figure 3-9 and a full-page advertisement in Figure 3-10, are also illustrative of the menus that included paid advertisements: Cybernews, Electronic Mail, Weather, Business, and Sports.



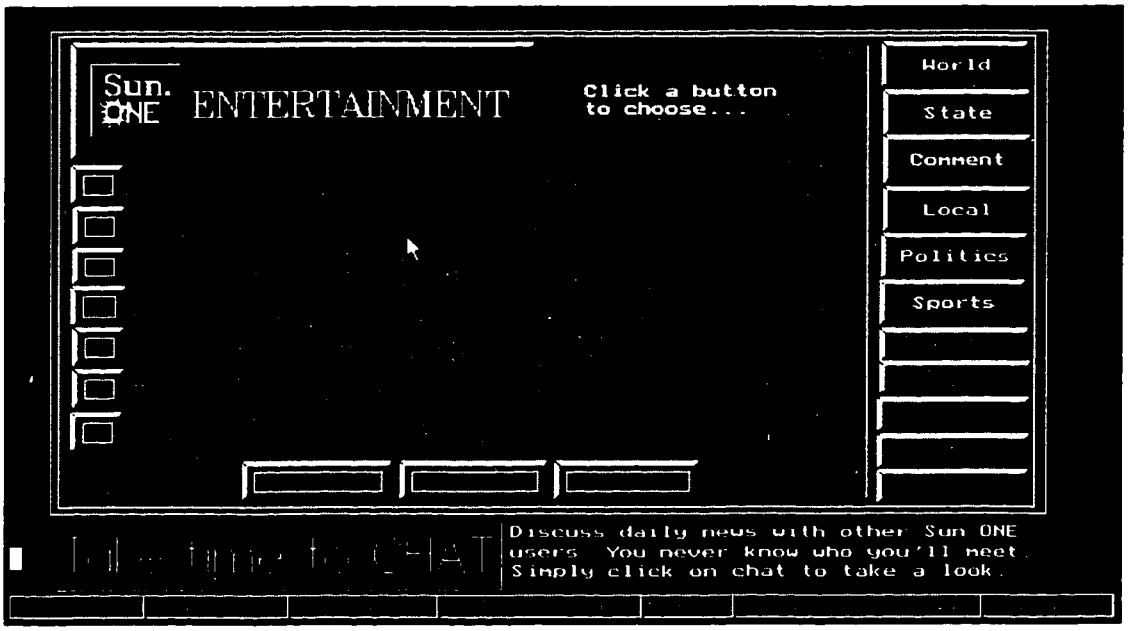
Source: *Sun.ONE*, February 16, 1996

Figure 3-9. *Sun.ONE* Local News Menu



Source: *Sun.ONE*, February 16, 1996

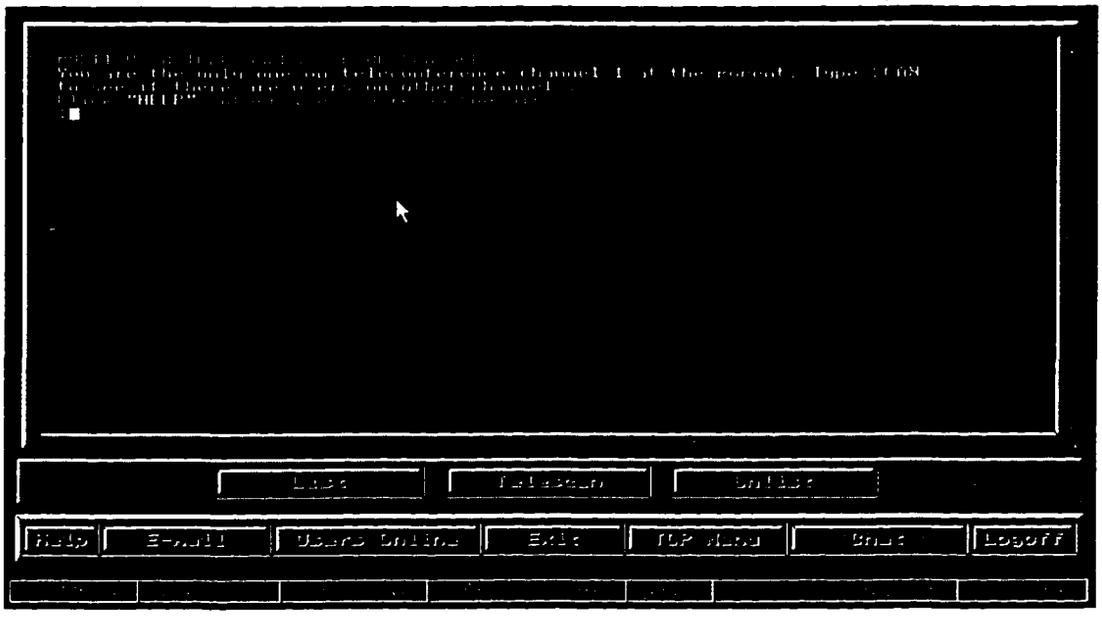
Figure 3-10. Gainesville Regional Utilities Advertisement



Source: *Sun.ONE*, February 16, 1996

Figure 3-11. *Sun.ONE* Entertainment Menu

The Entertainment Menu (Figure 3-11) is representative of the *Sun.ONE* banner advertisements that were placed on 14 menu items. The Teleconferencing/Chat Menu (Figure 3-12) does not have the space available for advertising; however, if results of this study were to indicate that service menu items receive the most traffic, then the *Sun.ONE* management should consider altering the "pages" to accommodate for advertising.



Source: *Sun.ONE*, February 16, 1996

Figure 3-12. *Sun.ONE* Teleconferencing/Chat Menu

No advertisements were contained on any news story pages. The present investigation focused only on the paid advertisements which appeared on *Sun.ONE* during the selected time frame.

Testing Research Questions

Given the above framework, the research questions will be tested using the SyTrak audit trail analysis computer program and ADplus media evaluation computer program. Using the information supplied in the Menu Group Activity Rank will be used to answer Research Questions 1 through 4, figures for traditional media evaluation tools such as reach, frequency, exposure distributions, and gross rating points will be derived. The printout supplies the total number of exposures to banner advertising on the menu pages, how many unique users viewed the advertisement, and the average number of times an advertisement was viewed by an individual user. The data for evaluating the research questions in comparison to traditional media will be assessed using the ADplus computer program. Research Question 5, which addresses areas for new ways of media evaluation, will utilize a combination of SyTrak's computer printouts:

Menu Group Activity Rank, User Activity Rank, Channel Capacity, and Activity Rank.

CHAPTER 4

RESULTS

Analysis of *Sun.ONE* Audit Trails

For clarity, the results will be discussed in two sections. The first will describe substantive elements of each of the SyTrak printouts. The second will present evidence which assesses each of the research questions. Finally, a comparison will be made to traditional media analyses.

User Activity Rank

The SyTrak data printouts recorded the selection of 831 different menu items generating 200,497 total actions (hits). Two thousand seven hundred and forty-one (2,741) regular users and five (5) editors (*Sun.ONE* news staff) made a total of 186,568 hits made for a total of 385,334 minutes on 38 distinct channels during the 31-day time period between December 30, 1995, and January 29, 1996, inclusive (Table 4-1).

The User Activity Rank printout categorized and ranked users according to system usage. The four categories of user IDs are Regular, IP Addresses, System

Editors, and System status. The ranking and categorizing of the users was enlisted in order to identify and eliminate those user groups who were not a part of the "typical" or "normal" user base. As noted in Table 4-1, the regular system users and the systems editor users totaled 2,746 for the 31-day period. The IP Address (users who came from Internet Protocol addresses prior to log on), System Status (represent user data for online maintenance), and Extraneous (unverified) users, who totaled 13,929 hits, were eliminated from further analysis because they showed no record of logging on or off the system and only accounted for about one hit each.

Table 4-1. User Activity Total

Total User Minutes:	385,334
Regular User Minutes:	358,822
Editor Minutes:	26,512
Total System Hits:	200,497
Regular User Hits:	180,708
Editor Hits:	5,860
IP Address Hits:	6,697
Extraneous User Hits:	6,218
System Status:	1,014
Total Regular Users:	2,741
Total System Editors:	5
Total Menu Items:	831
Regular User Channels:	38

Table 4-2 is representative of the User Activity Rank and lists the top 25 users. The User Activity Rank also reported user's average time spent online per session, total number of screens (hits) viewed per user, cumulative percent of usage time and hits per user, and number of times a user logged on or off.

Table 4-2. User Activity Rank

Regular Users (Top 25 of 2,741)

User Number	Times Logged On/Off	Minutes Online		Total Hits	Cumulative Percent		
		Total	Average		Users	Time	Hits
User Number 1	202 - 196	4,627	22.9	1,177	0.0	1.3	0.7
User Number 2	131 - 126	4,472	34.1	978	0.1	2.5	1.2
User Number 3	214 - 206	4,211	19.7	1,260	0.1	3.7	1.9
User Number 4	19 - 15	4,136	217.7	642	0.1	4.9	2.2
User Number 5	209 - 203	3,907	18.7	1,130	0.2	6.0	2.9
User Number 6	39 - 37	3,804	97.5	149	0.2	7.0	3.0
User Number 7	154 - 145	3,753	24.4	588	0.3	8.1	3.3
User Number 8	94 - 92	3,019	32.1	657	0.3	8.9	3.6
User Number 9	102 - 98	2,951	28.9	617	0.3	9.7	4.0
User Number 10	142 - 137	2,936	20.7	774	0.4	10.5	4.4
User Number 11	27 - 26	2,835	105.0	119	0.4	11.3	4.5
User Number 12	70 - 65	2,831	40.4	605	0.4	12.1	4.8
User Number 13	19 - 17	2,574	135.5	765	0.5	12.8	5.2
User Number 14	77 - 75	2,560	33.2	491	0.5	13.5	5.5
User Number 15	79 - 78	2,450	31.0	531	0.5	14.2	5.8
User Number 16	138 - 135	2,438	17.7	512	0.6	14.9	6.1
User Number 17	169 - 168	2,435	14.4	620	0.6	15.6	6.4
User Number 18	107 - 106	2,387	22.3	510	0.7	16.3	6.7
User Number 19	106 - 106	2,281	21.5	493	0.7	16.9	7.0
User Number 20	20 - 19	2,269	113.4	415	0.7	17.5	7.2
User Number 21	2 - 2	2,244	1,122.0	8	0.8	18.1	7.2
User Number 22	31 - 31	2,174	70.1	110	0.8	18.8	7.3
User Number 23	30 - 29	2,129	71.0	110	0.8	19.3	7.3
User Number 24	4 - 4	2,092	523.0	16	0.9	19.9	7.3
User Number 25	8 - 8	2,013	251.6	38	0.9	20.5	7.4

Therefore, 2,746 regular users and editors were used for the present study. The top 200 users accounted for 26.8 percent of the actions (hits), but only comprised 7.3 percent of the total number of users.

The speed at which users accessed *Sun.ONE* ranged from 300 bps to 38,400 bps. The most common modem speed of access was 14,400 bps which accounted for 57.1 percent, followed by 2,400 bps from 25.9 percent of the users. See Table 4-3 for a complete listing of log on accesses and modem speeds.

Table 4-3. Modem speed of access for *Sun.ONE*

Modem Speed (bps)	Log ons	Users	Percent of Base
14,400	11,475	1,568	57.1
2,400	5,358	712	25.9
38,400 via Telnet	1,734	409	14.9
9,600	1,339	245	8.9
1,200	517	115	4.2
19,200	277	54	2.0
26,400	269	48	1.7
21,600	247	55	2.0
24,000	182	51	1.9
12,000	119	46	1.7
300	78	15	.5

Menu Activity Rank

The data in Table 4-4 recorded the popularity of Main Menu items by users. The Main Menu is viewed by nearly all users. Therefore, exposure to the First Union advertisement was nearly 100 percent (98.4) of the user base and no more than 1.4 percent of the target audience of Alachua County adults. This advertisement did have the click-button feature (See Table 4-6 for Advertising Inquiring Rate). Item group Main Menu Advertisement shows that the advertising inquiry rate was 81 hits from 71 different users, with an average frequency of 1.14, and accounted for 2.6 percent of the user base.

From the Main Menu there were a total of 22 different paths users could take. Because some of the Main Menu items were also accessed from other menus, not all Main Menu item selections were reported under the Main Menu grouping. Thus, some of the Main Menu items record of hits, reach, frequency, etc., may not reflect total usage patterns.

The data indicate that the most frequently selected Main Menu item is Teleconferencing (Chat). This item accounted for 131,658 minutes of total amount of time logged on, received 11,041 hits, an average of 9.88 times

Table 4-4. Main Menu Activity Rank

Main Menu Items	Hits	Minutes On Menu		Reach/Frequency		
		Total	Average	Reach (000)	Ave. Freq.	Reach (%)
Teleconf./Chat	11,041	131,658	4.1	1,118	9.88	40.7
Exit	8,745	1,132	0.2	1,882	4.65	68.5
News	4,107	936	1.5	999	4.11	36.4
E-mail	3,774	526	4.2	1,029	3.67	37.5
User Info	2,830	476	1.5	777	3.64	28.3
Classifieds	2,447	563	0.6	854	2.87	31.1
Sun.ONE Gateway	1,494	104	1.8	613	2.44	22.3
Forums	1,423	6,431	1.5	522	2.73	19.0
Weather	1,268	204	4.5	605	2.10	22.0
Top News	3,984	10,722	0.9	465	2.13	16.9
Sports	1,219	314	0.2	444	2.75	16.2
Entertainment	993	555	3.2	565	1.76	20.6
Internet	505	355	0.1	354	1.43	12.9
Sun.ONE Archives	458	194	0.3	290	1.58	10.6
Business	426	355	0.4	273	1.56	9.9
Week in Review	369	115	0.1	255	1.45	9.3
Special News	506	460	0.3	157	1.37	5.7
Membership	311	145	0.4	257	1.21	9.4
Help	216	97	1.7	173	1.25	6.3
About Sun.ONE	190	39	0.2	164	1.16	6.0
Advertisement	81	17	0.0	71	1.14	2.6

by each of 1,118 different users, representing 40.7 percent of the total user base; followed by the selection of the News Menu which received 4,107 hits, by a total of 999 users, an average of 4.11 times, reaching 36.4 percent of the user base, for a total of 936 minutes.

Main Menu selections Top News 1 through 4 were the day's top news. Tops news stories accounted for 10,722 minutes of total amount of time logged on, received 3,984 hits, an average of 2.13 times by 465 users, representing 16.9 percent of the user base. Main Menu Special News items included stories such as Superbowl updates, columns, or opinions. These menu items accounted for 460 minutes of total amount of time logged on, received 506 hits an average of 1.37 times by 157 users, representing 5.7 percent of the user base.

The E-mail Main Menu selection accounted for 526 minutes of total amount of time logged on, received 3,774 hits, an average of 3.67 times by 1,029 users, representing 37.5 percent of the user base.

The User Information Main Menu selection accounted for 476 minutes of total amount of time logged on, received 2,830 hits, an average 3.64 times by 777 users, representing 28.3 percent of the user base.

Table 4-4 reported only those actions which were made from the Main Menu. Some menu items were also accessable from other menus.

From the News Menu there were a possible 31 actions. Of the 31 actions, 14 items were available from the Main Menu, 5 were service functions, and one menu item, UF News, was not available. Table 4-5 reports only those actions which were made from the News Menu.

The News Menu selection accounted for 9,206 minutes of total amount of time logged on, received 11,978 hits, an average of 11.64 times by 1,029 users, representing 37.5 percent of the user base. Since the News Menu contained the Red Lobster banner advertisement at the bottom of the screen the above data also accounts for the advertising exposure rate but not for the advertising inquiry rate (see Table 4-6 for the Advertising Inquiry Rate).

The Local News Menu selection accounted for 7,144 minutes of total amount of time logged on, received 4,738 hits, an average of 7.77 times by 610 users, representing 22.2 percent of the user base. The Gainesville Regional Utiltities advertisement appeared at the bottom of this screen and received the number of exposures as reported

above. The click-through rate of this advertisement is reported in Table 4-6.

The National News Menu selection accounted for 3,218 minutes of total amount of time logged on, received 2,618 hits, an average of 6.8 times by 385 users, representing 14 percent of the user base.

The Cybernews Menu selection and the exposure of the Mr. Data banner advertisement accounted for 2,712 minutes of total amount of time logged on, received 1,953 hits, an average of 7.05 times by 277 users, representing 10.1 percent of the user base. The Mr. Data click-through advertisement was viewed a total of 11 minutes, received 24 hits by 20 users, an average of 1.2 times, which represented .7 percent of the user base.

The Business Menu selection accounted for 130 minutes of total amount of time logged on, received 299 hits an average of 2.58 times by 116 users, representing 4.2 percent of the user base.

The same menu items were grouped together from the various menus to generate a total group activity report with reach and frequency data. Table 4-7 reports the total menu group activity.

Table 4-5. News Menu Activity Rank

News Menu Items	Hits	Minutes On Menu		Reach/Frequency		
		Total	Average	Reach (000)	Ave. Freq.	Reach (%)
Entertainment	1,762	1,349	0.3	506	3.48	18.4
Exit	1,757	560	0.8	577	3.05	21.0
State	1,011	954	0.2	254	3.98	9.2
Nation	886	1,344	2.9	255	3.47	9.3
Sports	870	423	1.1	288	3.02	10.5
Cyberspace	806	601	0.3	287	2.81	10.5
Health	756	689	1.7	207	3.65	7.5
International	664	662	1.3	207	3.21	7.5
Scene	565	193	1.6	279	2.03	10.2
Washington	531	427	3.8	134	3.96	4.9
Opinion	528	579	0.1	229	2.31	8.3
Sun Columnists	364	278	0.4	147	2.48	5.4
Search	327	499	0.1	164	1.99	6.0
Business	299	130	0.3	116	2.58	4.2
Entertainment	193	325	1.9	91	2.12	3.3
Week in Review	187	46	2.9	114	1.64	4.2
Sports Columns	172	45	1.8	87	1.98	3.2
University Digest	128	32	0.3	82	1.56	3.0
Guide to Newswire	117	58	0.3	96	1.22	3.5

Table 4-6. Advertising Inquiry (Click-through) Rates

Advertisement	Hits	Minutes On Menu		Reach/Frequency		
		Total	Average	Reach (000)	Avg. Freq.	Reach (%)
First Union Bank	81	17	0.0	71	1.14	2.6
Red Lobster	85	43	0.5	50	1.70	1.8
GRU	33	19	0.6	33	1.00	1.2
Mr. Data	24	11	0.5	20	1.20	0.7
Gators '95	28	6	1.45	25	1.04	0.9

Table 4-7. Grouped Menu Activity Rank

Menu Item	Hits	Minutes On Menu		Reach/Frequency		
		Total	Average	Reach (000)	Avg. Freq.	Reach (%)
Logon	21,711	24,574	1.1	2,746	7.91	100.0
Logoff	21,410	87,726	4.1	2,734	7.83	99.6
Main	46,529	155,482	3.3	2,702	17.22	98.4
E-Mail	8,551	15,353	1.8	1,105	7.74	40.2
Week In Review	1,043	1,128	1.1	1,100	.95	40.1
News	11,978	9,206	0.8	1,029	11.64	37.5
Classified	4,474	1,088	0.2	840	5.33	30.6
User Information	5,940	9,781	1.6	779	7.63	28.4
Sports	4,560	4,710	1.0	724	6.30	26.4
Weather	3,266	2,700	0.8	689	4.74	25.1
Local News	4,738	7,144	1.5	610	7.77	22.2
Sunlink	2,541	762	0.3	598	4.25	21.8
Internet	1,653	974	0.6	586	2.82	21.3
Entertainment	1,896	2,133	1.1	574	3.30	20.9
Gateway	2,863	12,996	4.5	466	6.14	17.0
National News	2,618	3,218	1.2	385	6.80	14.0
Business	1,677	2,004	1.2	380	4.41	13.8
Sports Columns	2,148	3,006	1.4	345	6.23	12.6
State News	2,908	3,032	1.0	324	8.98	11.8
Membership	405	240	0.6	289	1.40	10.5
Opinion	1,397	2,336	1.7	279	5.01	10.2
Cybernews	1,953	2,712	1.4	277	7.05	10.1
Scene	1,124	1,812	1.6	276	4.07	10.1
International	1,830	2,379	1.3	260	7.04	9.5
Science	1,529	1,864	1.2	201	7.61	7.3
Washington	1,493	1,902	1.3	180	8.29	6.6
Sun.ONE	359	235	0.7	151	2.38	5.5
Sun Columnists	577	495	0.9	142	4.06	5.2

Channel Activity

Figures 4-1 and 4-2 show usage according to the number of channels a user logged on through. The graph shows channel usage recorded by the hour (or nearest Log on to the top of the hour) for each day of the week. This data log shows peak usage times. The most channel activity was generated on Wednesday, January 3, 1996, when 19 and 22 channels were in use between 9 and 11 p.m. Of the 38 available channels, only once during the week had channel use exceeded 50 percent. According to the data, the most active hours tend to cluster between 8:00 p.m. and midnight. During the peak usage time, the channel usage is only between 35 to 50 percent of capacity.

Figure 4-2 illustrates the most active days of the week according to channel activity. The least amount of usage time occurred on Tuesday, and the most traffic was generated on Wednesday. The daily channel usage was achieved by totaling the hourly activity for each day.

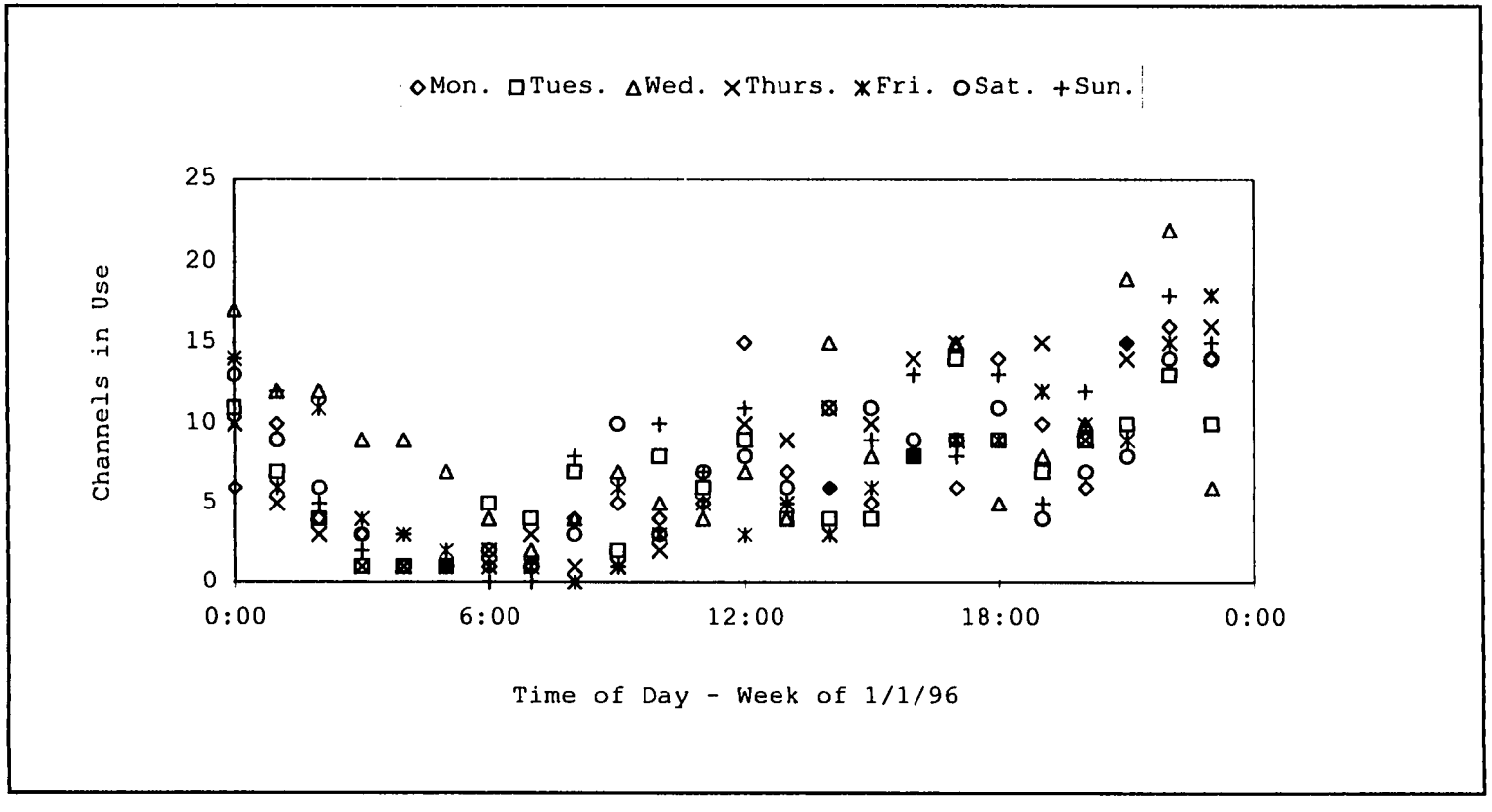


Figure 4-1. Hourly Channel Activity

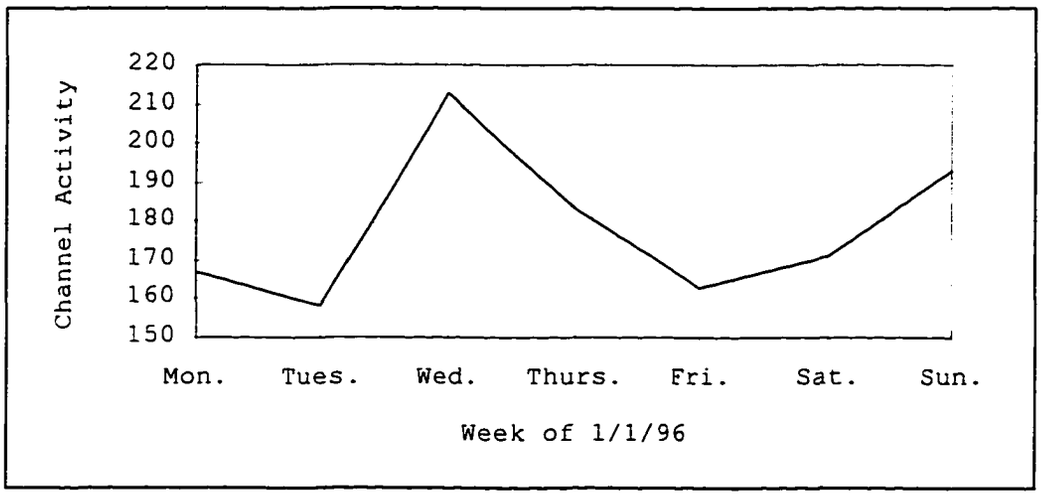


Figure 4-2. Daily Channel Activity

Traditional Newspaper Evaluation

The following Table 4-8 shows the ADplus media planning evaluation of a 1/4-page black-and-white advertisement for a 31-day period in *The Gainesville Sun*. *The Gainesville Sun's* current circulation figures were 54,000 for weekday issues and 64,000 for the weekend. The traditional concepts of evaluating this plan include reach, effective reach, average frequency, CPM (cost-per-thousand) of vehicle exposure, GRPs (gross rating points), gross impressions, cost-per-rating point (CPP), and cost-per-thousand (CPM/MSG) of the advertising message exposure.

Table 4-8. ADplus Media Evaluation of *The Gainesville Sun*

ADplus(TM) RESULTS: GAINESVILLE SUN (1/4 page advertisement)

Tara Anne Michels
Dissertation Research
12/30/95 to 1/29/96

Target: 151,100
Alachua County Adults

Message/vehicle = 13.1%

Frequency (f) Distributions

	Vehicle		Message	
f	% f	% f+	% f	% f+
0	5.3	100.0	28.9	100.0
1	1.4	94.7	20.8	75.1
2	1.5	93.4	15.0	50.3
3	1.7	91.9	10.4	35.4
4	2.1	90.2	7.3	24.9
5	6.2	88.1	5.1	17.7
6	3.5	81.9	3.7	12.5
7	2.7	78.4	2.6	8.9
8	2.3	75.7	1.9	6.2
9	2.0	73.5	1.4	4.3
10+	71.5	71.5	3.0	3.0
20+	54.5	54.5	0.0	0.0

Summary Evaluation

Reach (1+)	94.7%	71.1%
Effective reach (3+)	91.9%	35.4%
Gross rating points (GRPs)	1,832.0	240.0
Average frequency (f)	19.3	3.4
Gross impressions (000s)	2,768.2	362.6
Cost-per-thousand (CPM)	5.66	43.2
Cost-per-rating point (CPP)	9	65

Vehicle List	Rating	Ad Cost	CPM-MSG	Ads	Total Cost	Mix
Daily Sun	59.80	522	44.11	25	13,053	83.3%
Sunday Sun	67.40	522	39.14	5	2,611	16.7
	Totals:	43.20		30	15,664	100.0%

For the 31-day time period, it would cost a total of $15,664 to run the 1/4-page advertisement. The cost-per-thousand (CPM) to expose 1,000 Alachua County adults to the vehicle (the newspaper) is $5.66 and to reach the same audience with the message is $43.20, which is noted below Summary Evaluation under both the Vehicle and Message headings. This plan will expose 94.7 percent of the target audience (Reach 1+) at least once to the vehicle but only 75.5 percent to the message (advertisement). Effective reach 3+, the percent of target audience exposed to the vehicle three or more times is 91.9 percent but only 35.4 percent will be exposed to the message three or more times. This is illustrated under the Frequency (*f*) Distribution heading. The typical reader of the *Gainesville Sun* will be exposed to the paper an average of 19.3 times during the 31-day period but only 3.4 times to a particular advertising message.

The cost-per-rating point, per one percent of target audience, is $9 for the vehicle, and $65 for the message. Gross impressions (gross rating points times total audience size) is 2,768,200 gross vehicle impressions and 362,600 gross message impressions. In summary, to

estimate the number of readers who are actually exposed to an advertising message is only about 13.1 percent of the total readership.

Electronic Newspaper Evaluation

The following Table 4-9 shows the ADplus media planning evaluation of the Main Menu electronic advertisement (banner) of the First Union Bank for the 31-day period of this study. The traditional concepts of evaluating this plan include reach, effective reach, average frequency, CPM (cost-per-thousand) of vehicle exposure, GRPs (gross rating points), gross impressions, cost-per-rating point (CPP), and cost-per-thousand (CPM/MSG) of the advertising message exposure.

For the 31-day time period, it would cost a total of $100 to run the banner advertisement and $200 for the "click-through" feature. The message cost to reach 1,000 of the target audience of Alachua County adults is $36.48. Where traditional planners may fail to report the cost of reaching 1,000 of the target audience with the message (CPM/MSG), this interactive feature of online data shows exactly how many subscribers were exposed to the advertisement. This plan exposes 1.8 percent of the target audience at least once to the vehicle and 1.8

percent to the message (advertisement). The cost-per-rating point (CPP) of this schedule is $55. For each percent of the target audience reached, advertising in *Sun.ONE* costs $55. This schedule delivered 2,700 gross impressions. This figure represents the gross rating points times the audience.

Online publishing allows for exact measurement of advertising exposure that is absent in traditional media outlets.

Table 4-9. Sample ADplus evaluation of *Sun.ONE*

ADplus(TM) RESULTS: SUN.ONE MAIN MENU BANNER

Tara Anne Michels — Target: 151,100
Dissertation Research — Alachua County Adults
12/30/95 - 1/29/96

Summary Evaluation	Vehicle	Message
Reach (1+)	1.8%	1.8%
Gross rating points (GRPs)	1.8	1.8
Average frequency (f)	1.0	1.0
Gross impressions (000s)	2.7	2.7
Cost-per-thousand (CPM)	36.48	36.48
Cost-per-rating point (CPP)	55	55

Vehicle List	Rating	Ad Cost	CPM-MSG	Ads	Total Cost	Mix
Sun.ONE	1.81	100	36.48	1	100	100.0%
		Totals:	36.48	1	100	100.0%

Summary of Research Questions

Research Question 1

The question of whether or not interactive advertising can be evaluated using the same tools as traditional advertising, such as reach, frequency, exposure distributions, gross rating points, cost-per-thousand impressions, and cost-per-rating point, among others, appears to be affirmed. The evaluation of interactive advertising can be assessed using the same traditional advertising tools, as is evidenced in the ADplus printout in Table 4-9. Although there are capabilities to do additional analyses with online data, it is still necessary and advisable to use traditional media evaluation tools as well.

Research Question 2

The reach of interactive advertising will be capped by the total number of system users within a selected time period and demographic group. The total number of users IDs in the system as of January 1996 was 5,566; however, only 2,741 regular users and 5 system editors logged on during the 31-day period. It does appear the total reach for a selected time period is capped by the

total number of system subscribers. However, in the 31-day period only about 50 percent of the subscriber base logged on to the system.

Of the 151,000 Alachua County adults in the target audience, the total possible reach (exposure to the medium) for this group is 36.8 percent if every subscriber logged onto the system at least once during the scheduled time period. In comparison, 94.7 percent of Alachua County adults are exposed to *The Gainesville Sun* at least once during the 31-day period. However, of those, only 71.1 percent are exposed once to an advertising message. To look at this further, three or more exposures to an advertisement in *The Gainesville Sun* for a 31-day period is only 35.4 percent.

If the electronic version of *The Gainesville Sun*, *Sun.ONE*, could reach its entire subscriber base in a 31-day period, 36.8 percent of the target audience, then advertisers who put an advertisement on the Main Menu could be certain that the entire reach of the medium was exposed to the advertising message. And if each subscriber logged onto *Sun.ONE* at least three times during the 31-day period, then the Main Menu page

advertisement would have a relatively close exposure rate as the print version at a fraction of the cost.

Research Question 3

It does appear that the total reach for a selected time period is capped by the total number of system users. However, in the 31-day period only 49.2 percent of the membership base logged online. The total number of users IDs in the system as of January 1996 was 5,566; however, only 2,741 regular users and 5 system editors logged on during the 31-day period.

Of the 151,000 Alachua County adults in the target audience, the total possible reach (exposure to the medium) for this group is 36.8 percent if every subscriber logged onto the system at least once during the scheduled time period. In comparison, 94.7 percent of Alachua County adults are exposed to *The Gainesville Sun* at least once during the 31-day period. However, of those, only 75.1 percent are exposed once to an advertising message. To look at this further, three or more exposures to an advertisement in *The Gainesville Sun* for a 31-day period is only 35.4 percent.

If the electronic version of *The Gainesville Sun*, *Sun.ONE*, could reach its entire membership base in a 31-

day period, 36.8 percent of the target audience, then advertisers who put an advertisement on the Main Menu could be certain that the entire reach of the medium were exposed to the advertising message. And if each subscriber logged onto *Sun.ONE* at least three times during the 31-day period, then the Main Menu page advertisement would have a relatively close exposure rate as the print version at a fraction of the cost.

If exposure to the banner counts as one exposure, then frequency levels are quite high in this interactive arena. For example, the average frequency for the Main menu was 17.22. This means that the typical user saw the Main menu an average of 17.22 times. The News menu was viewed an average of 11.64 times by each user. Since there is a lot of movement between menu sections by users, it is understandable that frequency levels would be higher than in traditional media.

Research Question 4

In the present investigation, the qualitative aspect for assessing multiple creative executions for an interactive advertisement was not feasible. However, it is evident that there needs to be continuous updating of

the advertisements that appear on the menu groupings because of the relatively low click-through rates.

The Advertising Inquiry (Click-Through) Rate (Table 4-6) indicates that only a small percentage of users actually "clicked" on (viewed) the advertisements. As expected, the frequency levels for advertising inquiry were close to 1.0. Although the rates exceeded 1.0, they were not substantially higher. These results are not surprising because the creative approach of the advertisements did not change during the 31-day period.

Research Question 5

The unique characteristics of online assessment of interactive advertising is the ability to definitively track users. The SyTrak analyses of the audit trails allowed for more accurate assessment of the traditional tools. For example, in traditional media a 1/4-page black-and-white newspaper advertisement is estimated to be viewed by about 13.1 percent of the total readership. However, the online data in Table 4-7 indicates that 98.4 percent of the 31-day user base viewed the advertisement on the Main menu, 37.5 percent on the News menu, 26.4 percent on the Sports menu, 13.8 percent on the Business menu, 10.1 percent on the Cybernews menu, 25.1 percent on

the Weather menu, and 22.2 percent on the Local News menu.

The logs also revealed how many users actually "clicked on" each advertisement (Table 4-6). This unique characteristic, advertising inquiry, adds a new interactive dimension to advertising. The ratio of advertising inquiry to advertising exposure was 2.6 percent for the First Union Bank advertisement, 4.8 percent for the Red Lobster advertisement, 5.4 percent for the Gainesville Regional Utilities advertisement, 1.4 percent for the Gator Football '95 (*Sun.ONE* Membership) advertisement, and 7.2 percent for the Mr. Data advertisement (see Table 4-10).

Table 4-10. Advertising Inquiry/Advertising Exposure

Advertiser	Menu	Inquiry/ Exposure	Percent
First Union Bank	Main	71/2702	2.6
GRU	Local	33/610	5.4
Red Lobster	News	50/1029	4.8
Gators '95	E-Mail/Sports	25/1683	1.5
Mr. Data	Cybernews	20/277	7.2

This type of information tells advertisers exactly how many individuals inquired about more information for the product or service.

Another unique characteristic of online auditing is the ability to target the most popular access times. According to the data, on average the most heavily accessed online time occurs in the evening hours between 6:00 p.m. and midnight. In addition, it appears that the heaviest usage days were on Wednesday and Sunday.

Table 4-11. Classified Advertising Sections

		Minutes On Menu		Reach/Frequency		
Menu Item	Hits	Total	Avg.	Reach (000)	Avg. Freq.	Reach (%)
Merchandise	6,285	3,309	0.5	357	17.61	13.0
Employment	2,275	4,491	2.0	328	6.94	11.9
Automotive	1,182	1,225	1.0	182	6.49	6.6
Announcements	1,076	438	0.4	144	7.47	5.2
Farm & Livestock	510	510	1.0	109	4.68	4.0
Real Estate/Sale	720	623	0.9	97	7.42	3.5
Real Estate/Rent	526	426	0.8	60	8.77	2.2
Financial	168	89	0.5	36	4.67	1.3
Schools/Instit.	101	33	0.3	36	2.81	1.3

The Classified Advertising Menu did not contain a banner advertisement; however, 840 unique users accessed this menu item, ranking it fifth in reach. In addition, absent in traditional media is the ability to track which classified sections readers use most frequently. Table 4-11, ranked according to reach, reports which classified sections were requested most often. The data reveals that the Merchandise section reached the most users and that users searched the files an average of 17.61 times. The least requested section was Schools and Institutions which received only 101 hits from 36 unique users an average of 2.81 times. Data about classified advertising can allow publishers to understand what type of products, services, or information users are most interested in.

The normative methods of evaluation presented in this study appear to be feasible, if not complete, in evaluating interactive media. Reach and frequency figures remain as salient in electronic publishing as they are in traditional media, although, they are not completely analogous. Because electronic publishing is still in its infancy, figures for reach are relatively low in comparison to traditional publications. Even though the reach for a 31-day period on *Sun.ONE* can only

achieve 2,746, it is still a cost efficient means of reaching an audience. For example, the cost of exposing 1 percent (CPP, cost-per-point) of the target audience to the message is $65 for the 31-day period in the *Gainesville Sun* and only $55 per rating point (for the Main Menu advertisement)on *Sun.ONE;* the cost-per-thousand is $36.48 on *Sun.ONE* versus $43.20 in the *Gainesville Sun.* In addition, with online advertising assessment, vehicle and message data are identical. This feature of interactive advertising replaces the need for advertisers to estimate message data.

With data about users' paths, channel activity, and exact data about time logged on, most accessed menu items, as well as which advertisements actually were "clicked on," new ways for advertising media planners to evaluate online advertising begins to emerge. To summarize, the data supports a normative framework for the assessment of online advertising but also introduces a number of other interactive evaluation options.

CHAPTER 5

DISCUSSION

Summary of Results

Traditional Evaluation Tools

The evaluation of interactive advertising can be assessed using the same traditional advertising tools, such as reach, frequency, exposure distributions, gross rating points, and cost-per-thousand, as was evidenced in the ADplus printout in Chapter 4.

Reach of System Users

Even though the total number of system IDs was more than 5,500, only about 50 percent logged on to the system during the 31-day period. This limited total reach capacity may also explain why at peak usage channel capacity only reached about 50 percent. These findings suggest that there is a great deal of capability for expansion and opportunity to attract users.

Average Frequency and Exposure

This study concluded that the banner advertisement is analogous to a 1/4-page newspaper advertisement and receives fairly high levels of frequency exposure to the message. While the average frequency for 1/4-page newspaper advertisements is 3.4 times, most of the online advertisements had higher levels of frequency and a few of the menu groups were above 10. The data suggests that online advertising could enhance communication goals where high levels of frequency are required.

The advertising inquiry "click-through" rate achieved frequency levels greater than 1.0, though not significantly more, even though the advertisements had not changed during the 31-day period. This may have been due in part to multiple users within the same household using the same ID clicking on the same advertisements.

Ratios of advertising inquiry to advertising exposure rates were higher than expected. The literature suggested that the percent of users who clicked on an advertisement would be less than 2 percent. Yet the results indicated that four of the five click-through advertisements yielded rates higher than 2 percent.

Interactive Evaluation Methods

The ability to track online usage patterns is unique to online advertising. The channel activity charts in Chapter 4 (Figures 4-1 and 4-2) reveal which days of the week and time of day received the most traffic. The records show that Wednesday was the overall busiest day of the week, followed by Sunday. In addition, the heaviest usage occurred in the evening hours.

The menu activity groupings in Table 4-7 show which menu items were requested most often and by how many unique users. This type of data, which is absent in traditional media, has been the subject of much debate. No longer will vehicle/message data be necessary for electronic publishing because the activity logs show exact advertising exposure and reach levels. Interpreted in traditional ways, the analysis of audit trails will provide precise measurements.

Implications

Although there are capabilities for additional types of analyses with online data, it is still necessary and advisable to use traditional media evaluation tools as well. Advertisers should be aware of and appreciate the differences between traditional and interactive media.

Underscoring the necessity to maintain some continuity between old and new media evaluation techniques is paramount. New electronic media offer many advantages for media planners over traditional media, but there is a plethora of data available which makes sorting through it no small feat. Using a normative framework will allow for a transition to new methods more palatable and acceptable.

The SyTrak printouts of the analyses of audit trails allowed for more accurate assessment of the traditional tools because the logs also revealed how many users viewed the banner advertisement and how many actually "clicked on" each advertisement. This unique characteristic, advertising inquiry, adds a new interactive dimension to advertising. This type of information is invaluable for advertisers because it not only indicates how many people were actually exposed to the advertisement but also how many inquired about more information. It could be inferred that individuals who request more information have a higher level of involvement than those who did not click on the advertisement and those with higher levels of involvement

are more likely to attend to and process information (Petty and Cacioppo, 1986).

While the rate of advertising exposure to advertising inquiry is not as high as vehicle/message exposure rates in traditional media, it was not expected to be equal. Advertisement inquiry rates online should resemble figures closer to those of coupon advertising because it requires a similar action on the part of the individual.

The literature suggested that in order to increase advertising inquiry rates advertisers needed to continually update and entice the user to "click on." Thus, because the advertisements had not changed during the time period, there was no incentive, such as free offers or savings, etc., to lure readers to "click" on the advertisements. Another interesting aspect about the advertising exposure versus advertising inquiry rate is that the Mr. Data advertisement had a significantly higher "click-through" rate than any of the other advertisements, regardless of menu placement. As was suggested in the literature, in order for advertisers to be successful online, advertising should be relevant to the user. Perhaps the reason that the Mr. Data

advertising inquiry rate was significantly higher than any of the others (7.2 percent versus 5.4 percent, 4.8 percent, 2.6 percent, or 1.5 percent) was due to the relevancy of the advertisement placement because it appeared on the Cybernews Menu, and Mr. Data is a computer hardware store.

Since there is a lot of movement between menu sections by users, it is understandable that frequency levels would be higher than in traditional media. It is the nature of the online paths that necessitates the movement through menus. In order to reach the Cybernews Menu, it was necessary for a user to first pass through the Main Menu and then the News Menu. And to get to the Money Menu, a user must also pass through the Business Menu in addition to the Main and News Menus. For this reason, advertisers should be interested in online advertising if obtaining high levels of frequency is desired.

This also highlights the importance of continually updating the advertisements. In the print media, advertisers cannot effectively implement an advertising campaign over time without changing the advertisements. Otherwise this would lead to wear-out. It is even more

crucial for online publications to consider this factor when placing electronic advertisements. It would seem as though the development of multiple creative advertisements is an innate aspect of the interactive nature of online advertising.

In order to get people to come visit online advertising sites, there needs to be some kind of incentive to do so. This may explain why the Gators '95, *Sun.ONE* membership, advertisement had the lowest click-through rate of the five click-through advertisements. In mid-March of 1996, the advertisement was still referencing the 1995 Gator Football season which had been completed by January 2, 1996. This advertisement exemplifies the necessity for frequently updating advertisements. Not recognizing this unique feature in the interactive arena could be viewed as a major obstacle for online advertising (i.e., advertising inquiry) to achieve higher click-through frequency levels.

The data revealed that the best placement for advertisements are on the Main, News, E-Mail, Week in Review, User Info, Local News, Classified, Sports, and Weather Menus. The least amount of traffic occurred on the Sun Columnists, *Sun.ONE,* Politics, and Science Menus.

Given the rate structure of traditional media where advertisers never really know for certain how many in the target audience are exposed to an advertisement, they could be overpaying. With online publication, there could be rate adjustments based on the actual number of people exposed to an advertisement rather than a flat rate.

The channel activity reports in Chapter 4 (Figures 4-1 and 4-2) represent a new perspective of evaluation criteria according to time. This type of data is most akin to other types of broadcast media such as radio and television. But unlike radio or television, online data is precise in recording what a user is viewing, at what time, and for how long. This aspect of online media evaluation could change the structure of current online advertising practices. Using broadcast advertising as a reference, online advertising could be broken down into dayparts and advertising could run according to a timed schedule. For example, a pizza delivery service may want to only buy evening advertising space to sell pizzas because evening hours are peak usage times. An advertisement could flash on the screen saying, "Wouldn't you love to have a pizza now? Click the 'order' button,

and we'll deliver within 30 minutes!" This is an example of how online advertising could transform into a more interactive advertising message.

In the same vein, this notion of "home shopping" could emerge from online newspapers. Whether an advertiser is selling pizza or car stereos, the ability to move from advertising recognition and recall to purchase intent could be a mouse click away.

There is a means by which new media evaluation could bypass traditional techniques and eliminate the need for survey analyses and tracking studies. A built-in "polling" program could account for various communication goals by surveying readers online. One way to get users to participate in surveys might be to give free online time or offer some other incentive. If surveys were implemented at the end of a user session just before log out, immediate feedback could let advertisers (or publishers) know the effectiveness of the advertising message (or news story).

One area of advertising that was not specifically addressed in the research questions was classified advertising. The SyTrak printouts reported that requests for merchandise, employment, and automotive received the

most traffic, while financial and schools and institutions received the least amount of activity. The usefulness of knowing which sections of the classifieds are accessed most often can assist online editors in making decisions about upgrades and features for certain sections. It could also be used as a sales tool by allowing classified sales representatives to tell potential customers how many people access the section on a daily basis. Because classified advertisements for employment are requested more often than are advertisements for farm and livestock, this type of information could be useful to online publishers. Perhaps this could change the rate structure of classified advertising. Publishers may wish to charge for classified advertisements based a sliding scale rate or based on exposures. And if publishers know where most traffic is occurring, then higher rates could be charged for premium spaces just as print publishers do for advertising space on front and back covers. Ultimately, knowing where users (readers) visit allows editorial staff to put more energy into developing content areas that are likely to get the most traffic.

Limitations

Sun.ONE was designed to operate efficiently for those users who have slow modems or processors. This aspect limits its graphical capability. Because much of the literature suggests that online users tend to be technologically sophisticated, the simplistic design of the operating platform may be an obstacle in attracting users.

The age grouping of demographic data for *Sun.ONE* is 0-19, 20-29, 30-39, 40-49, and 50-99. Of *Sun.ONE's* 5,566 system IDs, 23.9 percent registered in the 0-19 category. The media schedule evaluations in the present study were based against Alachua County adults who are 18 and older. There was no way to distinguish how many users in this age group were under 18. Because of the large University of Florida student population, an assumption was made that the majority of the user group fell into the 18 and over category.

Although *Sun.ONE* system IDs show a record of more than 5,500 registered users, only about 50 percent logged on during the 31-day period. This was fortunate in the analyses because the data file already exceeded 25 megabytes. If all 5,566 users had logged on during the

time frame, current SyTrak program arrays would have been insufficient to handle the job. Considerable additional programming effort would be needed to efficiently work with large or "huge" arrays, as they are referred to among programmers.

Another limitation was that small audience sizes tend to exaggerate the figures of reach and frequency. Perhaps until there is an increase in audience size of online publications, there should be an evaluation against user base and not target audience figures.

There was no way to know whether or not the number of regular users is overstated because there are no checks and balances for people using multiple IDs. System editors, although they accounted for a large majority of online time, were also exposed to the advertising messages and were included in the analyses. However, in some instances, such large amounts of time spent online may have overstated averages for typical users.

The enormous amount of available data from the logs also contributed to problems in deciding which data to use, how to interpret or disqualify unidentifiable data, making assumptions about menu categories, or user IDs.

The logs also contained some entries that did not fit into logical categories. Omitting these items from further consideration may have had some impact on the findings.

Suggestions for Future Research

Advertising space should be considered on the log on and log off menus for maximum exposure. Just as advertisements on front and back covers of magazines have the highest level of recognition, log on and log off menus may also yield higher recognition levels.

Changing advertisements on a daily or weekly basis versus not changing them and studying if altering advertisements affects inquiry rates is another area for research that should be addressed. It would be an important contribution for advertisers to know how often advertisements should be changed in order to achieve higher levels of advertising inquiry rates.

Varying the placement of advertisements on-screen could have an impact on effectiveness. A recent study involving hypertext computer programs in learning found that when using graphical browsers users tended to select items in the upper left corner of the screen most often, followed by the upper right corner. In general, items of

the left side of the graphical browser were selected more often than parallel items on the right side (Schroder, 1994). These findings have important implications for online publishers who are looking to advertisers for support. If the left side of the screen or upper left corner have higher recall or recognition than areas on the right side or bottom of the screen, then it may be more desirable for advertisements to appear in the upper left quadrant of the screen versus the lower right side. This may also be a factor in the current study where all advertisements appeared on the bottom of the screen. Schroeder's research suggests that the advertisements could have achieved greater levels of advertising inquiry if they had been located in the upper left corner of the screen.

The underlying theme in the present investigation has been the evaluation of interactive advertising not only in terms of normative media planning but also in advertising placement and design issues, all of which are needed to enhance traffic and communication goals.

Studies involving color, graphics, sound, animation, among other interactive factors are additional areas that need to be explored. While current BBS platforms such as

Sun.ONE are not equipped for detailed graphics, sound or animation, the use of color is an avenue that could be addressed.

The issue of user interface design as it applies to the development of education software is beginning to provide useful information for design strategies (Jones, 1995; Marra, 1995; Reiber, 1994). This area as it applies to the design of interactive advertising should prove useful for implementing strategies that would enhance communication effectiveness of online advertising messages.

Current online advertising practices are not utilizing all possible capabilities such as the frequent changing of advertisements, offering of incentives, or advertising placement. Even in simplistic platforms such as *Sun.ONE,* there is a great deal of opportunity for advertisers to explore and create new avenues of attracting potential customers.

APPENDIX

SAMPLE SUN.ONE AUDIT TRAIL

```
13:21 08/11/95 USER LOGON AT 14400bps   Chan 2F
     User-ID: 8J3Q9B
13:21 08/11/95 MAIN MENU SELECTION 'E'  Chan 30
     User-ID:Y1K73X
13:21 08/11/95 EMAIL MENU SELECTION 'W' Chan 30
     User-ID:Y1K73X
13:21 08/11/95 USER LOGON AT 14400bps   Chan 07
     User-ID: LB4516
13:22 08/11/95 EMAIL MENU SELECTION '2' Chan 07
     User-ID: LB4516
13:22 08/11/95 USER LOGON AT 9600bps    Chan 2C
     User-ID: NNS38V
13:22 08/11/95 MAIN MENU SELECTION 'T'  Chan 2C
     User-ID: NNS38V
13:23 08/11/95 USER LOGOFF          Chan 30
     User-ID:Y1K73X
13:23 08/11/95 MAIN MENU SELECTION 'L'  Chan 2C
     User-ID: NNS38V
13:24 08/11/95 TCPMISC-WWW Request      Console
     From IP
13:24 08/11/95 ENTERTAINMENT3 MENU SELECTION 'C   Chan2C
     User-ID: NNS38V
13:24 08/11/95 MAIN MENU SELECTION 'T'  Chan 07
     User-ID: LB4516
13:25 08/11/95 MAIN MENU SELECTION 'X'  Chan 2F
     User-ID: 8J3Q9B
13:25 08/11/95 TCPINC-Telnet        Console
     Incoming call from IP
13:25 08/11/95 LOGON VIA TELNET AT 38400bps  Chan 30
     UID: Y1KU3X [IP]
13:25 08/11/95 USER LOGOFF          Chan 2F
     User-ID: 8J3Q9B
13:25 08/11/95 MAIN MENU SELECTION 'E'  Chan 30
     User-ID: Y1KU3X
13:25 08/11/95 EMAIL MENU SELECTION 'W' Chan 30
     User-ID: Y1KU3X
13:26 08/11/95 USER LOGON AT 14400bps   Chan 20
```

```
     User-ID: PUB67M
13:26 08/11/95 USER LOGOFF          Chan 20
     User-ID: PUG67M
13:27 08/11/95 USER LOGOFF          Chan 30
     User-ID: Y1K73X
13:29 08/11/95 USER LOGON AT 2400bps    Chan 03
     User-ID: P21GH7
13:29 08/11/95 MAIN MENU SELECTION 'E'  Chan 03
     User-ID: P21GH7
13:29 08/11/95 MAIN MENU SELECTION 'W'  Chan 03
     User-ID: P21GH7
13:30 08/11/95 USER LOGON AT 26400bps   Chan 04
     User-ID: UJ91C2
13:30 08/11/95 MAIN MENU SELECTION 'N'  Chan 04
     User-ID: UJ91C2
13:30 08/11/95 NEWSWIRE MENU SELECTION 'S'   Chan 04
     User-ID: UJ91C2
```

Note: User IDs have been encrypted by SyTrak to preserve user anonymity.

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I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

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