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Understanding the Digital Divide As It Relates to Electronic Commerce

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**UNDERSTANDING THE DIGITAL DIVIDE AS IT RELATES
TO ELECTRONIC COMMERCE**

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ABSTRACT

UNDERSTANDING THE DIGITAL DIVIDE AS IT RELATES TO ELECTRONIC COMMERCE

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There exists an electronic digital divide within the United States. This digital divide concerns access to the Internet and its corresponding technologies. The U.S. government is concerned about the digital divide because it appears that certain ethnic groups and income levels are being excluded from computer technologies and the Internet. These groups include African Americans and Hispanics, who are lagging the Caucasians significantly in gaining access to the Internet. For a while the gap between majority and minority groups appeared to be widening. Since Internet access is a prerequisite to electronic commerce, an understanding of the relationship between the digital divide and marketing is important. Numerous Federal, State, and Local governments are trying to reduce or eliminate the digital divide to ensure equal access to all citizens. Marketing would benefit if equal access also meant increased electronic commerce.

Business leaders are also concerned about the digital divide because it affects access to the Internet and corresponding technologies. If the consumers are denied access to the Internet, it will be difficult for them to participate in business to consumer (B2C) level electronic commerce. However, this research has shown statistically that solving the problems of the digital divide will not necessarily aid business to consumer level

electronic commerce. The research has further found that the apparent reasons for the digital divide, currently thought to be income, education, and ethnic orientation, may be less important than initial government surveys indicate.

The research demonstrates that between Internet access and consumer intent to purchase goods and services in business to consumer electronic commerce lies at least three other considerations that need to be addressed by business leaders. These areas are: consumer trust, consumer commitment, and consumer involvement with Internet technologies. All are important links between using the technology at all and using the technology for business to consumer electronic commerce. The research also shows that these three areas have a combined relationship to the magnitude of the digital divide. Thus, any actions that affect these constructs will also affect the digital divide.

Business leaders seeking to engage in business to consumer electronic commerce must pay attention to consumer trust, consumer commitment, and optimizing the consumer experience (involvement) when using the Internet. Not addressing these issues proactively will increase the likelihood of failure while engaging in electronic commerce.

Committee Members:

**Dr. J. Taylor Sims
Dr. Edward Markowski**

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TABLE OF CONTENTS

	Page
LIST OF TABLES	
TABLE 1 INTERNET DOMAIN NAME EXTENSIONS	31
TABLE 2 DATA COLLECTION QUESTIONS	54
TABLE 3 CONSTRUCTS ASSOCIATED WITH INTERNET ACCESS AND WEB USE	57
TABLE 4 LATENT VARIABLE NAMES	66
TABLE 5 GOODNESS OF FIT INDICATORS	68
TABLE 6 REGRESSION WEIGHTS	70
TABLE 7 REGRESSION R SQUARED	76
TABLE 8 SUMMARIZED HYPOTHESIS FINDINGS	77
 LIST OF FIGURES	
FIGURE 1 HYPOTHESIZED MODEL	64
FIGURE 2 EXPANDED MODEL FOR SEM	65
 CHAPTER	
I. INTRODUCTION	1
PROBLEM STATEMENT	3

SIGNIFICANCE OF THE PROBLEM	5
PROPOSAL	9
LIMITATIONS OF EXISTING RESEARCH	12
VALUE OF THIS RESEARCH	13
ORGAINIZATION OF THIS DISSERTATION	14
II. LITERATURE REVIEW	16
INTERNET HISTORY	16
DIGITAL DIVIDE	19
INTERNET AND WORLD WIDE WEB	
USE AND MISUSE	23
DARK SIDE	23
VIRUSES	26
PRIVACY CONCERNS	28
DOMAIN NAMES	30
CONSUMER BEHAVIOR AND THE INTERNET	33
COMMITMENT	35
TRUST	37
INVOLVEMENT	41
INTENT TO PURCHASE	42
SYNTHESIS OF ARGUMENTS	43
STATEMENT OF HYPOTHESIS	46

III. RESEARCH DESIGN AND METHODOLOGY	52
INTRODUCTION	52
RESTATEMENT OF HYPOTHESES	52
DESCRIPTION OF SAMPLE AND SAMPLE SIZE	54
DATA COLLECTION PLAN	55
SCALE DISCUSSION	56
FOCUS GROUP	58
PROCEDURE FOR DATA ANALYSIS	59
IV. RESULTS OF THE STUDY	61
DATA COLLECTION -FOCUS GROUP	61
DATA COLLECTION- TELEPHONE SURVEY	61
ANALYSIS OF RESULTS	62
FACTOR ANALYSIS	62
STRUCTURAL EQUATION METHOD	63
ANALYSIS OF COVARIANCE	73
REGRESSION ANALYSIS	75
TEST OF EACH HYPOTHESIS	76
ANALYSIS OF FINDINGS	80
V. CONCLUSIONS AND RECOMMENDATIONS	83
CONCLUSIONS	83
INFERENCES FROM DATA ANALYSIS	84
MANAGERIAL IMPLPLICATIONS	87

RECOMMENDATIONS	89
SUGGESTIONS FOR FUTURE RESEARCH	92
REFERENCES	95
APPENDIX A TIMELINE OF INTERNET HISTORY	104
APPENDIX B HYPOTHESIZED MODEL	105
APPENDIX C SURVEY INSTRUMENT	106
APPENDIX D DEFINITIONS	114
APPENDIX E PHONE SURVEY SCRIPT	117
APPENDIX F FACTOR ANALYSIS	118
APPENDIX G STRUCTURAL EQUATIONS METHOD	119
APPENDIX H ANALYSIS OF COVARIANCE	120
APPENDIX I REGRESSION ANALYSIS	121
VITA	122

CHAPTER I

INTRODUCTION

The Internet and WorldWideWeb (WWW) have grown at an exponential rate that coincides with the introduction of such graphically based software as MOSAIC, America On-Line browser software, and Netscape (Hoffman and Novak 1999). Firms use the Internet and WWW to conduct business operations that include advertising, sales, and customer service. While there are technical differences between the Internet and WWW, they are perceived as similar by most people and will be considered as one entity for this study.

The Internet is a global network of mainframe/macro-computer networks that is a collection of hundreds of thousands of private and public computer networks (Laudon and Laudon 2000). With over 43 million host mainframe/macro computer connections, the individual desktop user is estimated to number 40-80 million computer connections within the United States alone. The global Internet population is estimated to number more than 300 million persons, with a prediction by analysts of reaching one billion Internet users worldwide by the year 2005 (Reid 2000).

The Internet may be one of the most important communication innovations in the history of mankind (Hoffman and Novak 1999; Sheth and Sisodia 1999). This is primarily because of the Internet's ability to provide the three C's: information Content, personal Communications, and electronic Commerce (e-commerce) (Sheth and Sisodia 1999). Content and

communications have straightforward meanings and e-commerce is the electronic purchase of good or services. On the surface, the Internet appears well suited for business operations.

In terms of marketing, it is the future potential of electronic commercial capabilities relating to the Internet that interest business leaders. In this regard, it is important to understand the dollar value of the Internet in terms of consumer behavior and the purchaser's intent to purchase goods or services. Recent statistics reveal that electronic commerce is a multi-billion dollar business worldwide (Hoffman and Novak 1998). In this business enterprise, the three C's are intertwined to create an overall experience for Internet users. If electronic commerce is to prosper, this experience must be positive (Hoffman and Novak 1996; VanScoyoc 2000).

The WorldWideWeb (WWW) is a system of universally accepted standards for storing, retrieving, formatting, and displaying information in a networked environment (Laudon and Laudon 2000). Most Internet commerce occurs via the WWW through web sites, which are electronic pages that are maintained by an organization or an individual (Laudon and Laudon 2000). For commercial purposes, the Internet provides a capability for vendors to "push" advertisements at users, with the goal of obtaining product sales (i.e. banners), and to "pull" users to other locations through hyperlinks, primarily for advertising. The United States Federal Government has rated the Internet equal to the telephone as being one of the most ubiquitous items of modern times (Irving

1997). As the Internet expands, it becomes more important to understand the demographic patterns that affect Internet and WWW usage.

The former President of the United States, Bill Clinton, personally called for universal access to the Internet for our nation's next generation (Clinton 2000). Unfortunately, the current generation of over 200 million Americans over the age of 16, who are potential users of the new technology, may lack universal Internet access (Hoffman and Novak 1997). Key demographic variables such as income, education, and location appear to affect policies for guaranteeing equal access to the Internet. This means that the Internet may fail to reach all economic levels of citizens (Keller 1996), leading to what has been termed the "digital divide" between those who have information and those who do not (Hoffman and Novak 1997). African Americans have been identified as the group that comprises the "digital divide" (Hoffman and Novak 1996; Irving 1997). The digital divide is the line that separates those who have computer access, along with corresponding skills and use the Internet, from those who neither have access to computer technology or the Internet/WWW. A basic assumption is that citizens who lack access to the Internet/WWW also lack the corresponding computer skills to use them.

PROBLEM STATEMENT

There appears to be a "digital divide" in regard to Internet/WWW usage, but no one understands why this divide exists. Some believe the "digital divide" is explainable by income, education, and location, or that this phenomenon is influenced by ethnic orientation (Irving 1997). Other experts offer explanations

from the perspective of “technophobia” or loss of leisure time (Jesdanun 2000). Current literature suggests that stated reasons may actually mask underlying “digital divide” causes that include the constructs of commitment, trust, and consumer involvement. The research problem shifts to whether different races think that commitment, trust, and consumer involvement are mediating factors in Internet/WWW access and usage in the United States in terms of consumer intent to purchase products. If this is true, then these constructs need to be brought to the attention of agencies trying to narrow the apparent “digital divide.”

The consequences to American society of any racial gap in Internet access and WWW usage is expected to be significant, since race is an important part of this society (Novak and Hoffman 1998). However, at the time of the initial Internet usage studies, little content on the Internet was aimed at minorities. There is no regulation of the Internet and little has been done to ensure that information gathered from the Internet is accurate or true. Others have stated that a segment of the U.S. population, being denied equal access to the Internet, may lack the technological skills to keep American firms competitive in what is now a global marketplace (Irving 1995; 1997). Such predictions can evoke fear among the general population that include a wide range of possible responses from passive to active actions against the perceived threat.

The key phrase is “equal access” and such mainstream media as newspapers, magazines, and periodicals have begun to disseminate “digital divide” warnings to the general population (Hoffman and Novak 1999). While the goal of governmental agencies working to narrow any perceived gap is

commendable, there is a possibility of the issue becoming a “double edged” sword in the general population. One such outcome is the needless stereotyping of ethnic groups.

Thus, an understanding of the “digital divide” is an important issue that should be based upon objective studies that are not solely Internet based. These studies should include demographic patterns of Internet technology and WWW access and use as it relates to electronic commerce. This type of study has yet to be conducted, although various media sources are publishing numerous articles about the topic. It is likely that legislators, who are about to allocate tax dollars aimed at ensuring that everyone has “equal” access, are exposed to and perhaps influenced by these articles (Irving 1997). An objective study, on the other hand, can provide a clearer understanding of the forces behind any existing “divide” and could benefit consumers, business leaders, and government bodies.

SIGNIFICANCE OF THE PROBLEM

Current concerns center on equal access to the Internet and usage of the WWW. However, access alone may not assure Internet usage and certainly does not guarantee that consumers will participate in electronic commerce. In fact some 340 million people, a larger number than the population of the United States, reported no intention of using the Internet over the next twelve months. Reasons cited for eschewing the Internet include lack of interest, knowledge, and relevance to their lives (Reid 2000). It is reasonable to assume that some of those 340 million people are citizens of the United States. Thus, even if access

problems were solved, it is equally important to understand additional forces that influence Internet usage.

Much of the current governmental policy is based on studies that show significant demographic disparity in Internet and WWW access and use between African Americans and Caucasians (Hoffman and Novak 1998). This observation was based upon data collected in 1997, which may be outdated in the year 2001. This stems from claims that Internet years are similar to dog years with one year equaling approximately a decade (Chaney 2000). The Hoffman and Novak (1996-1998) studies conclude, after statistically controlling for differences in education, that Caucasians are more likely to own a computer than African Americans and that Caucasians are more likely to have recently used the Internet and WWW than African Americans or other ethnic groups in America. The implication is that, as technology expands, a significant segment of the U.S. population is being left behind in terms of technology skills. Specifically, Irving (1995; 1997; 1999) identifies African Americans, Hispanics, the poor in central cities and rural areas, the young and elderly, the less educated in central cities, and various parts of the Northeast and South as the "have-nots" in the digital arena. E-commerce is of great concern to marketers, since anyone who does not have access and technology skills cannot participate in e-commerce. While studies have gauged the digital divide, little research has attempted to explain why discrepancies exist. For example, a recent study states that 57% of Americans are not interested in connecting to the Internet and WWW anytime in the near future (Jesdanun 2000). Therefore, the purpose of this study is to gain a clearer

understanding of not only the digital divide but, more importantly, factors that affect e-commerce.

A more recent study by Ervin and Gilmore (1999) reported findings counter to Hoffman and Novak (1998) who had difficulty collecting data from African Americans. Data from African Americans suggest that it is not usage that explains the "digital divide," but rather the perceptions that African Americans have of cyberspace technology (Ervin and Gilmore 1999). Even though African Americans have access to computers, the Internet, and WWW, they may not use them (Ervin and Gilmore 1999). African American students purposefully limited their use of technology because of a fear that the threat of access to their physical personal information was great. This finding supports the study by Reid (2000) on global Internet use that concluded that some African Americans believed that the Internet and WWW were tools of the U.S. Government to track and monitor individuals.

The results of studies suggest that three antecedents may affect Internet/WWW usage as it relates to intent to purchase products. They are "commitment" (Hoffman and Novak 1996), "trust" (Ervin and Gilmore 1999), and consumer "involvement" with products (Hoffman and Novak 1997; Zaichkowsky 1985). The dependent construct affected by these three constructs commitment, trust, and involvement is the "intent to purchase" (Garbarino and Johnson 1999). The constructs of overall satisfaction (Mittal, Ross, and Baldasare 1998) and price comparisons (Grewal, Monroe, and Krishnan 1998) may also

influence Internet access and WWW usage, but they are beyond the scope of this research.

Commitment and trust are also related to relationship marketing, which is defined as establishing, developing, and maintaining successful relational exchanges that require relationship commitment and trust (Morgan and Hunt 1994). The Internet can be used as an instrument for establishing, developing, and maintaining successful relational exchanges. By capturing all "click-stream" activity and setting small files called cookies, the Internet attempts to customize services for users. Cookies are tiny data files automatically created on the hard drive when one visits a WEB site for the first time that inserts a unique tracking number which can be read at that site and other ad server sites (Kranhold and Moss 2000). Thus, commitment and trust apply to Internet activities, because both are needed for relationship exchanges (Morgan and Hunt 1994), and their role as antecedents of Internet access and WWW usage are investigated in this study. Of the ten types of relationships described by Morgan and Hunt (1994) the Internet appears to exemplify long-term customer-firm exchanges.

Trust is defined as any thing in which confidence is placed (Webster 1999). Morgan and Hunt (1994) speak of commitment and trust as they relate to relationship marketing. In terms of marketing, some consumers appear to distrust the Internet. This lack of trust derives from a perceived lack of control over the access others have to personal information (Hoffman and Novak 1998). These concerns about privacy of personal information include two central dimensions: environmental control and secondary use of information. Environmental control

relates to actual security of Internet information, while secondary use concerns the number of others who may have access to information that is provided through the Internet (Novak and Hoffman 1998).

Consumer involvement is the third construct that also affects and is part of the construct of “flow.” Involvement is defined in terms of relevance to the consumer and ability to motivate consumer response to. It is a person’s perceived relevance of an object based on inherent needs, values, and interests (Zaichkowsky 1985). This definition can also be applied to Internet and WWW settings for purchase or intent to purchase decisions (Zaichkowsky 1985; Rosenberg, Peters, and Wedel 1997; Wright and Lynch 1995; Mano and Oliver 1993; Macinnis and Park 1991). Involvement is a function of endurance for a need derived from a value in the individual hierarchy of needs. Consumer involvement has a substantial body of empirical research in marketing (Zaichkowsky 1985; Rosenberg, Peters, Wedel 1997; Mano and Oliver 1993; Wright and Lynch 1995; Macinnis and Park 1991). The literature suggests that consumer involvement enhances consumer intent to participate in e-commerce by purchasing products via the Internet and WWW (Hoffman and Novak 1996). This research will measure consumer involvement with the Internet as one indicator of intent to purchase.

PROPOSAL

The issue of the “digital divide” is of concern to the highest levels of the United States Government and commerce. This includes the U.S. Government Working Group on Electronic Commerce, The National Economic Council, The

White House Office of Science and Technology Policy, The National Science Foundation, and the U.S. Department of Commerce. These agencies seek to understand the mechanics of the “digital divide” and want to minimize it where possible. Given that much of the initial work in this area is based on a landmark study conducted in the 1996/1997 timeframe, it is time to revisit the topic. As business leaders, marketers are interested in the digital divide because it affects Internet access and WWW usage. Internet and WWW access and use are physical requirements for consumers who intend to purchase products electronically (Hoffman and Novak 1999).

Internet technology has continually improved in many areas. These improvements include alternate methods of access, greater diversity of content, Internet shopping, and standards of technological learning. Thus, given the rapid changes in this area, the studies that produced the initial concerns and coined the words “digital divide” should be re-examined. It is possible that differences attributed to Internet access and WWW usage have dissipated over time and the digital divide is now a less significant issue.

There also may be other underlying constructs like commitment, trust, and consumer involvement that affect Internet access and WWW use in terms of consumer’s intent to purchase behavior. This study aims to answer the following questions:

1. Have Internet access and WWW usage changed since the 1997 survey in terms of ethnicity?

2. Is the “digital divide” still a racial issue or is this phenomenon influenced by other antecedents?
3. What roles do the constructs of “commitment,” “trust,” and consumer “involvement” play in Internet access and WWW use in terms of consumer intent to purchase?

To answer these questions, a survey of the general population will be conducted using an appropriate instrument and the results analyzed to document why U.S. citizens are or are not utilizing the Internet and WWW. In this way the digital divide issue will be based on facts and an explanation of those facts will lead to a more accurate understanding of this consumer behavior area.

Reid (2000) suggests the United States model of Internet access and WWW use is not necessarily the world model for future growth. The U.S. model is based on personal computer ownership to link to the WWW. Reid suggests that the remainder of the world will employ cellular phones and PDA's (Palm Pilot type devices) to access the Internet. If this is true, the U.S. government's focus on personal computer ownership may capture less than the total picture about the “digital divide” and electronic commerce. That is, other variables may also have an effect on the intent to purchase, beyond Internet access and WWW usage.

The literature suggests that antecedents of Internet access and WWW usage in terms of consumer intent to purchase behavior are commitment, trust, and involvement (Hoffman and Novak 1996; Morgan and Hunt 1994). Earlier studies reported that data from African Americans was not representative (Hoffman and Novak 1997), yet results of the studies were released. The current

study samples a representative population of ethnic groups from different parts of the United States that include African Americans, Caucasians, Asians, and Spanish Americans to better understand the reasons behind a “digital divide” in terms of Internet access and Web use. The primary question is: are “digital divide” differences based on race alone or are there other variables that must be identified with respect to Internet access, WWW usage, and subsequently intent to purchase products via e-commerce?

LIMITATIONS OF EXISTING RESEARCH

Sheth and Sisodia (1999) called for the development of new theories and lawlike generalizations in the context of Internet and WWW use. Hoffman and Novak (1996) urged researchers to model and test various facets of the multi-faceted involvement construct in the context of the Internet and WWW. To date, only a few empirical non-Internet based studies have been conducted. Morgan and Hunt (1994) identified the need for empirical studies on commitment and trust in marketing. Ervin and Gilmore (1999) conducted a study, but called for additional research that employs larger sample sizes. Intent to purchase has been researched by Zeithmal, Perry, and Parasuraman (1996), but this construct has not been linked to the Internet/ WWW. Consumer involvement has been tested numerous times but not in the Internet and WWW setting (Zaichkowsky 1985; Rosenberg, Peters, and Wedel 1997). Thus while numerous studies have tested involvement, commitment, trust, and intent to purchase individually, none have examined the constructs collectively as they relate to Internet and WWW usage. This research endeavors to fill this gap in the literature.

VALUE OF THIS RESEARCH

Business leaders are interested in the “digital divide” because without Internet access, consumers cannot participate in electronic commerce. The literature suggests that business leaders have another concern. There is no guarantee that, after gaining access, consumers will participate in electronic commerce. The literature suggests that there are certain antecedents to intent to purchase products that include commitment, trust, and involvement (Hoffman and Novak 1996; Garbarino and Johnson 1999).

Currently, federal and state lawmakers are setting policies to reduce the “digital divide.” If there are underlying reasons that explain the “divide,” these reasons should be accounted for in future policies. It appears that lawmakers want to address a potential societal problem, but beneath that, there is money to be made in reducing the digital divide for American businesses. African Americans, for instance, purchase billions of dollars of goods within the United States (Strauss and Raymond 1999). Firms need to know how much more they might sell if their Internet and WWW sites were created or modified. Businesses may, however, need to improve commercial practices that increase commitment, trust, and involvement when shopping on the Internet and WWW.

Likewise, the potential for a societal backlash against the envisioned “lost segments (African Americans, Hispanics) of society” is real. Even the term “digital divide” is perceived as being divisive, rather than a unifying concept, by certain ethnic groups. Before the media further sensationalizes or reinforces the negative aspects of this issue, it must be determined whether there are antecedents

to Internet access and Web use that act as “de-motivating agents.” If these antecedents are significant, this knowledge could be extremely valuable to business leaders that seek to better understand the “digital divide” and its true impact on business. Business leaders would be able to better understand which areas to concentrate their efforts on that would lead to increased consumer participation in electronic commerce.

In summary, the United States government currently uses Internet access and WWW usage as the sole criterion responsible for identifying the “digital divide.” Relevant literature suggests that even if everyone had Internet access and the WWW were available to them, segments of consumers would not participate for “other reasons”(Jesdanun 2000). Commitment, trust, and involvement have been identified as antecedents for intent to purchase via the Internet. However, if firms are to increase commitment, trust, and involvement, it is necessary for consumers to have access to the Internet and WWW. If these relationships can be empirically proven, then business and government leaders will better understand influences affecting the “digital divide” and the relationships it has with e-commerce.

ORGANIZATION OF THIS DISSERTATION

Chapter two presents a review of the relevant research investigating the “digital divide” as it relates to Internet and WWW use in electronic commerce. This investigation of the literature has identified important and significant mediating factors that influence, determine, and/or contribute to consumer intent to purchase goods and services via the Internet and WWW. Chapter three builds

on this literature review by developing a theoretical model of consumer intent to purchase that specifies the relationships between constructs. Additionally, Chapter three presents the research questions, hypotheses, and measurement scales that will be employed. Chapter four describes the data collection methodology and presents the findings from formal testing of the model and hypotheses. Finally, chapter five provides a discussion of the major findings, the general conclusions, implications, the limitations of the study, and recommendations for future research.

CHAPTER II

LITERATURE REVIEW

An extensive search of the literature was conducted to develop a solid understanding of the current state of research concerning the digital divide and its relationship to commitment, trust, and involvement, and intent to purchase from electronic sources. The chapter begins with a history of the Internet and the WorldWideWeb (WWW).

INTERNET HISTORY

The Internet is a key component of this research. Thus, it is appropriate to provide a brief history of the Internet and how it evolved to what we use today. The Internet has been in existence in various forms for over 30 years. It became available to private industry and the general public after the military uses of the technology were exhausted.

A history of the Internet will also help the reader to understand where this medium fits into the overall structure of telecommunications in the new millennium. Appendix A provides a timeline of the history of the Internet. A detailed discussion is beyond the scope of this research, but general knowledge of where the Internet originated should provide a better understanding of the issues that will be investigated.

The Internet, as we know it today, is really a joining of numerous smaller interconnected networks into one global network. These smaller networks in

earlier years had separate names, but accepted the term Internet. The United States Government was a key player in the construction of the Internet. The actions triggering this involvement date back to 1957 when the Union of Soviet Socialist Republic (the former Soviet Union) launched a satellite into space which was interpreted as a competitive edge for the USSR over the United States.

Appendix A provides certain important dates to the formation of the Internet. It begins with the formation of the Advanced Research Projects Agency (ARPA) in 1958. By 1969, ARPA was able to successfully connect four U.S. universities to what would be called the ARPA net. These universities were Stanford, University of California in Los Angeles, University of California in Santa Barbara, and the University of Utah (Hawkes 1999; Zigmund 2000). This is really the beginning of what would evolve into the Internet. The U.S. military was interested in developing a communications network that could withstand a nuclear attack and the success of the ARPA net led to the Defense Department taking it over and renaming it as the Defense Advanced Research Projects Agency network (DARPA net). Thus, the initial use of the Internet was for academic/scientific/defense research and communications. Those two areas remain major uses of the Internet today. Since much of the DARPA net was classified military information, the physical net and its characteristics were kept from public view until approximately 1983. During this period, the Defense Department essentially turned the Internet infrastructure over to the private sector. By this time the scientific and academic uses of the net were well defined.

In 1985 the Internet Activities Board (IAB) was formed to investigate the use of the Internet in the Private Sector. This was an international agency interested in business use of the Internet. A standard set of protocols called TCP/IP had already been used by the DARPA net and this became the standard that would govern the entire Internet (Hawkes 1999). Several existing networks eventually merged into one common network with a common set of protocols that was called the Internet (Hawkes 1999).

An infrastructure that could not be easily used by the general public was of limited use to the private sector. By a separate path of evolution, the World Wide Web (WWW) was introduced in 1989 (Hawkes 1999). Shortly thereafter a web browser named MOSAIC was introduced. By this time, business had most of the necessary ingredients needed to conduct commerce over the web. The private sector had received a robust telecommunications infrastructure, a set of standard protocols for using that infrastructure, and lastly a tool that could enable the general public to navigate easily within that infrastructure.

Thus, it appears intuitive that the Internet, in one form or another, has been in existence for more than three decades. It is the culmination of numerous physical and technological improvements in telecommunications and computers/electronics over the last 40 years. However, it has only become useful to e-commerce within the last decade.

DIGITAL DIVIDE

The “digital divide” is a fact of life in the telecommunications area. The United States government has conducted at least three empirical studies that confirm its existence (Hoffman and Novak 1996, 1998; Irving 1995, 1997, 1999). These studies profile the specific characteristics that separate the digital “haves” from the digital “have-nots.” More perplexing is the apparent widening of the gap between those that have access and those that do not given that the means of obtaining access through computers and Internet service providers has increased considerably since the first study in 1994. This increase alone may indicate the presence of some mitigating factors beyond pure Internet and WWW access that may be inhibiting expanded use of the telecommunications technology. This section examines the details of the digital divide, while the next section addresses mitigating factors that may contribute to the widening gap between those that have and do not have access. This also affects the likelihood of conducting electronic commerce at the individual consumer level. The model in Appendix B shows the relationship between Internet access and the intent to purchase products via the Internet. It appears intuitive that factors that reduce or hinder Internet access also influence consumer purchase behavior.

In 1994 the United States Census Bureau conducted a survey of telephone ownership and Personal Computer (PC) ownership and usage. This survey represented the first census survey regarding PC penetration rates in the United States. The resulting report identified gaps between those that have access to telecommunications technology and those that do not have access. A follow-up

study cross tabulated the information gathered according to specific variables to include income, age, educational attainment, and geographical categories. These now become the primary variables for Internet access.

From the follow-up study conducted in 1997 it is apparent that Americans have increasingly embraced the "Information Age" through electronic access from their homes. During the time period from 1994 to 1997 PC penetration rates increased 51.9%, modem ownership increased 139.1% and e-mail access increased 397%. (McConnaughey and Lader 1999). There was, however, a continuing "digital divide." In spite of significant overall growth in the computer ownership and usage across the nation, the growth was greater in some income levels, demographic groups, and geographic areas than in others. There is also a widening gap between upper and lower income levels and between Blacks and Hispanics in comparison to Caucasians (Irving 1996). The most significant findings of the 1997 follow-up study are:

1. Even though PC ownership generally had grown since 1994, central areas of cities lagged behind the national average in this growth (37.2% vs. 19.9%). After accounting for income, no significant differences were apparent between rural, urban, and central cities areas for computer ownership.

2. Income greatly affects PC ownership, which is a prerequisite for most Internet and WWW usage. All income groups were more likely to own a computer in 1997 than in 1994, but at the higher income levels, ownership has increased more significantly. The cost of PC ownership has decreased significantly during the same time period. Thus, the gap between PC ownership

for higher and lower income levels has increased significantly. Lower income levels are defined as incomes below \$14K annually, while higher income levels are defined as those above \$50K.

3. There is a significant digital divide based upon race. PC ownership has increased for minority groups overall, but Blacks and Hispanics lag far behind the national average. Caucasians are more than twice as likely to own a computer (40.8%) than either Blacks (19.3%) or Hispanics (19.4%). This divide is apparent across all income levels (Irving 1996; McConnaughey and Lader 1999). The rates for Internet access were nearly three times as high for Caucasians (21.2%) as for Blacks (7.7%) and Hispanics (8.7%).

4. Education appears to influence PC ownership as much as income. Generally, the greater the amount of education, the higher the PC ownership. Those with college degrees were ten times as likely to own a PC as those without any high school education (63.2% vs. 6.8%). Internet access is even more striking. College educated persons have access 38.4 % of the time compared to 9.6% access for those with a high school diplomas and 1.8% for those without a high school education.

Based upon the above information, it is apparent that income, education, and race become research co-variates for determining Internet access and WWW usage. Hereafter, Internet access and WWW usage will be seen as one term for the “digital divide”.

After the 1997 survey, the United States Government profiled those “least” connected to telecommunications technologies. They are rural poor

households, rural and central city minority group members (primarily Blacks and Hispanics), very young households (under 25 years of age), and female headed households (Irving 1996; McConnaughey and Lader 1999). This profile is not surprising considering that poor citizens are unable to afford new technologies.

A 1998 follow-up survey by the United States Department of Commerce Census Bureau provided additional information about the “digital divide.” Significant findings show that households with incomes of \$75K or higher are more than twenty times more likely to have access to the Internet and WWW than Blacks or Hispanics. Blacks and Hispanics are one-third as likely to have home Internet access than Asian/Pacific Islanders and one-fifth as likely to have access as Caucasians. Lastly, regardless of income level, rural households lag significantly behind others in Internet access due to unavailability of Internet Service Providers (ISP’s) (Irving 1996; McConnaughey and Lader 1999).

More disturbing, however, is the 1998 finding that the “digital divide” has widened. The gap between Caucasians and Blacks/Hispanics is 5% higher than in 1997. Additionally, the “digital divide” between the highest and lowest income level has increased 4% (McConnaughey and Lader 1999). It is common knowledge that technology has provided numerous alternate access methods to the Internet that were not available in 1997, yet the gap continues to widen. This finding points to the presence of mitigating factors that impact Internet access and WWW usage and subsequently the intent to purchase products via e-commerce. This research proposes that three mitigating factors are commitment, trust, and involvement and the construct that they affect is intent to purchase. A brief

discussion of use and misuse of the Internet will shed light on issues and practices that would normally impact commitment, trust, and involvement.

INTERNET AND WWW USE AND MISUSE

The research by Ervin and Gilmore (1999) showed that certain ethnic groups are more sensitive to issues of trust. This sensitivity might be minimized if published articles in newspapers and magazines or other mainstream media sources portrayed the Internet as a stable technology. However, much of what people read emphasize the negative side of the technology and describe the Internet as undergoing rapid and constant change riddled with controversy. The following is a sampling of some of the more controversial issues associated with Internet and WWW usage, which lends support that consumers have legitimate reasons to question how the Internet is being used and possibly withhold their own participation until it becomes more stabilized. Four general groupings of controversy include what can be called the "Dark Side" of Internet technology (including criminal activity) (Neumeister 2000), computer viruses (Sullivan 2000; Grossman 2000; McAfee 1989), privacy issues (Hoffman and Novak 1998), and domain names (Walker 2000).

DARK SIDE

The Internet and its associated telecommunications technologies have been characterized inconsistently by mainstream media sources (newspaper, magazines, and newscasts). On one hand people read that the Internet is a mass enabler (Ratesnar and Stein 2000; Gillmor 2000). In a recent *Time Magazine* (March 27, 2000) the well-known author Stephen King was on the cover

supporting something called "Do it yourself.com." The author is using the Internet to market electronic books (e-books) and readers are encouraged to be creative themselves in areas of movies (The Blair Witch Project), books (Stephen King), and Music (Napster.com) (Ratesnar and Stein 2000). The Story of Napster.com also portrays the Internet as a mass enabler to everyone making individuals creative producers of various art forms using telecommunications technology and the Internet. This type of coverage of the Internet is generally positive and encourages people to experiment with the technology.

There are, however, more negative portrayals of the Internet technologies that could leave novice users confused and afraid of the telecommunications technologies and where they are headed. The Internet can also enable criminal minds as well as lawful citizens. The Napster.com web site is an excellent example of mass enabling, but it is also in the process of dismantling a \$14 billion dollar music industry protected by copyright laws. The battle is currently in the courts. The issue is even larger if everything can actually be copied over time, since no one will bother to be creative and man might not progress (Gillmor 2000). The real issue here, however, is that Internet activity reveals gaps in current copyright laws. Lawmakers must now reexamine the scope of property rights.

Other criminal activities include fired workers attempting to damage former employers computers (Grossman 2000), criminals attempting to conduct cyber-extortion against Bloomberg which is a well know financial institution (Neumeister 2000), and thieves stealing a company's web site (Grossman 2000).

A widely publicized crime included an employee posting improper information on the Internet causing a company's stock to plunge 60% within hours (Gentile 2000; Sutel 2000). This crime shows an unusual vulnerability of the Internet (Sutel 2000). It appears that it may take some time before the security measures and legal statutes needed on the Internet reach parity with the speed of the Internet (Sutel 2000). Until it catches up, the risk remains high. The threat of theft of identity is a major issue and will be discussed separately.

There are articles about online pitfalls almost daily in newspapers. Major problems such as the "I LOVE YOU" virus attract international media coverage and reach the highest levels of government. There are even articles warning consumers to beware of e-commerce (Volz 2000). Apparently some rules concerning rights and responsibilities are not as clear when dealing with the Internet. With so many negative portrayals of the Internet, a person might be wise to allow some of the controversies to be settled before engaging in Internet access and WWW usage.

Even more frightening are articles that portray computing and telecommunications technologies exploding beyond the ability of man to control them (Powell 2000; Markov 2000). These include genetic engineering, robotics, and molecular sized machines using what is called nano-technology, which is based on the nano-second speed of mainframe computers. The combination of these three factors is moving computing technologies towards the birth of a new species on earth (Powell 2000). Just reading these types of articles may cause one to question who is in control of the experiments and research. It is clear that no

one person, group, entity, or nation owns the Internet (Laudon and Laudon 2000). Hence, laws have only limited affect in controlling the research. The articles are appearing more regularly this year as other technologies such as cloning, and DNA typing open new horizons for mankind. Consumers now have many reasons to question just how transactions are being handled over the Internet. The discussions up to this point look at the areas of mistrust and thereby commitment, concerning the Internet and have been discussed by relevant literature (Morgan and Hunt 1994). The next discussion is more specific and concerns viruses, privacy, and the issue concerning domain names further reduces trust of the Internet and its associated telecommunications and computing technologies. It is probably a matter of time before everyone has access to the technologies, but resolution of these issues can encourage this access to take place sooner rather than later.

VIRUSES

Computer viruses continue to cloud the productive use of the Internet. Experts agree that there is a continuous threat of a massive Internet attack by virus programmers (Sullivan 2000). Since viruses are computer programs, most are written by a group of people called "hackers" (McAfee 1989). While the technical definition of a virus is a computer program that infects other programs, replicates itself, recognizes itself, and constantly seeks new host environments (McAfee 1989), the practical application of the virus is either destruction of hardware/software or manipulation of data (McAfee 1989). The most destructive viruses receive worldwide media coverage.

While viruses have been present for over 30 years, the Internet and associated telecommunications technologies have rewritten the rules as to how they are spread. In early days, they were primarily spread by floppy disks and would take weeks to work their way around the world. Today they can be spread by the Internet and can reach around the globe in a matter of minutes (Grossman 2000). Some famous viruses include the Morris Virus- 1988, Michelangelo- 1991, World Concept – 1995, Wazzu- 1996, Melissa- 1999, Chernobyl – 1999, Explore.zip – 1999, Bubbleboy – 1999, and The Love Bug 2000 (Grossman 2000). Currently major viruses receive cover page attention in major publications (*Time* May 15, 2000 and *The Virginian Pilot* May 5, 2000). Practically every day there are articles suggesting how to protect oneself from the Internet. If the Internet is in fact good for mankind, one might ask why it is necessary to protect oneself from it. Note that this is the same Internet that vendors hope consumers will use for shopping.

Viruses are usually written by humans. Thus, it appears that thousands of individuals are working to disrupt the orderly flow of computer operations. Virus programs break both Federal and State laws, yet only a few writers are actually captured. Those that are caught are highly publicized, but the reality is that virus programs number in the thousands. There are so many virus programs that they can now be categorized as to type (logic bomb, time bomb, worm, Trojan horse), what they infect (boot sector, hard drives, data), and the method of spreading (Internet, floppy disk) (McAfee 1989). Apparently the virus writers leave no stone unturned exemplified by the latest virus named

“PalmOS/LibertyCheck” targeted at the Palm type devices that have grown in prominence over the last few years. Thus, while vendors and the U.S. Government want people to rush to the Internet to use all of the technologies, what consumers see almost daily is an army of people working day and night to impede or disrupt Internet and telecommunications processes. This is one issue that appears to specifically encourage distrust of the Internet technologies. With so much negative publicity, it is difficult for one to avoid questioning the Internet. A prudent tactic may be to wait for some of these issues to be resolved before using the Internet technologies.

PRIVACY CONCERNS

Consumer concerns about privacy on the Internet have been voiced for years (Novak and Hoffman 1998). The authors discussed the relationship between consumer trust and privacy. Their intent was to aid in a firm’s understanding why consumers were slow to use the Internet to purchase products. Many of the barriers that existed earlier, such as speed of transfer, browser software, and suitable web sites no longer exist, but there still exists a lack of trust between the shoppers and the product providers. This lack of trust is reinforced daily by articles that people read in various newspaper and magazine sources.

One of the greatest threats to individual privacy is theft of identity. Apparently, dishonest people are able to learn enough about someone else through the Internet to act on their behalf in business transactions (Shean 2000). It seems that everyone’s life is an open book to everyone else. This allows others to steal data, obtain fraudulent identification or credit cards and use these instruments as

if they were the person being impersonated. The victim is often left with the bill (Singletary 2000). There is a range of crimes involved from unauthorized use of credit cards to creation of a duplicate identity. The need for State and Federal legislation is critical, but laws are slow to come. A law passed in 1998 places the burden of clearing one's name on the victim (Shean 2000). One of the sources of credit information stems from banks selling credit information to anyone for a fee. While this may have occurred in the past, the Internet allows individualized instead of aggregate information to be obtained and sold. New laws are currently being written to reduce the impact of this problem, but much of the damage has already been done. Since computers transfer data at nanosecond speed, current laws will probably protect future users much better than current users. Identity theft has even reached members of the United States Congress. Senator Dick Durbin D-Illinois learned this year (2000) that his identity had been stolen and used to charge thousands of dollars of merchandise in Denver, Colorado (Shean 2000).

Even more questionable is the Internet's ability to gather information about consumers without their explicit knowledge or permission. This is accomplished through tiny files called cookies. Originally used for marketing research, cookies are now used to profile individuals often collecting private information covertly. This data is being sold for money, accounting for much of the "junk e-mail" Internet users receive (Kranhold and Moss 2000). Only recently has Microsoft included cookie detection software in its array of products (Martinez 2000). Thus, user privacy is being constantly assaulted by overt

techniques (outright collection and selling of data) and covert techniques (cookies). The combination of the privacy threats provides another compelling reason to at least question just who is in charge of the Internet or at the most delay participation in Internet activities until some of these issues are resolved.

DOMAIN NAMES

A less well publicized, but equally important issue concerns Internet domain names. As the Internet continues to grow, it is experiencing what can easily be called growing pains. The domain name issue concerns a practice called “cybersquatting”. This is the abusive registration of domain names by people acting in bad faith in order to either mislead consumers or extort payments from rightful owners (Walker 2000). This means that your own name may not be yours on the Internet. Someone can register your name in a domain and hold it for ransom should you ever want to do business on the Internet.

Domain names are important because they are part of the Internet address and to have a site, one must have an address. Internet addresses are composed of two parts, a top level part and a second level. Originally there were six top-level domains:

TABLE 1
INTERNET DOMAIN NAME EXTENSIONS

DOMAIN NAME EXTENSION	USE ON THE INTERNET
.org	Business non profit
.gov	Government use
.com	Business for profit
.net	Network use
.edu	Education
.mil	Military use

It is the management of these domains that presents problems for both businesses and individual consumers (Walker 2000).

In 1985 when the three character file extensions were created, the Defense Department formally assigned management of domain names and their registration to SRI International (a private company). By 1992 the National Science Foundation (NSF) was the primary fund contributor to the Internet and assigned the domain name management task to Network Solutions Inc (NSI) (Walker 2000). NSI was criticized for its poor handling of domain name disputes. This criticism eventually culminated in the formation of yet another agency named Internet Committee for the Assignment of Names and Numbers (ICANN) to manage domain names. ICANN handled disputes better, but the basic problem with domain names remains.

Currently domain names are issued on a first come first served basis. No one ever expected someone other than the rightful owner to register a domain name (Walker 2000). However, this is exactly what happened. Anyone could and still can register anyone else's name on the Internet. This includes trademark names and logos such as COKE® or DELTA®, as well as individual names. A law was passed to make this practice illegal in late 1999, but legal interpretations are provided by the legal system, which has a backlog of cases to hear (Rosenoer 1996; Zittrain 1999). Currently, most of the .com names are registered creating a need for additional designations. As the Internet continues to grow, there is still no way to ensure that domain names are being registered only by authorized and/or rightful owners. This issue affects not only business, but individual consumers as well. Rosa Parks, a nationally known figure for the last 40 years just this year recovered rights to her domain name from cybersquatters who had planned to auction it for money. These real life examples suggest that names and even trademarks are not protected on the Internet. Such an issue can influence trust of the Internet and indirectly affect intent to purchase via the Internet.

In summary, the above discussions of Internet use document several reasons why consumers might mistrust the Internet and WWW. It also builds a solid case as to the specific areas that might preclude Internet and WWW use, based upon practices that are borderline ethical and legal. Consumers have a choice. Should they become victims of various Internet wrongdoings, or wait until these issues are resolved before using the Internet and WWW. Morgan and Hunt (1994) say that anything that affects trust also affects commitment. Other

relevant literature suggests that trust and commitment affect intent to purchase (Garbarino and Johnson 1999). The next section, which concerns consumer behavior, is the last issue needed to develop hypotheses for this research.

CONSUMER BEHAVIOR AND THE INTERNET

Individual consumers apparently receive mixed messages about the Internet. On the one hand, the Federal Government is seeking to bridge the “digital divide” by promising federal assistance to those who don’t have access to Internet technologies. Business in general is attempting to encourage consumers to use the Internet for more than just information gathering and the Internet is praised for new and creative ways to improve the quality of life. Conversely, a significant amount of what is seen, read, or heard about the Internet has a negative orientation.

To begin with, consumers are expected to exercise more options over the telecommunications connectivity that grants access to the Internet (Weingarten and Stuck 1999). Plain old telephone service (POTS) has traditionally been a “one size fits all” service based solely on price. Since telecommunications affects both Internet access and consumer involvement, it will also affect consumer intent to purchase as described earlier. In essence consumers will be able to individualize their telecommunications connectivity from multiple product sets for future access. Consumers are willing to pay more to receive more from the service providers (Weingarten and Stuck 1999).

In terms of the involvement construct, recent studies show that the Internet can be addictive (Nash 1997). Internet addiction has been classified as a behavior

addiction similar to pathological gambling. The addiction begins as exciting adventures that are more appealing than real life. It is as if the involvement state is maintained continuously instead of temporarily. Continuous involvement states are not the goal of electronic commerce. This does show, however, that a certain percentage of the population does reach a state of "involvement" (Nash 1997).

Whether or not this can be transferred to electronic commerce is the primary issue facing business leaders.

Advertising banners, which affect the involvement construct, have been empirically tested and proved to work (Rich, 1997). Consumers remember banners (30%), and brand awareness increased 12-200% (Rich 1997). A more substantial finding was that intent to purchase via the Internet increased as a result of ad banners (Rich 1997). This suggests that intent to purchase is positively related to ad banners which themselves are part of the overall Internet involvement experience . It further suggests that positive Internet experiences will increase consumer intent to purchase via the Internet.

Other consumer responses to the Internet and electronic commerce, however, are less promising. Consumers seem to have abandoned Internet electronic commerce in several industries after having investigated those methods. One such industry is the airline ticket industry (McDonald 2000). Priceline.com is in the process of shutting down along with several other dot.com companies. In fact, those numerous dot.com companies have cut 4800 job in the month of August 2000, preceded by 4200 jobs in July, and 2200 jobs in June 2000 (Jessler 2000). Reasons cited for the cuts include decreased profitability, and cost

cutting. Thus, the trend of consumer dissatisfaction about some aspect of electronic commerce has already begun. Some have described booking airline tickets as a painful process (McDonald 2000). This indicates problems with the overall involvement experience and suggests that consumer involvement has an effect on intent to purchase via the Internet.

In summary, individual consumers have tried various types of electronic commerce but have not remained electronic customers as originally hoped. The technology provides everything physically needed for electronic commerce. Since consumers are slow to adopt this new shopping method, one can assume that a necessary ingredient is missing. The literature suggests that involvement, commitment, and trust are necessary antecedents for intent to purchase via the Internet. It appears that some or all of these ingredients may currently be lacking. Identifying what is absent, and to what degree it is absent, will not only help bridge what is called the "digital divide", but it will also improve electronic commerce.

COMMITMENT

Relationship commitment, the first construct, is the desire of an exchange partner to exhibit maximum effort towards maintaining a relationship with another exchange partner. This means that the partner believes that an on-going relationship is important enough that s/he is willing to work at it indefinitely (Morgan and Hunt 1994). There are other definitions of relationship commitment, however.

In the context of the Internet and consumer behavior (i.e. the propensity for the consumer to purchase a good or service via the Internet and WWW), there is a form of relationship commitment exhibited each time a person goes to the WWW. The vendor WWW site sets a small file called a cookie to learn the preference of each logon identification user. These sites additionally capture detailed information on each user based upon the sequence of mouse clicks while navigating the Internet and WWW. While consumers are not normally given a choice to refuse this collection of data, the Internet is working at maintaining a relationship by tailoring Internet and WWW use for each logon identification based on what it has collected as being their preference of sites to visit. Hoffman and Novak (1997) note a disparity between Internet commitment, as described herein, and consumer commitment. Because commitment and trust are intertwined, both are needed for successful relationship marketing (Morgan and Hunt 1994). Thus, the Internet and WWW's relationship marketing efforts are not complete unless trust is also captured. Although some degree of commitment is present in both the consumer and the Internet, trust may be lagging on the part of the consumer. Trust is critical and consumers also believe that they should receive something in return for information given up (Sweat 2000).

Relationship commitment can also be viewed as being critical to consumer and buyer behavior (Morgan and Hunt 1994). The process through which consumers become loyal to specific brands involves a degree of commitment rather than simply repeat purchases. Brand loyalty is similar to the concept of relationship commitment from attitudes on repurchase decisions in prior relational

exchanges. Thus, commitment can be viewed as parties identifying commitment among exchange partners as being the key to achieving valuable outcomes for themselves (Morgan and Hunt 1994). In the context of the Internet, the consumer is looking for a commitment from every Internet vendor they might do business with just as they would a non-Internet transaction. The vendor is looking for a marketing relationship with the consumer, but may not necessarily be interested in either commitment or trust because the Internet through “cookies” establishes a commitment, and trust is less important from the vendor point of view (Hoffman and Novak 1997).

However, the role of the consumer is being transformed from that of a passive buyer to an active participant in the goods a company produces. Thanks to the Internet, consumers can engage in active dialog with manufacturers that enables them to participate in the development of products instead of companies manufacturing products without prior knowledge of consumer needs and wants. (Prahalad et al. 2000). This process puts the consumer, rather than the company, at the center of the production equation which conforms to the marketing concept. Thus, it appears that the marketing concept (Keith 1961; Houston 1984) and relationship marketing (Morgan and Hunt 1994) apply to the Internet and WWW setting.

TRUST

Trust, the second construct, exists when one party has confidence in an exchange partner’s reliability and integrity (Morgan and Hunt 1994). It can also be seen as a willingness to rely on an exchange partner in whom one has

confidence. The primary term is confidence. Confidence is the belief that the exchange partner is reliable with high levels of integrity commonly associated with qualities such as fair, competent, honest, consistent, and helpful. It is more difficult to attribute these qualities to the Internet. Instead Internet trust or mistrust from a consumer behavior perspective deals with the presence or lack of information privacy and the ability to create anonymous discrete exchange transactions (Hoffman and Novak 1997).

Trust has been widely studied in social exchange literature. Trust is deemed the basic ingredient for brand loyalty (Oliver 2000) and it has also been viewed as central to relationships in industrial marketing (Morgan and Hunt 1994). Thus, trust is essential for most, if not all, long term relational exchanges. The Internet and WWW are channels of relational exchange and are, therefore, subject to the requirements of relationship commitment and trust. Even though the Internet is the exchange channel, it is the firm that must be trusted. Users know that they cannot buy from the channel in this case, they must buy from the firm and the channel becomes a facilitator of the transaction. Because trust influences relationship commitment (Morgan and Hunt 1994), it appears reasonable that both commitment and trust should be considered when discussing relationship exchanges that involve the Internet and WWW.

There are five precursors of relationship commitment and trust, which include relationship termination costs, relationship benefits, shared values, communication, and opportunistic behavior (Morgan and Hunt 1994).

Relationship termination costs are incurred whenever a relationship ends. They

are always the expected losses that lead to an ongoing relationship being viewed as being important, which generates some form of commitment. Because it is the total cost that produces commitment, the presence of uncertainty does not necessarily eliminate that commitment.

In terms of relationship benefits, consumers seek relationship exchanges that achieve desirable outcomes. If they receive superior benefits from an exchange partner relative to other options, their commitment to the relationship will increase (Morgan and Hunt 1994). The Internet and WWW minimize the issues associated with termination costs (one can simply go elsewhere), but relationship benefits to the consumer are improved upon each time the Internet and WWW are accessed. Thus, it appears that parts of the Morgan and Hunt relationship commitment and trust model apply to Internet transactions that are primarily concerned with consumer purchasing behavior.

Shared values have also been linked to commitment and trust. Unfortunately, the Internet and WWW are not human and can not have values in a human sense. However, consumers do have values that they bring to each exchange transaction. This is the first major obstacle that must be overcome in developing trust on the Internet and WWW. Since the Internet and WWW do not have values, the product vendors must attempt to make the consumers believe that the vendors have values. It seems intuitive that those who perform this best will have the greatest success in what is known as the cyber-market space.

Communications is a major precursor of trust (Morgan and Hunt 1994). It can be defined as the sharing of meaningful and timely information both formally

and informally. In an Internet setting consumers share information by specific inputs or by mouse clicks. The Internet presents information in either data (text), video (graphics, motion), or sound (voice, music). Thus, one of the most basic features of the Internet comes from its unique ability to communicate (Sheth and Sisodia 1999). It is unique because of its interactive multimedia capabilities that give consumers the ability to actually experience the information instead of just reading, hearing, or watching it (Tavassoli 1998).

Opportunistic behavior is defined as “self interest seeking with guile” (Morgan and Hunt 1994). This entails the possible violation of some explicit or implicit premise about an exchange partner’s appropriate role behavior (Morgan and Hunt 1994). If the vendor using the Internet and WWW engages in opportunistic behavior, then it will lessen the level of trust. Decreased trust, in turn, affects the level of commitment. This is the second major obstacle that must be overcome to develop trust and commitment on the Internet and WWW. This concept gives meaning to Hoffman and Novak’s (1997) finding that some consumers perceive a lack of control (opportunistic behavior) of their information privacy on the Internet and WWW. Consumers also lack control over their ability to engage in anonymous discrete transactions (e.g. decreased commitment and trust). All of this suggests that commitment and trust may affect consumer behavior similarly in Internet and WWW transactions. This additionally suggests that developing commitment and trust may actually be more difficult on the Internet and WWW. Finally, a lack of trust and commitment might significantly reduce the usage of the Internet and WWW by consumers.

INVOLVEMENT

Researchers have historically proposed numerous complex theories concerning consumer behavior. Many state that consumers actively search for and use information to make informed decisions (Zaichkowsky 1985). The literature suggests that consumers can be involved with advertisements, products, or purchase decisions which includes the intent to purchase. The construct for this is called "involvement." Involvement has been measured many times in the traditional business setting, but not in the electronic commerce setting.

Involvement is defined in terms of relevance to the consumer and motivating the consumer to respond to something. It is a person's perceived relevance of some object based on inherent needs, values, and interests (Zaichkowsky 1985). This definition can also be applied to Internet and WWW settings for purchase or intent to purchase decisions (Zaichkowsky 1985; Rosenberg, Peters, and Wedel 1997; Wright and Lynch 1995; Mano and Oliver 1993; Macinnis and Park 1991). Involvement is a function of endurance for a need derived from a value in the individual hierarchy of needs (Zaichkowsky 1985). This relevance is significant in electronic commerce because millions of consumers cited lack of relevance to their lives as a reason for not participating in Internet and WWW technologies (Reed 2000). Thus, involvement is part of the overall experience of Internet and WWW usage.

Involvement has been characterized by such terms as needs, relevance, motivation, value, and a general level of interest (Zaichkowsky 1985). It is reasonable to conclude that consumers require involvement when using the

Internet and WWW for electronic commerce. At the very minimum, it takes a certain amount of training and skill to use the computer technologies and to navigate the WWW. This often includes formal training and a reasonable knowledge of computer and modem use. This level of involvement is usually augmented by spending dollars to purchase various technology instruments. This may come from purchasing a personal computer system with the necessary peripherals, such as a modem, and selecting a service provider such as America On-Line or CompuServe. Thus, it is easy to see using the Internet and WWW as a high involvement activity. This suggests that the higher the level of consumer involvement with the Internet and WWW, the greater the likelihood of intent to purchase and subsequent purchase behavior using e-commerce. In this research involvement will be measured as one of the mitigating variables for intent to purchase behavior as depicted in Appendix B.

INTENT TO PURCHASE

The fourth construct, intent to purchase, has been discussed by numerous authors (Garbarino and Johnson 1999; Grewal, Monroe, and Krishnan 1998; Zeithmal, Berry, and Parasuraman 1996). Zeithmal, Berry and Parasuraman (1996) provide the most comprehensive discussion of the need to measure the future intentions of consumers. The authors believe that price and perceptions of quality affect future intent to purchase. Grewal, Monroe, and Krishnan (1998) examined price comparisons on behavioral intentions and Garbarino and Johnson (1999) considered the roles of satisfaction, commitment, and trust as they related to purchase intent. Electronic commerce (e-commerce) adds another dimension

to customer intent to purchase through Internet access and WWW use. Now that e-commerce can be conducted through the Internet, it is important to understand how the constructs of commitment, trust, and involvement affect the intent to purchase construct.

SYNTHESIS OF ARGUMENTS

The literature confirms that the Internet has existed for over thirty years, although widespread knowledge has been limited to the last decade. In the early days, the communications and information gathering/sharing functions were the Internet's primary use. The potential for electronic commerce did not begin until after other functions were perfected. Electronic mail (e-mail), for instance, has been used among colleges and universities and the military for several decades. The advent of electronic commerce, however, introduced other issues that needed to be resolved for the Internet to grow. Commitment, trust, and involvement have been identified as issues that need to be resolved to enhance individual level electronic commerce. Individual level consumer electronic commerce differs significantly from business-to-business electronic commerce. Businesses are not seeking anonymous, discrete transactions, as are individual consumers. The last thing a business would want is to be anonymous. Consumers, on the other hand, seek anonymous and discrete transactions (Hoffman and Novak 1996).

The Federal Government has identified the digital divide as a problem area in telecommunications technology. Any such divide also affects electronic commerce. Even though the technology has improved with time, the consumers still have not rushed to use the Internet for shopping. Even those that use the

communications and information gathering functions of the Internet are avoiding electronic commerce. Thus, there is something that precludes electronic commerce even after one has access.

Because of widespread negative publicity, many things seen, heard, or read about the Internet discusses unresolved issues or uses of the technology that were never intended. Consumers learn how the Internet can be misused. The dark side of the entire computing/telecommunications industry has been discussed earlier and has an effect on trust and commitment. Viruses show an unusual vulnerability of the technology to programs written by people attempting to undo the work of others. Since all viruses currently are man made, there appear to be a lot of people working against the Internet.

Privacy concerns probably have the greatest impact on trust. It has been shown that the Internet does not allow anonymous and discrete transactions (Hoffman and Novak 1996). Transactions are a great part of marketing and electronic commerce. Most people do not wear nametags when shopping in stores. However, on the Internet one not only wears a nametag, but the net looks over everyone's shoulder and records everything that is browsed. To make matters worse, the information is aggregated and bought and sold for profit. Once made aware of this, consumers feel that their privacy has been invaded. This behavior affects commitment and trust, which the literature says is causing consumer level electronic purchasing to stall. People simply are hesitant to put their credit card on the net for someone else use improperly. Web merchant's promises of customization on the Internet have actually been manifested by theft

of identity and credit card fraud. The domain name issue adds another equally undesirable dimension to trust and commitment on the Internet. Individual level consumers are concerned about the domain names issue because companies have emerged whose sole business is to buy and sell domain names. Greatdomain.com is an example of such a company and it clearly demonstrates what Sheth and Sisodia (1999) were speaking of when they discussed the re-intermediation of Internet middle men companies unique to Internet activities. Now one of the basic descriptors of one's identity no longer has guaranteed ownership. It adds another dimension of mistrust at the individual consumer level.

Thus far, most of the discussion shows the impact of Internet issues on commitment and trust. However, there is one unresolved issue that has the ability to affect commitment, trust, and involvement. This is the widespread and often unauthorized use of "cookies" to collect consumer information. Recall that cookies are tiny files that Web sites use to track visits and store information on visitors' hard drives. This collected information is often unknown to the consumer and it is a record of everything viewed at the site along with the exact time spent viewing it. The information collected during the browsing session is sold by Web merchants to advertisers and other parties in order to generate additional revenue (Kelly and Rowland 2000).

Merchants reduce commitment and trust by collecting information, through cookies, and then selling that information without the Internet consumer's knowledge. The anonymous discrete transaction sought by consumers is violated. Cookies affect involvement through the number of cookies set. Up to twenty-five

cookies might be set on one's hard drive going into a Web site and exiting the same site. Yes, cookies are set upon entry and exit of almost every Web site. Setting that many cookies takes time, which means that the "hour glass" (busy signal) stays present for a variable amount of time. This erodes the overall Internet experience leading to sub-optimal involvement or no experience at all. Government control, regulation, or outlawing of cookies might improve e-commerce significantly. Without regulation, cookies become the trade off Web merchants make to collect information about customers at the possible cost of losing that same customer forever. If the merchants didn't sell the information, they could use the standard explanation that cookies allow them to customize the web shopping experience for each customer.

In summary, there are numerous reasons for individual consumers to avoid participating in e-commerce. It may only require time for some of the issues to be resolved and consumers to feel safe on the Internet. Businesses that create web sites prematurely may actually be committing business suicide. Thus, knowing exactly what makes consumers satisfied remains valuable information.

STATEMENT OF HYPOTHESES

Looking at a broad based review of the literature on relationship marketing, Morgan and Hunt (1994) and Garbarino and Johnson (1999) theorize that trust and commitment are key mediating variables in successful relational exchanges. Hoffman and Novak (1996) and Zaichkowsky (1985) suggest that the overall involvement experience should be considered as a key variable in relationship exchanges. One of the proposed ideas about relationship exchanges

is that all transactions fit on a continuum of customer interaction ranging from transactional on one end to relational on the other end (Garbarino and Johnson 1999). The central idea emanating from this stream of literature is that commitment and trust are features that best characterize customers involved in a relationship scenario. Customers manifest this involvement in repeat transactions (Garbarino and Johnson 1999). In an Internet environment it would be customers purchasing products via the Internet and more specifically via the WorldWideWeb. The existence of tiny files placed in the customer's computer called cookies represents the vendor's best effort at establishing a relationship through the Internet and the WWW. Vendors themselves say this by explaining the purpose of cookies. Cookies are supposed to create a profile of user preferences whenever they visit a Web site to facilitate more efficient service during repeat visits. However, cookies are often set automatically without user knowledge or approval. Cookies are also shared with other entities by Web sites without consumer interaction or approval. Thus, the way cookies are being utilized is not enhancing relationships. Now that users are gradually learning about cookies, their commitment and trust appear to be negatively affected. This is only one example of a specific action on the Web that has been identified as affecting consumer commitment and trust. On the basis of these ideas, it is hypothesized that commitment, trust and involvement are focal constructs in the latent structure model of consumer intent to purchase behaviors using the Internet and WWW. Thus these are antecedents to actual Internet and WWW use.

Appendix B shows the hypothesized model of Internet Access and WWW use as it is influenced by commitment, trust and involvement which ultimately affect the intent to purchase products. These hypotheses seek to determine if forces other than access influence actual Internet usage. If this is true, then government needs to refocus its strategies and consider other issues that affect Internet access and WWW use.

Recall that relationship commitment has been linked to exchange transactions which is at the heart of marketing and intent to purchase behavior (Morgan and Hunt 1994; Garbarino and Johnson 1999). In terms of the Internet, some level of commitment is exhibited every time a person uses the Internet and WWW. In an effort to tailor the service to a given consumer, merchants collect various types of information through widespread use of cookies. However, Hoffman and Novak (1997) note a disparity between consumer commitment and merchant commitment. Consumers are looking for anonymous and discrete transactions, which are basically not to divulge any information to the merchant. Merchants on the other hand are looking for information about the consumer. Looking at Appendix B for commitment alone and intent to purchase (Garbarino and Johnson 1999), these two opposing interests become the basis for the first hypothesis:

H₁ – A higher level of perceived Internet commitment by the consumer will result in higher use of the Internet and WWW in terms of intent to purchase products.

Trust has also been linked to exchange transactions and purchase behavior (Morgan and Hunt 1994; Garbarino and Johnson 1999). In terms of the Internet

and WWW trust concerns one's ability to maintain privacy on the Internet and WWW by conducting anonymous and discrete transactions (Hoffman and Novak 1997). A case has been made that the Internet and WWW do not allow for anonymous/discrete transactions and often invade consumer privacy threatening the confidence in the reliability and integrity of the exchange partner. Consumers prefer anonymous/discrete transactions, while merchants desire to profit from selling collected information to other parties. Looking at Appendix B for trust alone (Garbarino and Johnson 1999 ; Doney and Cannon 1997) and intent to purchase, this conflict of interest becomes the basis for the second hypothesis:

H₂ – A higher level of trust in the Internet by consumers results in higher use of the Internet and WWW in terms of intent to purchase products.

Involvement concerns the overall experience associated with using the Internet and WWW for purchasing products. It is a function of one's skill in computer use, the technology of one's equipment, the quality of the Internet Service Provider (ISP), and the actual structure of the site to be visited to include the number of cookies set upon entry and exit from the site. A deviation at any point can result in less than optimal experience. Thus, if one looks at Appendix B for involvement alone (Hoffman and Novak 1996), this becomes the basis for the next hypothesis:

H₃ – A higher state of involvement by consumers results in increased use of the Internet and WWW in terms of intent to purchase products .

Irving (1996) reports that the best indicators of Internet access and WWW use center around demographic characteristics such as age, education, income,

and ethnic origin. The study by Gilmore and Evans (1999) and Reid (2000), state that other variables affect whether consumers will access the Internet or use the WWW such as trust, relevance to life, mistrust, fear, privacy, and control (Novak and Hoffman 1998). This indicates that there may be more accurate predictors of Internet access and WWW use than income, education, ethnic membership, and age.

One critical issue in terms of e-commerce, and more specifically consumer future intention to purchase over the Internet and WWW, is which evaluative construct is the most predictive. Ziethaml, Perry, and Parasuraman (1996) discuss the literature in this area and emphasize the necessity of measuring future behavioral intentions of consumers (Garbarino and Johnson 1999). Within the context of this research, future intentions entail commitment, trust, and Involvement as described earlier. Irving (1995) felt that Internet access and WWW use were strictly a function of income, age, gender, and education, which suggest the following hypotheses:

H₄ – The concepts of commitment, trust, and involvement are more accurate predictors than Internet access or WWW use in terms of intent to purchase products.

Based on the discussions above and the work of Ervin and Gilmore (1999), it is possible to make arguments concerning the “digital divide.” The “digital divide” concerns Internet access and WWW use over time. The fact that the gap has widened between the “haves” and the “have-nots” suggests that other factors play a role in the digital divide. This becomes the basis for the next two hypotheses as follows:

H₅ – Ethnic group membership is not a significant predictor of intent to purchase products after adjusting for the covariates of income and education . This test Internet access and WWW use against the construct of intent to purchase from the hypothesized model (using ANCOVA).

H₆ – Minority group concept of commitment, trust, and involvement are more accurate predictors of Internet access and WWW use than income and education in terms of intent to purchase from the hypothesized model. This test the specific component of minority group membership of Internet access and WWW use against the construct of intent to purchase from the hypothesized model using ANCOVA.

CHAPTER III

RESEARCH DESIGN AND

METHODOLOGY

INTRODUCTION

Using the survey in Appendix C, this research tests whether a relationship exists between the constructs of commitment, trust, and involvement and the construct intent to purchase goods and services over the Internet and WWW. It will show the nature of the relationships and unite the empirical evaluation with the literature review previously discussed.

RESTATEMENT OF HYPOTHESES

The following hypotheses, which are tested by this research are restated here:

H1 - A higher level of perceived Internet commitment by consumers will result in increased use of the Internet and WWW in terms of intent to purchase goods and services. Looking at the hypothesized model, this hypothesis tests the relationship between commitment and intent to purchase (using Structural Equation Methods).

H2 - A higher level of perceived Internet trust by consumers will result in increased use of the Internet and WWW in terms of intent to purchase goods and services. Looking at the hypothesized model, this hypothesis tests the relationship between trust and intent to purchase (using Structural Equation Methods).

H3 - A higher level of achieved Internet involvement by consumers will result in increased use of the Internet and WWW. Looking at the hypothesized model this hypothesis tests the relationship between involvement and intent to purchase goods and services(using Structural Equation Methods).

H4 – The concepts of commitment, trust, and involvement are more accurate predictors than Internet access or WWW use in terms of intent to purchase products

H5- Ethnic group membership is not a significant predictor of intent to purchase products after adjusting for the covariates of income and education . This test Internet access and WWW use against the construct of intent to purchase from the hypothesized model (using ANCOVA).

H6 – Minority group concept of commitment, trust, and involvement are more accurate predictors of Internet access and WWW use than income and education in terms of intent to purchase from the hypothesized model. This test the specific component of minority group membership of Internet access and WWW use against the construct of intent to purchase from the hypothesized model (using ANCOVA).

The survey instrument in Appendix C is used to test the above hypotheses. Table 4 shows which constructs of the hypothesized model relate to the questions in Appendix C.

TABLE 2
DATA COLLECTION QUESTIONS

QUESTIONS ON SURVEY	SECTION OF MODEL QUESTIONS RELATE TO
1-7	TRUST
8-11	COMMITMENT
12-14	INTENT TO PURCHASE
15-17	INVOLVEMENT
18-22	INTERNET/WWW ACCESS
23-28	DEMOGRAPHIC INFORMATION

It is important to understand that none of the constructs have previously been tested in an Internet and WWW environment. Commitment, trust, and involvement have been tested (Morgan and Hunt 1994; Garbarino and Johnson 1999; Zaichkowsky 1985), but in environments other than the Internet and WWW. Thus, this study is unique and differs from previous studies about the constructs of commitment, trust, and involvement.

DESCRIPTION OF SAMPLE AND SAMPLE SIZE

This research samples both Internet and non-Internet users. Internet users are sampled through use of the telephone survey instrument administered by a local marketing research firm. Non-Internet users were also contacted by phone by the same commercial market research firm. The greater Tidewater area was used to include the cities of Norfolk, Virginia Beach, Portsmouth, Hampton, Newport News, Williamsburg, and Suffolk, Virginia. Respondents were at least 18 years of age or older. Eighteen was selected because it is the first age at which youth can vote in the United States. Income levels were collected, as well as educational attainment. Ethnic categories were taken from the Census bureau

groupings which accurately captured the various racial categories in the United States (Irving 1997). These categories are White non-Hispanic, Black non-Hispanic, Other non-Hispanic, and Hispanic. Finally, gender information was collected. Various combinations of gender, income, education, and ethnic origin became covariates in the Analysis of Covariance (ANCOVA)

Recommended sample size varies according to the statistical tool that will be employed (Levin and David 1983; Groeber and Patrick 1987; Tabachnik and Fidell 1996). Several multivariate tools are used to analyze the data. Each of these has a minimum recommended sample size. The goal is to obtain 250 usable responses to the survey instrument in Appendix C. For regression analysis the recommended minimum sample size is $50 + 8p$ (or $8 * 5 = 40$) where p is the number of independent variables. This would be $50 + 40$ or 90 as a minimum sample size (Tabachnik and Fidell 1996). For factor analysis 300 is a good rule of thumb (Tabachnik and Fidell 1996) and for confirmatory factor analysis a sample size of 200 is sufficient for small to medium models. ANOVA/ANCOVA sample sizes are acceptable within the 200-300 sample size. Thus 250 usable responses, combined from both Internet and non-Internet samples, meets the size requirements for the multivariate techniques to be employed.

DATA COLLECTION PLAN

Data were collected using Appendix C from telephone surveys in an effort to reach those who do not have Internet access. The goal was to obtain all (250) of the total responses from telephone respondents. A usable response is one where all of the questions are answered including demographic data and the age question

reflecting at least 18 years of age. A city designator confirms this is the represented city within the greater Tidewater area as described earlier. The telephone number serves as a city and state designator in the telephone survey. Data collected from other locations will be saved and used for follow-on studies.

The entire data set was collected by telephone surveys. Once again, the goal was to obtain (250) of the sample from that sampling source. A major requirement for the usable telephone response is that the respondent be at least 18 years of age. This necessitates asking the age question as a filter early in the survey. There are 28 questions in the survey, all with specific pre-formatted answers. Some are Likert type scales while others are semantic differentials. It is anticipated that the survey will take 10-15 minutes to complete. Based on that estimation, a total of 50 surveys should be completed each week until the required number is reached. All of the telephone surveys should be completed within 3 months. The surveyor assumed that the respondent was providing honest and accurate information. The respondents were asked to spare 15 minutes at the beginning of the survey to avoid any misunderstandings.

SCALE DISCUSSION

The constructs of commitment, trust, and involvement, leading to intent to purchase have been previously measured by Rosenberg, Peters, and Wedel (1997), Morgan and Hunt (1994), and Garbarino and Johnson (1999) and the respective scales have been validated. However, they have not been measured in an Internet setting.

This research differs from previous studies by applying the constructs that have been tested and validated in non-Internet settings to the Internet itself. By doing this, it will confirm that Internet commerce is governed by the same marketing theories and law-like generalizations as non-Internet commerce. The following chart summarizes the coefficient alphas for the reliability of these four constructs:

TABLE 3
CONSTRUCTS ASSOCIATED WITH INTERNET ACCESS AND WEB USE

CONSTRUCT	AUTHOR	DATE	COEFFICIENT ALPHA
Commitment	Garbarino and Johnson	1999	.87
Trust	Garbarino and Johnson	1999	.93
Involvement	Rosenberg, Peters, and Wedel	1997	.66
Future Intention to Purchase Products	Garbarino and Johnson	1999	.75

This study utilizes four scales as described earlier. They are:

- a. Commitment: Garbarino and Johnson (1999)—a four item Likert scale with scoring from 1-5
- b. Trust: Garbarino and Johnson (1999) – a seven item Likert scale with scoring from 1-5
- c. Involvement: Rosenberg, Peters, and Wedel (1997) – a three item, seven

point rating semantic differential scale with scoring 1-7

d. Future purchase intentions: Garbarino and Johnson (1999)– a three item Likert scale with scoring 1-5

The appropriateness of the survey questions was confirmed through focus group discussions, along with collection of demographic information (see Appendix C). The focus groups helped confirm whether these questions capture the information sought by this research. The literature review helps formulate hypotheses and the data analysis will confirm the measurement of commitment, trust, involvement, and their impact on intent to purchase. The study also gathers behavioral data on WWW usage, ownership of computers or other instruments of access (digital phone, palm pilots, personal data assistants, etc), access, and demographic information that permits a comprehensive analysis of the data.

FOCUS GROUP

Research methods include conducting a multicultural focus group and 25 in-depth interviews in the greater Tidewater area of Virginia of the United States to determine whether the questions in the previously developed scales capture the issues that this research seeks to measure in a questionnaire. Next, the plan was to conduct a random telephone sample of the local population in an effort to sample consumers with and without access to the Internet and to capture Caucasians, African Americans, Asians, and Hispanics to see if there is a digital divide is based upon ethnic origin.

PROCEDURE FOR DATA ANALYSIS

This research conducts a survey of non-Internet users to ascertain their perceptions of the Internet and WorldWideWeb and their future intention to purchase consumer goods via the Internet. Of primary concern is whether the consumers have any commitment to vendors doing business on the Internet, whether the consumers trust Internet shopping, and whether the consumers are involved with the Internet.

The analysis of the collected data uses multivariate techniques that test the constructs of commitment, trust, and involvement, and intent to purchase as they relate to Internet access and Web use. The analysis employs several multivariate techniques to include:

- 1. Exploratory/Confirmatory Factor Analysis to ensure that the constructs are measured by the survey instrument**
- 2. Testing the model using Structural Equation Model. Assuming adequate model fit, Hypotheses 1-3 will be evaluated using appropriate portions of the model.**
- 3. Analysis of Covariance with income and education as covariates to test hypotheses 5 and 6. This will include a series of tests with intent to purchase as the dependent variable and ethnic group membership as the independent variable. In the second case access is the dependent variable and ethnic group membership is the independent variable.**
- 4. To reflect the regressions for Hypothesis 4, two separate regressions will be conducted testing Internet access and WWW use alone against intent to purchase as the first test. The second regression analysis tests the constructs of**

commitment, trust, and involvement against intent to purchase. The results will be compared.

A proposed hypothesized model is provided in Appendix B. These analytical techniques will be used to test the six hypotheses provided earlier. As the research project progresses, other techniques may be used, as necessary. Scale reliability, as shown by coefficient alpha, and validity will also be tested.

CHAPTER IV

RESULTS OF THE STUDY

DATA COLLECTION – FOCUS GROUPS

Five separate focus groups were surveyed prior to conducting the telephone survey. The ages of the focus group members ranged from 25 to 55 and all of the ethnic groupings designated in Appendix C were represented. A total of 80 respondents answered the survey instrument, and also participated in a 30 minute discussion of the questions. All of the focus group members were graduate students. The primary purpose of the focus group was to determine if the questions asked would provide the type of information sought by this research. Each of the focus groups confirmed that those questions pertaining to commitment, trust, involvement, and intent to purchase were clear and understandable (Churchill 1979).

DATA COLLECTION—TELEPHONE SURVEY

The telephone survey portion of the research was conducted by Analytical Research Associates of Newport News, Va., which is a marketing research firm that specializes in telephone surveys. The firm is experienced in phone surveys for the greater Tidewater area and confirmed that the questions in Appendix C could successfully be employed in a telephone survey environment. Preliminary calls obtained responses to all of the questions including demographic information with little difficulty or explanation. The firm agreed to provide 250 usable responses to the survey instrument in Appendix C for monetary

consideration. The 250 phone responses were obtained and Appendix-E is the telephone script of the survey.

ANALYSIS OF RESULTS

Factor Analysis

Using the data collected, an initial exploratory factor analysis of the 250 responses using SPSS was conducted to see if the factors obtained could be identified with the constructs of intent to purchase, user involvement, commitment, trust, access, and selected demographic information. Entering arguments for the analysis were a sample size of 250 and those survey questions that pertained to the constructs. The demographic information included income, ethnic orientation, gender, age, education, and zip code. The most important demographic information was income, education, and ethnic orientation, but these variables were not included in the factor analysis. Other information collected was incidental and for descriptive purposes only.

The analysis conducted was a principal components factor analysis with a varimax rotation and Kaiser normalization. The Kaiser-Meyer-Olkin measure of sampling adequacy is .885 which is acceptable and the Bartlett's test of sphericity is .000 which is also acceptable. The rotated component matrix showed four factors which were directly related to the hypothesized model. Appendix F is the output of the factor analysis and a review of the scree plot shows that the factors extract most of the commonality in the questions. The factors extracted 69% of the commonality. From the rotated component matrix five variables were calculated that summed the responses to those statements that loaded high on the

factors. These variables were used for regression analysis and analysis of covariance as stated earlier. These variables were named as follows:

1. INTENT --for intent to purchase construct
2. INVOLVE-- for user involvement construct
3. TRUCOM-- for trust construct
4. NETUSE -- for Internet access and WWW use.
5. COMMIT -- for commitment construct

These factors become entering arguments for additional analyses that was described earlier. To summarize, the factor analysis confirmed that the constructs provided in the hypothesized model are accurately captured by the questions in the survey instrument. A reliability analysis for coefficient alpha was conducted on the four marketing constructs and is given below.

Intent to purchase - .88

Consumer involvement - .93

Trust - .70

Commitment - .86

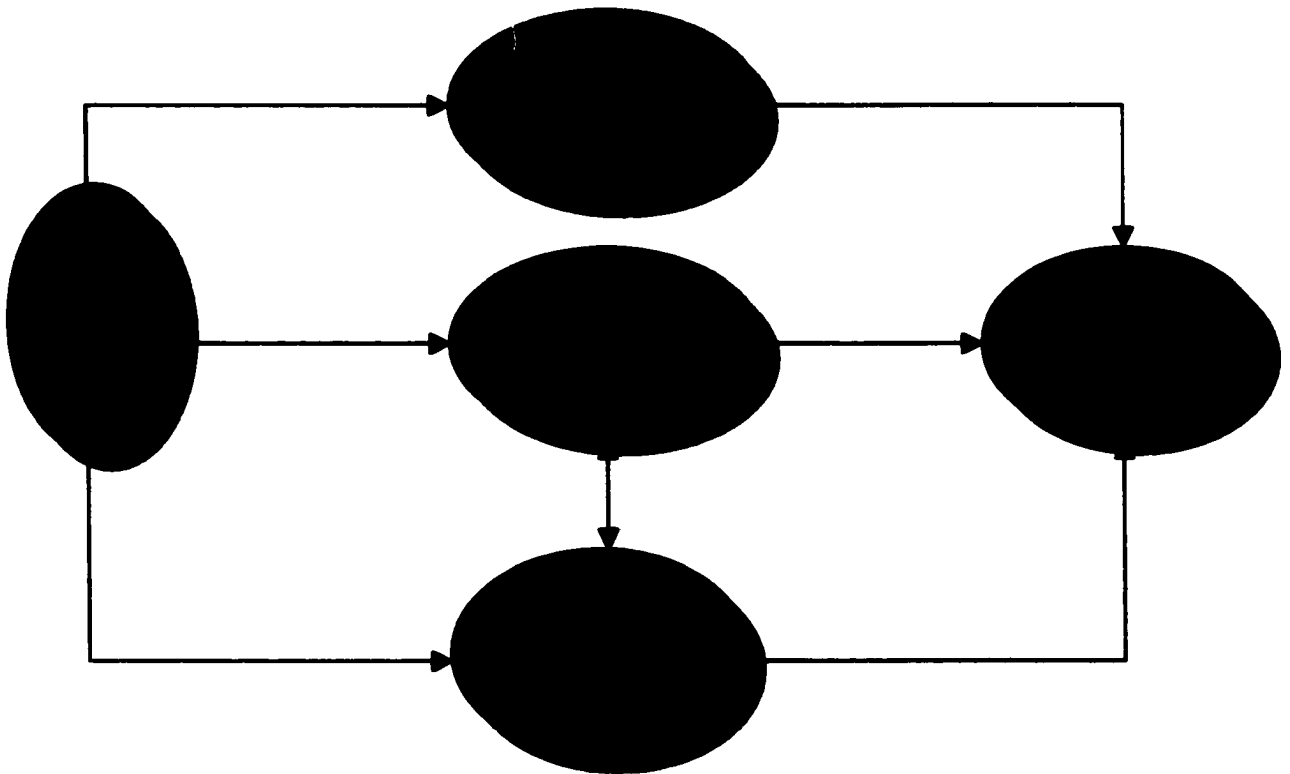
These are acceptable measures of reliability (Peterson 1994 ; Carmines and Zeller 1978).

Structural Equation Model

A confirmatory structural equation model was created and evaluated using AMOS in conjunction with SPSS. The hypothesized model from Appendix B is provided below:

FIGURE 1
HYPOTHESIZED MODEL

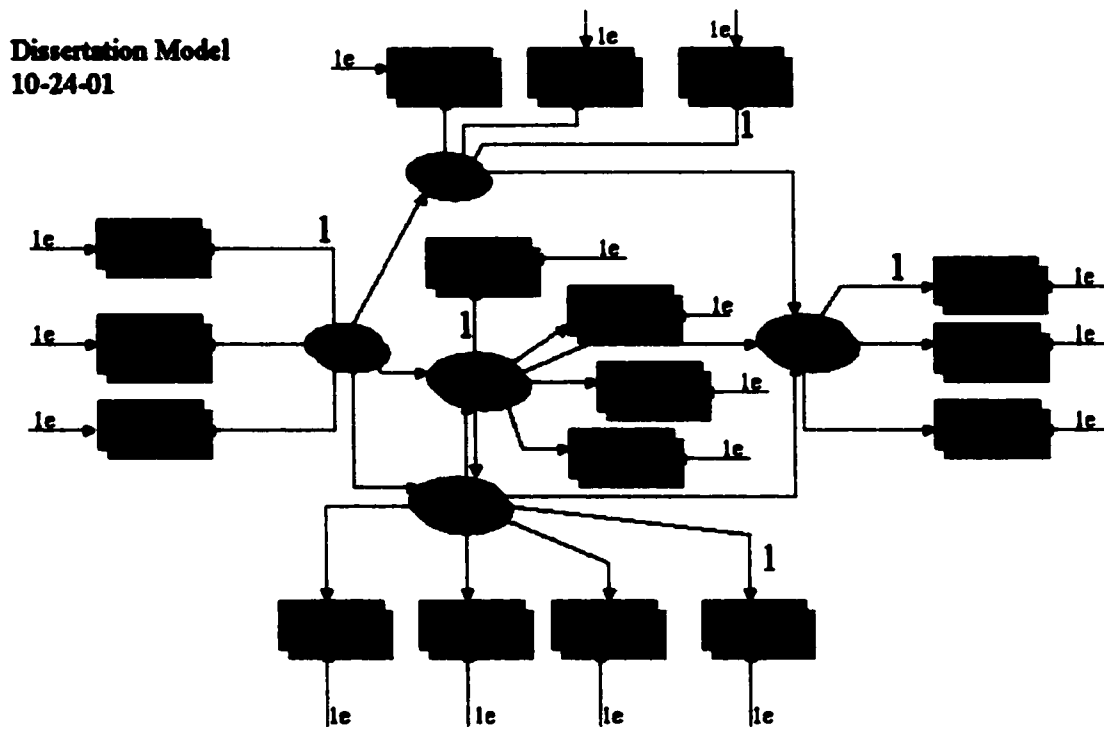
Construct Model of Intent to Purchase via the Internet



The model was expanded for identification in AMOS as shown below and in Appendix G:

FIGURE 2

EXPANDED MODEL FOR SEM



New latent variable names were provided for the expanded model to correspond with the research constructs. The following table shows this relationship:

TABLE 4
LATENT VARIABLE NAMES

LATENT VARIABLE NAME	CONSTRUCT REPRESENTED
INET	Internet Access
EXPER	User Involvement
PRIVACY	Trust
PURCHASE	Intent to Purchase
LONGTERM	Commitment

The structural equation model output is shown in Appendix G, along with the graphic depiction of the model and the regression weights. Since this model is primarily based on theory, a perfect fit would exceed expectations. Several goodness of fit indicators will be explored and an analysis of the regression weights will determine the adequacy of the model.

The Chi Squared statistic was 380.850 with 112 degrees of freedom. The probability level is 0.000 which is a p level less than .05 for hypothesis testing. The null hypothesis for this indicator is that the sample data supports the theoretical model. Since a p less than .05 is present, one could reject the null

hypothesis and state that the sample data does not support the theoretical model. This does not mean that each coefficient that relates a construct to another is not significant as described in the hypothesized model. An analysis of the regression weights shows that the relationships between several of the individual constructs are significant even though the overall model may exhibit imperfect fit. The modification indices provide options for improving the Chi Square and will be discussed after the overall model adequacy is determined. Hair et al. (1998) note that the Chi Square statistic is often too sensitive for sample sizes greater than 200 (in the case of this research the sample was 250). As the sample size increases, the measure has a greater tendency to indicate significant differences for equivalent models. Thus, no assessment of model adequacy will be made from Chi Square.

Several goodness of fit indicators show that the hypothesized model possesses at least a marginally acceptable fit. Excerpts from the structural equation method output in Appendix G are provided in Table 5 below. These are provided along with an explanation of the various meanings and supporting arguments.

TABLE 5
GOODNESS OF FIT INDICATORS

INDICATOR	RESEARCH MODEL	SATURATED MODEL	INDEPENDENCE MODEL
CMIN/DF	3.40		20.293
GFI	.845	1.00	.274
RMSEA	.098		.278
ECVI	1.86	1.23	11.22
AIC	462.85	306	2793.2
CAIC	648.23	997.78	2870.68

Table 5 includes the saturated model representing a perfect fit for the model as well as the independence model in which all observed variables are uncorrelated. As a general rule, the further an indicator is from the independence model, the better the fit. The closer an item is to the saturated model, the better the fit. The CMIN/DF (degrees of freedom) is 3.40 which is adequate when compared to the independence model fit of 20.298. The goodness of fit indicator (GFI) is .845 which can be considered good against the saturated model statistic of 1.00. The GFI is similar to r squared in regression analysis and shows the strength of a relationship. The GFI statistic of .845 represents a marginally acceptable relationship between the constructs in the model as described by Hair et al. (1998).

The RMSEA is .098 and is not as sound as the ideal value of less than .08. However, when viewed against the independence model value of .278, the RMSEA is marginally acceptable. The RMSEA is the average difference per degree of freedom expected to occur in the population, not the sample (Hair et al 1998).

Further support for model adequacy is provided by the statistics for ECVI, AIC, and CAIC. All of these statistics are compared to the independence model statistic and the further away from the independence model they are, the better the fit. The ECVI statistic is 1.859 as compared to independence model statistic of 11.22. ECVI is the goodness-of-fit expected in another sample of the same size. The AIC is 462.85 while the independence model statistic is 2793.81. The CAIC, which corrects for sample size is 648.23 and the independence model shows 3890.68. In this case the saturated model statistic is 997.78, indicating a good model fit for this statistic. In summary, while the fit of the data to the hypothesized model is less than perfect, it is consistent with a marginally acceptable structural equation method model fit as described by Hair et al. (1998) and deemed acceptable for the purposes of this study.

Regression Weights

Appendix G shows the regression weights for the structural equation model.

The weights portray the relationships between the constructs in the model. Table 7 shows excerpts from Appendix G. The relationships between the constructs are be discussed individually. The following table describes this data:

TABLE 6
REGRESSION WEIGHTS

CONSTRUCT	RELATIONSHIP TO	REGRESSION WEIGHTS
Access	Commitment	3.712 ^a
Access	User Involvement	7.870 ^a
Access	Trust	1.063 ^b
Commitment	Trust	0.604 ^a
Trust	Intent to Purchase	-0.282 ^a
Commitment	Intent to Purchase	1.051 ^a
User Involvement	Intent to Purchase	0.029

^a = significant at .05

^b = significant at .10

The regression weight between the constructs access and commitment is positive 3.712 which is significant at the $p=.05$ level. Earlier discussions stated that commitment stood between Internet access (the digital divide dilemma) and consumer intent to purchase goods and services (the marketing dilemma). This means that the greater the amount of access that one has, the more commitment that they exhibit towards Internet technologies.

The regression weight between the constructs access and user involvement is positive 7.870, which is significant at the $p=.05$ level. Since user involvement

concerns the overall user experience in Internet technologies, the greater the access to the technologies, the better the user experience will be. This helps explain the current efforts made by government to ensure that all members of society at least have access to the Internet and its corresponding technologies. It was hypothesized earlier that user involvement stood between access and user intent to purchase goods and services in an Internet environment.

The regression weight between the constructs access and trust is positive 1.063 which is significant at the $p = .10$ level. This means that greater access leads to a higher level of trust, assuming that trust is not violated. Earlier discussions suggested that consumer trust is violated regularly in current Internet environments. This relations helps to substantiate that trust also stands between Internet access and user intent to purchase goods and services.

The regression weight between trust and commitment is positive 0.604 which is significant at the $p = .05$ level. Earlier discussions paired commitment and trust in various marketing environments. The two constructs reinforce each other such that one is seldom found without the other. Thus, it appears that the higher the level of commitment, the higher the level of trust.

The regression weight between trust and intent to purchase is negative 0.282 which is significant at the $p = .05$ level. The negative sign is significant because it shows that those who exhibit high concern for trust (privacy) in Internet environments have a lower intention to purchase goods and services in those environments. The reason is that much of what consumers see and hear about the Internet environments deals with violations of trust. The regression

weight between commitment and intent to purchase is positive 1.051, which is significant at the $p=.05$ level. Literature discussed primarily in this research suggests that commitment is positively related to intent to the purchase construct. This means that the higher the level of commitment to the Internet, and its corresponding technologies, the higher the level of intent to purchase goods and services in that environment.

The regression weight between user involvement and intent to purchase is positive 0.029, which is not significant at the $p=.05$ level. One possible explanation for this is that some respondents did not use the Internet technologies -even if they had access- and therefore, could not respond to the questions about user involvement. This research surveyed both Internet and non-Internet users. The non-Internet users also responded to the questions about commitment, trust, and intent to purchase. Thus, while user involvement required Internet access, commitment and trust in relation to intent to purchase was researched prior to the advent of the Internet. The results of this study are consistent with the intent of this research. Based on the above statistics, the overall model is considered acceptable.

Modification Indices

The modification indices provide guidelines for improving the model fit by showing how much the Chi Square statistic would be reduced by adding additional paths in the model. Adding additional paths in this model reduces Chi Square. If the model and research were purely exploratory, this reduction might be useful. However, the model is based on marketing theory and research

conducted on traditional marketing constructs and then applied to an Internet context. Thus, no changes were made. One of the secondary goals of this research was to respond to Sheth and Sisodia's (1999) call for marketing scholars to develop new theories and lawlike generalizations for the Internet environment. A logical first step in this theory development is to see whether traditional marketing constructs also apply to the Internet environment.

Analysis of Covariance

An analysis of covariance was conducted using the previously described variable INTENT as the dependent variable and the variable for ethnic orientation (race) as the independent variable. The covariates used were the variables representing income and education. The F scores for the covariates were not significant; nor was the F score for the variable race. Thus, it can be stated that in this study there is not sufficient evidence derived from the data to demonstrate a difference between the various groups that comprised the variable race as it relates to intent to purchase after accounting for income and education.

Appendix H shows the ANCOVA output and the F scores are:

Race = 1.432	sig= .224
Income = .211	sig=.647
Education = .405	sig=.525

These results are consistent with hypothesis 5 which states that ethnic group membership is not a significant predictor of intent to purchase after adjusting for income and education.

The second ANCOVA was conducted using NETUSE (the variable representing access) as the dependent variable and ethnic orientation (race) as the independent value with income and education as covariates. Race was not significantly related to access at the $p=.05$ level, but the p value of .070 indicates significance at the .10 level. This means that race is marginally related to access, even when accounting for the covariates of income and education.

Further analysis of Appendix H shows that Caucasians are more likely than African Americans or Hispanics to access the Internet and corresponding technologies. Income and education were not significant with p values of .483 and .171, respectively. This means that African Americans, regardless of income and education, are not accessing the Internet and corresponding technologies as frequently as Caucasians. Earlier analysis confirmed that the constructs of commitment, trust, and user involvement are significant for intent to purchase in the hypothesized model. A second regression analysis was conducted using netuse (the variable representing access) as the dependent variable and commitment, trust, and user involvement as independent variables. The resulting F score was 4.923 with a significance of .002. Based on these findings, it can be stated that a statistically significant relationship exists between access and commitment, trust, and user involvement. Since the three constructs have demonstrate a significant relationship between both access and intent to purchase, this suggests that the hypothesized model is correct. This means that the three constructs, user involvement, commitment, and trust, stand between access and intent to purchase as previously hypothesized. Thus minority sensitivity to commitment, trust, and

user involvement is a better indicator of Internet and WWW access than income and education. The results are consistent with hypothesis 6. Hypothesis 6 could also be tested through a series of linear regression analysis; however, earlier in the procedure for data analysis, an ANCOVA was selected for this test because of its ability to account for covariates that might impact on the dependent variable.

Regression Analysis

A series of linear regression analyses were performed to test hypothesis 4. The variable INTENT, which represents the construct intent to purchase, was the dependent variable and the variables income education, race, and TRUCOM, INVOLVE, COMMIT, served as the independent variables in a series of two regression analyses. The output from the regression is presented in Appendix I and the r squared is compared between the models for the two sets of independent variables. This will confirm whether the constructs of user involvement, and commitment/trust are better indicators of intent to purchase than income, education, and ethnic orientation. The higher r square is the better the predictor. Table 7 summarizes the r squared for these questions against the variables representing demographic information (income, education, ethnic orientation) and the variables representing commitment, user involvement, and trust:

TABLE 7
REGRESSION r SQUARED

DEPEND- ENT VARIABLE	Income, Education, Race r SQUARED	INVOLVEMENT, TRUST, COMMITMENT r SQUARED
INTENT	.024	.766

As presented above, the r squared for the constructs of involvement, trust, and commitment are significantly higher than those for income, education, and race information in terms of intent to purchase on the Internet and WWW. In terms of Hypothesis 4, this confirms that user involvement, commitment and trust are more accurate predictors of intent to purchase than income, education, and race.

SPECIFIC TESTS OF HYPOTHESES

The table below summarizes the findings from the analysis of the data collected by this research:

TABLE 8
SUMMARIZED HYPOTHESIS FINDINGS

HYPOTHESIS RESEARCHED	FINDINGS OF THIS RESEARCH
HYPOTHESIS 1	SUPPORTED
HYPOTHESIS 2	SUPPORTED
HYPOTHESIS 3	NOT SUPPORTED
HYPOTHESIS 4	SUPPORTED
HYPOTHESIS 5	SUPPORTED
HYPOTHESIS 6	SUPPORTED

A discussion of each hypothesis and substantiating evidence of support, or lack thereof, is provided below:

Hypothesis 1 – Substantiated - As evidenced by SEM regression weights. The construct commitment has been linked to exchange transactions which is at the heart of marketing and intent to purchase behavior. When using the Internet some level of commitment is exhibited every time a person accesses and uses the Internet technologies. Merchants collect various types of personal information about individual consumers through the widespread use of cookies. Those consumers who do not object to this information collection will use the Internet technologies, while those who believe that they have in some way been compromised will reduce their usage of the Internet and subsequently the intent to purchase goods and services via the Internet.

Hypothesis 2 – Substantiated – As evidenced by SEM regression weights- The construct trust has also been linked to exchange transactions and purchase behavior. Consumers are seeking anonymous and discrete transactions. A case was made earlier that the Internet and its corresponding technologies do not permit anonymous/discrete transactions and often invade consumer privacy threatening consumer trust in the reliability and integrity of the exchange partner. Merchants, on the other hand, are interested in gathering information about consumers which creates a conflict of interest between consumer and merchant. Those consumers who do not object to this gathering of information by merchants will use the Internet technologies, while those who object to the gathering of information and the methods used to gather the information will reduce their usage of the Internet and subsequently the intent to purchase goods and services via the Internet.

Hypothesis 3 - Not-Substantiated – As evidenced by SEM regression weights – The overall user experience is hard to capture since there are myriad facets of human behavior. The user involvement construct evidences a higher relationship to the construct intent to purchase, than the government stated demographic indicators of income, education, and ethnic orientation. Some of the sample surveyed had not used Internet technologies sufficiently to be able to answer the questions pertaining to user involvement. While the respondents had access, they had intentionally avoided Internet use. This suggests that user experience may play a role in whether or not consumers access the Internet technologies and subsequently intend to purchase via the Internet. Studies have shown that

consumers feel that variables such as trust, relevance to their current life, fear, privacy and control affect their access intentions (Reid 2000). The relevance of this is significant since it means that efforts to solve the digital divide might be better applied to solving variables other than access. In terms of this research those variables include user involvement, commitment, and trust. The indications are that if at least these three issues are addressed, the problem with access (digital divide) and intent to purchase could be reduced significantly.

Hypothesis 4 – Substantiated - As evidenced above, the r squared for the constructs of involvement, trust, and commitment is significantly higher than those for income, education, and race information in terms of intent to purchase on the Internet and WWW. In regards to hypothesis 4, this verifies that user involvement, commitment, and trust are more accurate predictors of intent to purchase than income, education, and race.

Hypothesis 5 – Substantiated - The F scores for the covariates were not significant, nor was the F score for the variable race. Thus, it can be stated that the study did not detect a difference between the various groups that comprised the variable race as it relates to intent to purchase when accounting for income and education

Hypothesis 6 - Substantiated - African- Americans, regardless of income and education, do not access the Internet and corresponding technologies. Earlier analysis showed that the constructs of commitment, trust, and user involvement are significant predictors in the hypothesized model. Thus minority sensitivity to

commitment, trust, and user involvement is a more accurate indicator of Internet and WWW access than income and education. This substantiates hypothesis 6.

ANALYSIS OF THE FINDINGS

Certain inferences can be stated about the general population and the digital divide based on the analysis of the research data. Earlier, the problem statement asserted that a digital divide exists in the United States, but no one seemed to understand why it exists. There is a digital divide and the government surveys point to demographic factors such as income, education, and ethnic orientation as an explanation for the digital divide. The results of the current analysis suggests that the reasons for the digital divide have less to do with demographics like income, education, and ethnic orientation and more to do with other marketing and behavioral constructs such as consumer involvement, consumer trust, and consumer commitment to the growth and use of the Internet and its corresponding technologies. With this information the government and business have specific areas that may require a degree of remediation before the general population will further embrace the Internet. Based upon the findings of this study. Simply providing additional access will not alleviate the digital divide.

Suggestions for increasing user involvement might center around setting up standards for Internet access. Currently the degree of user involvement a consumer can achieve is directly proportional to the technology or equipment consumers use, as well as the technology of the service provider for that consumer. The government wants everyone to have equal access to the Internet

and its technologies, but has not yet defined what equal means. Standards or possibly regulation might help to achieve this equality. Remediation aimed at improving consumer trust and commitment might include regulating or possibly outlawing the tiny files called “cookies” which violate consumer privacy. Currently most of the responsibility has been placed on the consumer to control such violations, but the vendors should also exhibit some degree of responsibility.

This research shows that there is statistically significant evidence of relationships between the constructs commitment, trust, and user involvement and the construct of intent to purchase. It has been shown through statistical testing that these constructs sit between the basic Internet access sought by solving the digital divide, and intent to purchase goods or services via the internet, which is within the domain of marketing. This suggests that solving the digital divide might not necessarily allow business to capitalize on consumer electronic commerce. There are additional variables that will need to be considered by both government and marketing which include at a minimum commitment, trust, and user involvement.

There are three primary types of electronic commerce: business to business electronic commerce (B2B), business to consumer electronic commerce (B2C), and consumer to consumer electronic commerce (C2C) (Laudon and Laudon 2002). An example of B2B is when one company purchases goods or services from another company. A B2C example occurs when an individual consumers uses the Internet to purchase goods or services. This is the primary focus of this research. A C2C example is individual consumers selling to other

individual consumers using services such as E-bay.com. The B2B model of electronic commerce is growing (Laudon and Laudon 2002). Business to business transactions largely de-emphasize the constructs of commitment and trust, but do require some degree of user involvement. Since the B2C model of electronic commerce requires that more attention is paid to commitment and trust, as well as user involvement, it is not possible to use the B2B model to interact with individual consumers without modification. This means that marketing managers will have to cultivate consumer trust and commitment if they want them to move towards using electronic commerce for future purchase of goods and services. Many companies that have not cultivated these two constructs have already failed in the Internet environments.

This further suggests that the marketing function in companies cannot sit passively and expect the government solution of the digital divide to help them. They must actively investigate at least consumer commitment and trust (there are probably other areas needing investigation) and user involvement to stimulate B2C electronic commerce. The degree of success in B2C electronic commerce will be directly proportional to the amount of effort used to cultivate consumer commitment, trust, and a positive user involvement experience.

CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

There exists an electronic digital divide within the United States. This digital divide concerns access to the Internet and its corresponding technologies. The U.S. government is concerned about the digital divide because it appears that certain ethnic groups and income levels are being excluded from computer technologies and the Internet. These groups include African-Americans and Hispanics, who are lagging the Caucasians significantly in gaining access to the Internet. For a while the gap between majority and minority groups appeared to be widening. Since Internet access is a prerequisite to conducting electronic commerce, an understanding of the relationship between the digital divide and marketing is important. Numerous Federal, State, and Local governments are attempting to reduce or eliminate the digital divide and ensure equal access to all citizens. Marketing would also benefit if equal access means increased electronic commerce.

Business leaders are also concerned about the digital divide because it affects access to the Internet and corresponding technologies. If consumers are denied access to the Internet, it will be difficult for them to participate in business to consumer (B2C) level electronic commerce. However, this research has shown statistically that solving the problems of the digital divide will not necessarily increase business to consumer level electronic commerce. The research has

further found that the apparent reasons for the digital divide, currently thought to be income, education, and ethnic orientation, may be less important than indicated by initial government surveys.

The research demonstrates that between Internet access and consumer intent to purchase goods and services in business to consumer electronic commerce lies at least three other considerations that need to be addressed by business leaders. These areas are: consumer trust, consumer commitment, and consumer involvement with Internet technologies. All are important links between using the technology at all and using the technology for business to consumer electronic commerce. The research also shows that these three areas have a combined relationship to the magnitude of the digital divide. Thus, any actions that affect these constructs will also impact the digital divide.

Business leaders who want to engage in business to consumer electronic commerce must pay attention to consumer trust, consumer commitment, and optimizing the consumer experience (involvement) when using the Internet. Not addressing these issues proactively will increase the likelihood of failure when engaging in electronic commerce.

INFERENCES FROM DATA ANALYSIS

Inferences concerning the general population can now be made based on the results of this research. In terms of commitment, this research has shown that commitment is a precursor of intent to purchase via the Internet as well as subsequent purchase behavior. This means that business leaders can generally

expect consumers to have some degree of commitment before they engage in electronic commerce. An inference can be made that a segment or segments of the U.S. population is not being denied access to the Internet and, therefore, not being able to participate in electronic commerce. Instead, this group is more sensitive to issues surrounding consumer commitment and are delaying their interaction with the Internet until the issues are resolved. Commitment is the desire of an exchange partner to exhibit maximum effort towards maintaining a relationship with another exchange partner. This means that consumers must be willing to purchase goods on a vendor's Internet site more than once. Recognizing previous shoppers with some type of greeting may enhance consumer commitment and make them feel comfortable during repeat visits to the site. Thus, business leaders need to identify commitment among exchange partners as being the key to achieving valuable outcomes for themselves (Morgan and Hunt 1994).

In terms of trust, this research has shown that trust affects intent to purchase in the general population. If a specific ethnic group or income level is more sensitive to issues of trust and the required confidence, vendor reliability, and vendor integrity are not maintained, then that particular group will participate in electronic commerce at a lower level. The biggest trust issue for Internet business leaders appears to center around consumer privacy in regard to their personal information. Business leaders will need to overcome current negative perceptions about the Internet and its collection/handling of consumer privacy information. This may call for a marketing campaign aimed at informing consumers what steps are being taken to earn consumer trust. Since trust is

intertwined with commitment, failing to win consumer trust can also reduce consumer commitment. In this area the inferences are clear. In the general population, consumer trust and commitment are required for increasing consumer intent to purchase via the Internet. Firms will need to cultivate both constructs to successfully engage in consumer electronic commerce.

In terms of user involvement, this research has concluded that there appears to be a relationship between user involvement and intent to purchase, though the statistical significance level of that relationship is marginal. User involvement is a complex construct in consumer behavior research. It generally involves searching for and using information to make informed decisions (Zaichkowsky 1985). In an Internet setting, involvement additionally includes the experience the user perceives as information is gathered to make that decision. A positive experience encourages electronic commerce, while a negative experience has the opposite effect. At this point additional behavioral constructs not studied in this research may be involved. This includes, but is not limited to, perception, needs, values, skill, challenge, and pleasure (Zaichkowsky 1985; Hoffman and Novak 1996). Thus, the general population may exhibit the characteristics of user involvement at any time, and additionally, they may be influenced by additional behavioral constructs. Business leaders and marketers will need to incorporate user involvement and as many of the affiliate behavioral constructs as possible into the design and navigation characteristics of their digital “store front.” Failure to address these areas will discourage electronic commerce among the general population.

Certain inferences can also be made about the digital divide. The initial assumption was that the digital divide existed in the general population, but no one explained why this phenomenon existed. The purpose of this research was to gain an understanding of the underlying reasons behind this divide. This research shows that in the general population, some of the underlying reasons for the digital divide are low levels of commitment, trust, and user involvement. This does not mean that these are the only underlying reasons, but these variables are statistically significant factors that influence the digital divide.

The digital divide remains important to marketing and business leaders because it impacts access to the Internet and its corresponding technologies. However, this research suggests that additional attention by business leaders to commitment, trust, and user involvement can have a positive effect on narrowing the digital divide. The inference is that addressing these three issues in the general population will lessen the problems associated with the digital divide.

MANAGEMENT IMPLICATIONS

The managerial implications of this research concern electronic commerce. First, management needs to spend time cultivating consumer commitment to electronic commerce. Currently, the Internet is viewed as just one of several tools available for marketing and sales. Few, if any, incentives are provided to urge the consumer to use the Internet for shopping. Such incentives might include price reductions or rebates for Internet use. Since digital assets are not consumed with use, break-even analyses can be calculated to provide initial

site set-up costs. Once initial costs are recovered, the profit potential is significant. Moving into business to consumer electronic commerce without considering consumer commitment in advance can be disastrous. Numerous “dot com” companies have already rushed into e-commerce only to discover reluctant consumer participation for unknown reasons. This research has uncovered the first of three potential reasons for non-participation that bears investigation. This reason is the level of consumer commitment to electronic commerce.

Second, business leaders need to be concerned about consumer trust of the Internet and their business services on the Internet. In terms of electronic commerce, this applies to privacy of information that is collected from consumers and the wide spread use of “cookies” to covertly collect information about consumers. The general public has a much greater awareness of cookies, even though their use is not clearly understood. The fact that firms collect and store information about consumer web site visits is enough to cause public concern. A statement about cookies and how they are used by a particular vendor may help alleviate this concern. If vendors don’t understand cookies, they should learn about them before engaging in electronic commerce. Many consumers are knowledgeable of the numerous issues surrounding the Internet and electronic commerce and, without guidance and help, they may remain reluctant to participate in e-commerce.

Finally, business leaders need to make themselves aware of the needs of consumers in terms of their experience and involvement with the Internet and electronic commerce. There have been studies that investigate banner ads, sound,

colors, and ease of navigation in Internet settings (Hoffman and Novak 1996). These studies become the basis for establishing what is and what is not needed at a vendor's web site. This research has concluded that there is a relationship between user involvement and intent to purchase goods or services via the Internet. Thus, companies must cultivate this involvement. Businesses can no longer simply place products on the Internet and wait for consumers to find them. If consumers are to participate in electronic commerce, businesses will have to actively encourage them to do so.

RECOMMENDATIONS

It is now possible to provide recommendations concerning the digital divide and electronic commerce. The results of this study have shown that the digital divide is not necessarily a matter of income, education, or ethnic orientation. This indicates that other corrective actions are necessary beyond ensuring that the general population has equal access to the Internet and its corresponding technologies. Assuming that the general population has equal access, this research raised issues about web misuse, viruses, and privacy concerns as examples of areas that can affect Internet use. These issues have been grouped to represent the constructs of commitment and trust. To help reduce the apparent digital divide, the following actions are recommended:

- (1) A governmental agency needs to take ownership of the Internet and its corresponding technology usage within the United States. Control and regulation can help curb some of the misuse. Currently, nearly all of the

public communications about the Internet portray it as a technology without control, regulation, or ownership. There are few if any rules and lawmakers find it difficult to pass appropriate laws for Internet use.

- (2) This agency also needs to assume responsibility for the Internet virus threat. Currently, there is an unexplained vulnerability of the Internet to numerous viruses which circulate and disrupt the orderly flow of Internet business. The disruptions are highly publicized as described earlier and such negative publicity may cause consumers to delay or postpone any Internet interaction pending disruption resolution.
- (3) Privacy concerns continue to be an area requiring attention. Firms want information while consumers prefer privacy. Unregulated use of cookies continues to hinder consumer trust and commitment to the Internet. A certain degree of both is required to access the Internet. Thus, the use of "cookies" should be fully investigated and regulated where necessary by an agency such as the federal government.

Recommendations concerning electronic commerce center around the constructs of commitment, trust, and user involvement which were analyzed earlier in this research. The following actions are recommended:

- (1). Business leaders should take the time to analyze consumer privacy issues before conducting business to consumer (B2C) electronic commerce. They should recognize that the model for business to consumer electronic commerce is not the same as the business to business model. This will probably involve

informing consumers what information is being collected and how it will be used. The consumer should be given the choice of opting out of providing any information. Sheth and Sisodia (1999) accurately predicted that new intermediaries would form unique to the Internet environment, to provide security certifications for companies engaging in e-commerce. These services are now available and companies using these services will help consumers choose the vendor that meets their own level of privacy concern. Such action will help to build consumer trust.

(2). Business leaders should take every opportunity to publicize positive aspects of electronic commerce. Such advantages should be marketed the same as a product would be marketed. Currently, the advantages of e-commerce are not widely publicized and the Internet is portrayed as being problematic and mysterious. This action will increase consumer commitment to the Internet technologies.

(3). Improving user involvement concerns the experience that consumers receive when they do use the Internet for electronic commerce. Business users should use professional designers to create the web site. The goal is to provide an overall optimal experience. The sites should be created free of annoying distractions and be easy to navigate. Failure to give this area proper attention will result in more harm than good.

SUGGESTIONS FOR FUTURE RESEARCH

Several suggestions for future research are necessary. First, future studies should investigate the three constructs used in this research -commitment, trust, user involvement- as they relate to consumer intent to purchase via the Internet. Additionally, various other dimensions of consumer involvement should be investigated in order to gather an additional understanding of consumer behavior associated with intent to purchase. These dimensions will be specified in depth later.

Two other areas suggested for future research include reliability and validity studies since this research was a basic study in the Internet setting. Churchill (1979) provided a paradigm for developing improved measures of marketing constructs. The steps outlined here provide an excellent framework for repeated studies of electronic commerce. Reliability studies as provided by Cronbach's coefficient alpha is a critical part of the process. The coefficient alpha for the constructs in this research appears to be acceptable (Peterson 1994; Churchill 1979; Carmines and Zeller 1978), but they should be confirmed by repeated studies. These studies should measure reliability for the constructs of commitment, trust, user involvement, and intent to purchase in an Internet setting similar to the measurements of this research. Reliability concerns the degree to which measures are free of error and yield consistent results from one time to the next. Coefficient alpha has been determined to be the proper measure of data reliability with a mean of .76 given for previous marketing constructs. Future

research should include coefficient alpha in the measurement criteria to see if the .76 for various behavioral constructs also applies in Internet settings.

Validity concerns the extent to which an instrument measures what it is intended to measure (Carmines and Zeller 1978). Future research should assess, where possible, criterion related validity, content validity, and construct validity. Criterion related validity may be useful for marketing since it provides information about the future potential of the Internet and electronic commerce. However, the most useful type of validity for marketing is construct validity as conducted by this research (Carmines and Zeller 1978). Here a theoretical framework is involved. Currently marketing uses traditional marketing theories and constructs in Internet research. Sheth and Sisodia (1999) called for new theories, and possibly constructs, that apply to Internet settings. Future research should develop those new theories and constructs.

One construct that shows promise for future development is a behavioral construct that appears to be all encompassing in the Internet setting. It is called "flow." Flow has been researched for over 30 years (Hoffman and Novak 1996; Csikzentmihalyi 1990) and is the process of obtaining optimal experience (Hoffman and Novak 1996; Ghani, Supnick, and Rooney 1991; Trevino and Webster 1992; Webster Trevino and Ryan 1993). Flow has been linked to the Internet and to Marketing (Hoffman and Novak 1996). Electronic commerce has a flow component because navigating the Internet is a process itself and this navigation produces a type of consumer experience. Although flow has been used in Psychology, Sociology, and Economics, the numerous behavioral constructs

involved have made it difficult to define and measure (Clarke and Haworth 1994; Ellis, Voekl, and Morris 1994; Lutz and Guiry 1994). Hoffman and Novak (1996) mapped the flow construct in an Internet setting and found it consists of a number of other behavioral constructs which include arousal, challenge, control, exploratory behavior, focus, interactivity, skill, and playfulness. Future research that tests this construct against intent to purchase, or purchase behavior, would contribute significantly to the field of marketing. The goal of this research is to assess the true value of the Internet and electronic commerce.

In summary, the following actions are recommended for future research:

1. Conduct follow up studies similar to this one to either substantiate the findings and shed additional light on the constructs and electronic commerce. A national study of the United States would contribute more generalized findings
2. Conduct reliability and validity studies to better develop constructs in an Internet setting.
3. Expand behavioral studies of electronic commerce to include the construct of flow.

Future research in these areas would help business leaders to achieve their desired goals in terms of electronic commerce and the Internet.

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APPENDIX A

TIMELINE OF INTERNET HISTORY

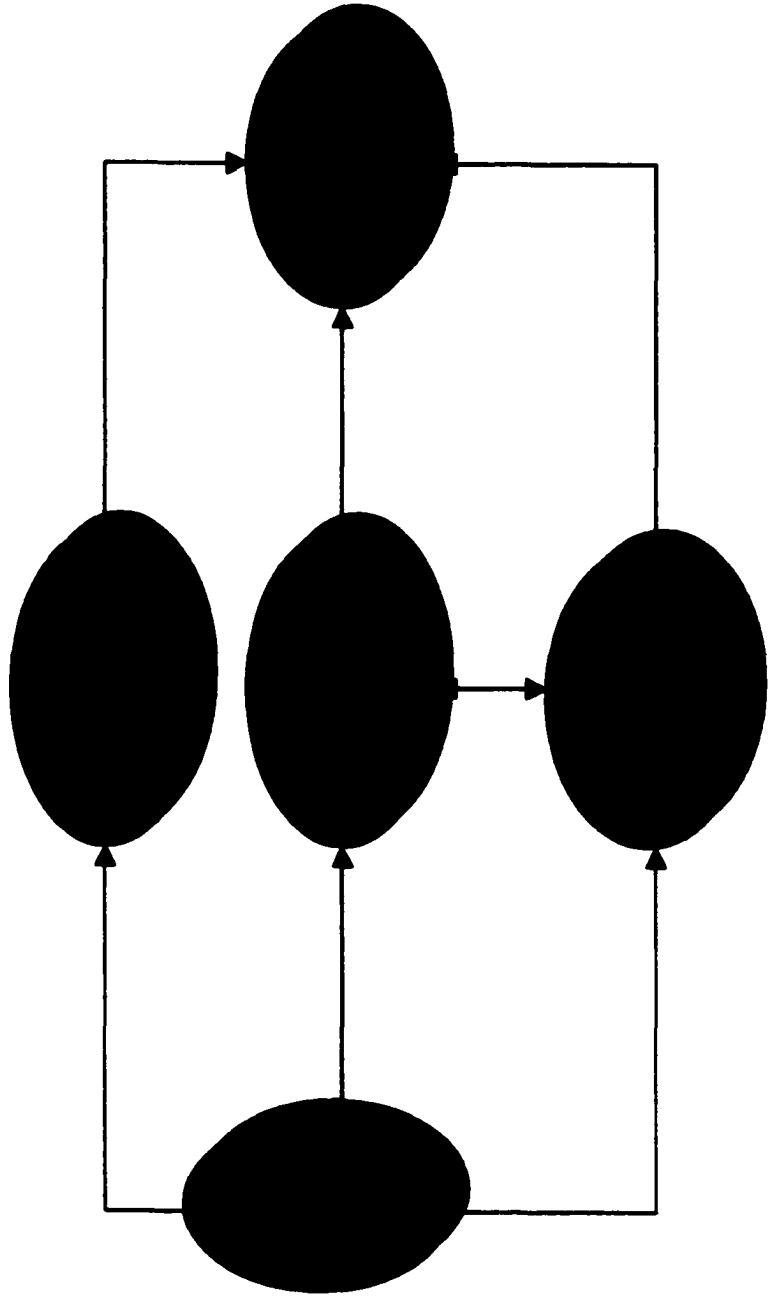
Internet History
(Querica, 1991)
(Hawks, 1999)

	2000
	1999
	1998
	1997
	1996
AOL, etc.	1995
Mosaic	1994
	1993
	1992
	1991
	1990
WWW Introduced	1989
	1988
	1987
	1986
IAB Private Sector	1985
TCP/IP ARPA Net	1984
IAB	1983
Birth of Internet as we know it today	1982
	1981
	1980
	1979
	1978
	1977
	1976
	1975
	1974
	1973
	1973
MPE Net/HEP Net/NSFN Net/MIL Net/DDN	1972
ARPA Net/23 Hosts/15 Locations	1971
	1970
DARPA Formed	1969
	1968
	1967
	1966
	1965
	1964
	1963
ARPA Net/4 hosts: Stanford, UCLA, UCSB, University of Utah	1962
Galactic Network, NASA Formed	1961
	1960
	1959
ARPA Formed	1958
Sputnik Launched	1957

APPENDIX B

HYPOTHESIZED MODEL

Construct Model of Intent to Purchase via the Internet



APPENDIX C

SURVEY INSTRUMENT

**SURVEY OF ATTITUDES ABOUT THE INTERNET AND
FUTURE INTENTIONS TO PURCHASE PRODUCTS USING THE
WORLD WIDE WEB**

October 10, 2001

Thank you for participating in this research, which is interested in your attitudes about the World Wide Web (WWW). Your responses will allow a better understanding of how consumers behave in on-line environments like the Internet and World Wide Web. Please provide your honest opinions to the questions. There are no right or wrong answers. It should take no more than 10 minutes of your time to complete the survey.

Thanks again for your assistance!

Sincerely,

// Signed //

Franklin D. Gaillard

Adjunct Professor Golden Gate University and Troy State University

**QUESTIONS ABOUT ATTITUDES AND PERCEPTIONS OF THE
INTERNET AND WORLD WIDE WEB (WWW)**

Are you 18 years or older?? **YES** (Continue to question 1)

NO (DO NOT CONTINUE - participants **MUST** be 18 years or older)

**PLEASE RESPOND WITH YOUR AGREEMENT OR DISAGREEMENT
WITH EACH OF THE FOLLOWING STATEMENTS**

1. The performance of the World Wide Web (WWW) always meets my expectations.

Scale 1-5 (strongly disagree, disagree, indifferent, agree, strongly agree)

1 2 3 4 5

2. The World Wide Web can be counted on to protect my privacy.

Scale 1-5 (strongly disagree, disagree, indifferent, agree, strongly agree)

1 2 3 4 5

3. I cannot always trust the World Wide Web to protect my privacy.

Scale 1-5 (strongly disagree, disagree, indifferent, agree, strongly agree)

1 2 3 4 5

4. The World Wide Web is a reliable channel for product purchases.

Scale 1-5 (strongly disagree, disagree, indifferent, agree, strongly agree)

1 2 3 4 5

5. The quality of the World Wide Web service is consistently high.

Scale 1-5 (strongly disagree, disagree, indifferent, agree, strongly agree)

1 2 3 4 5

6. The quality of the WWW service is not what it should be.

Scale 1-5 (strongly disagree, disagree, indifferent, agree, strongly agree)

1 2 3 4 5

7. I am concerned about the quality of the WWW service.

Scale 1-5 (strongly disagree, disagree, indifferent, agree, strongly agree)

1 2 3 4 5

8. I am proud to purchase products on the WWW.

Scale 1-5 (strongly disagree, disagree, indifferent, agree, strongly agree)

1 2 3 4 5

9. I feel a sense of belonging when purchasing on the WWW.

Scale 1-5 (strongly disagree, disagree, indifferent, agree, strongly agree)

1 2 3 4 5

10. I care about the long term success of WWW shopping.

Scale 1-5 (strongly disagree, disagree, indifferent, agree, strongly agree)

1 2 3 4 5

11. I have a sense of loyalty to the WWW.

Scale 1-5 (strongly disagree, disagree, indifferent, agree, strongly agree)

1 2 3 4 5

12. I will use the WWW for future purchases.

Scale (1-5) (strongly disagree, disagree, indifferent, agree, strongly agree)

1 2 3 4 5

13. I will do whatever I can to ensure the future success of WWW shopping.

Scale (1-5) (strongly disagree, disagree, indifferent, agree, strongly agree)

1 2 3 4 5

14. I would donate either time or money to any effort that increases WWW usage

for shopping

Scale (1-5) (strongly disagree, disagree, indifferent, agree, strongly agree)

1 2 3 4 5

15. Do you use the WWW? YES (Go to question 16)

NO (Skip to question 23)

Please characterize your experience with the WWW (circle one only)

16. Unpleasurable 1 2 3 4 5 6 7
Pleasurable

17. Unexciting 1 2 3 4 5 6 7 Exciting

18. Boring 1 2 3 4 5 6 7 Fun

PLEASE CIRCLE ONLY ONE ANSWER FOR QUESTIONS 19 - 26

19. Where do you primarily access the WWW? HOME

WORK

LIBRARY

OTHER

20. Number of hours per week you use the WWW: 1-9

10-20

21-40

MORE THAN 40 HOURS

21. Do you have access to the Internet and WWW at home? YES

NO

22. How long have you used the WWW? 1 YEAR OR LESS

1-3 YEARS

GREATER THAN 3 YEARS

PLEASE PROVIDE THE FOLLOWING ABOUT YOURSELF

23. Gender : MALE

FEMALE

24. Ethnic Group: **CAUCASIAN-NON HISPANIC**

AFRICAN AMERICAN NON-HISPANIC

OTHER NON-HISPANIC

HISPANIC

25. What is the total household income from all sources: **LESS THAN \$19,999**

\$ 20,000-39,999

\$40,000-59,999

\$60,000-79,999

\$80,000-99,999

GREATER THAN \$100,000

**PLEASE PROVIDE THE FOLLOWING INFORMATION ABOUT
YOURSELF**

26. What is the highest level of education your have attained?

LESS THAN HIGH SCHOOL

HIGH SCHOOL

SOME COLLEGE

COLLEGE DEGREE

GRADUATE DEGREE

PROFESSIONAL DEGREE

27. Zip Code _____

28. Current Age _____

Again Thank You for you Participation

APPENDIX D

DEFINITIONS

DEFINITIONS

AMOS - a structural equation method (SEM) software program used in conjunction with SPSS for confirmatory analysis.

Commitment – the desire of one exchange partner to maintain a relationship with another exchange partner indefinitely.

Computer virus – a program written specifically to disrupt the normal flow of computer operations.

Cookies – tiny files that are used to tailor a user's Internet experience and to capture information about how the user navigates the Internet.

Cybersquatting - purchasing someone else's domain name for the purpose of later selling that name back to the person for profit.

Digital divide – the apparent gap between the haves and have-nots in terms of Internet access. Early statistics indicate that the divide is based on income, ethnic orientation, and education.

Electronic commerce – the act of conducting normal business operations via the Internet.

Internet – a world wide interconnection of numerous marco-computer networks along with their corresponding local area networks. This makes is possible for any workstation on the net to contact any other workstation on the net.

Internet service providers – companies engaged in the business of providing connection services to individual consumers. One well known company is America On-Line.

Mainframe computer – a physically large computer typically designed to serve a large number of computer workstations. Most legacy systems still reside on mainframe computers.

POTS – plain old telephone service which is the traditional phone line and service provided to individual and business consumers.

normally used for exploratory research.

Technophobia – fear of technology.

Trust – one party having confidence in the integrity and reliability of an exchange partner.

User involvement – the experience a user has that motivates the user to respond to a stimuli. A person's perceived relevance based on inherent needs, values, and interests.

WWW – world wide web which is a system of universally accepted standards for storing, retrieving, formatting, and displaying information on the Internet.

APPENDIX E

TELEPHONE SURVEY SCRIPT

PHONE SURVEY
ATTITUDES ABOUT THE INTERNET AND FUTURE INTENTIONS TO PURCHASE
PRODUCTS USING THE WORLD WIDE WEB

Hello, my name is _____ and I am with Analytic Research Associates. We are conducting a very brief survey to explore interests and attitudes about the World Wide Web (WWW). Your responses will allow a better understanding of how consumers feel about on-line environments like the Internet and World Wide Web whether you yourself use the Internet or not. Let me assure you we are only interested in your opinions and we are not trying to sell anything. You will remain completely anonymous and your answers will be combined with all others. Our survey should take less than 10 minutes of your time. May I continue with our survey?

Thank you and first let me ask:

Are you 18 years or older? **YES** (Continue to question 1)
 NO (Is there someone 18 years or older I may speak with?)

I am going to read you some statements. Please tell me whether you strongly agree, agree, are indifferent, disagree or strongly disagree with each. There are no right or wrong answers to these questions, so please provide your honest opinions.

- | | | | | | | |
|--|--------------------------|-----------------|--------------------|--------------|-----------------------|----------------|
| 1. The performance of the World Wide Web (WWW) always meets my expectations. | Strongly disagree | Disagree | Indifferent | Agree | Strongly agree | Refused |
| | 1 | 2 | 3 | 4 | 5 | |
| 2. The World Wide Web can be counted on to protect my privacy. | Strongly disagree | Disagree | Indifferent | Agree | Strongly agree | Refused |
| | 1 | 2 | 3 | 4 | 5 | |
| 3. I cannot always trust the World Wide Web to protect my privacy. | Strongly disagree | Disagree | Indifferent | Agree | Strongly agree | Refused |
| | 1 | 2 | 3 | 4 | 5 | |
| 4. The World Wide Web is a reliable channel for product purchases. | Strongly disagree | Disagree | Indifferent | Agree | Strongly agree | Refused |
| | 1 | 2 | 3 | 4 | 5 | |
| 5. The quality of the World Wide Web service is consistently high. | Strongly disagree | Disagree | Indifferent | Agree | Strongly agree | Refused |
| | 1 | 2 | 3 | 4 | 5 | |
| 6. The quality of the WWW service is not what it should be. | Strongly disagree | Disagree | Indifferent | Agree | Strongly agree | Refused |
| | 1 | 2 | 3 | 4 | 5 | |
| 7. I am concerned about the quality of the WWW service. | Strongly disagree | Disagree | Indifferent | Agree | Strongly agree | Refused |
| | 1 | 2 | 3 | 4 | 5 | |

20. How many hours per week would you say you use the WWW:

1-9 (1) 10-20 (2) 21-40 (3) MORE THAN 40 HOURS (4)

21. Do you have access to the Internet and WWW at home? YES (1) NO (2)

22. How long have you used the WWW?

1 YEAR OR LESS (1) 1-3 YEARS (2) GREATER THAN 3 YEARS (3)

I have just a few demographic questions to help us categorize our respondents:

23. Gender: MALE (1) FEMALE (2)

24. Ethnic Group:

- (1) CAUCASIAN-NON HISPANIC
- (2) AFRICAN AMERICAN NON-HISPANIC
- (3) OTHER NON-HISPANIC
- (4) HISPANIC
- (5) REFUSED TO ANSWER

25. What is the total household income from all sources:

- (1) LESS THAN \$20,000
- (2) \$20,000-39,999
- (3) \$40,000-59,999
- (4) \$60,000-79,999
- (5) \$80,000-99,999
- (6) GREATER THAN \$100,000
- (7) REFUSED TO ANSWER

26. What is the highest level of education you have attained?

- (1) LESS THAN HIGH SCHOOL
- (2) HIGH SCHOOL
- (3) SOME COLLEGE
- (4) COLLEGE DEGREE
- (5) GRADUATE DEGREE
- (6) PROFESSIONAL DEGREE
- (7) REFUSED TO ANSWER

27. Zip Code _____

28. Current Age _____

Again Thank You for you Participation

APPENDIX F**FACTOR ANALYSIS**

Factor Analysis

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.885
Bartlett's Test of Sphericity	Approx. Chi-Square	1809.817
	df	136
	Sig.	.000

Communalities

	Initial	Extraction
The performance of the World Wide Web (WWW) always meets my expectations	1.000	.610
The quality of the World Wide Web service is consistently high	1.000	.751
The World Wide Web can be counted on to protect my privacy	1.000	.525
The World Wide Web is a reliable channel for product purchases	1.000	.565
I am proud to purchase products on the WWW	1.000	.768
I care about the long-term success of WWW shopping	1.000	.653
I have a sense of loyalty to the WWW	1.000	.609
I feel a sense of belonging when purchasing on the WWW	1.000	.709
I will use the WWW for future purchases	1.000	.813
I will do whatever I can to ensure the future success of WWW shopping	1.000	.829
I would donate either time or money to any effort that increases WWW usage for shopping	1.000	.637
How would you characterize your experience with the WWW? (Scale 1-7; 1=Unpleasurable, 7=Pleasurable)	1.000	.800
How would you characterize your experience with the WWW? (Scale 1-7; 1=Unexciting, 7=Exciting)	1.000	.850
How would you characterize your experience with the WWW? (Scale 1-7; 1=Boring, 7=Fun)	1.000	.871
Where do you primarily access the WWW	1.000	.638
Connection type	1.000	.577
WWW usage per week (hours)	1.000	.550

Extraction Method: Principal Component Analysis.

Total Variance Explained

Component	Initial Eigenvalues		
	Total	% of Variance	Cumulative %
1	7.162	42.130	42.130
2	2.132	12.538	54.668
3	1.361	8.006	62.674
4	1.100	6.468	69.142
5	.794	4.672	73.814
6	.761	4.477	78.291
7	.682	4.013	82.304
8	.551	3.244	85.548
9	.501	2.947	88.495
10	.411	2.420	90.916
11	.376	2.214	93.130
12	.312	1.834	94.964
13	.228	1.338	96.302
14	.200	1.174	97.475
15	.186	1.093	98.569
16	.132	.775	99.344
17	.112	.656	100.000

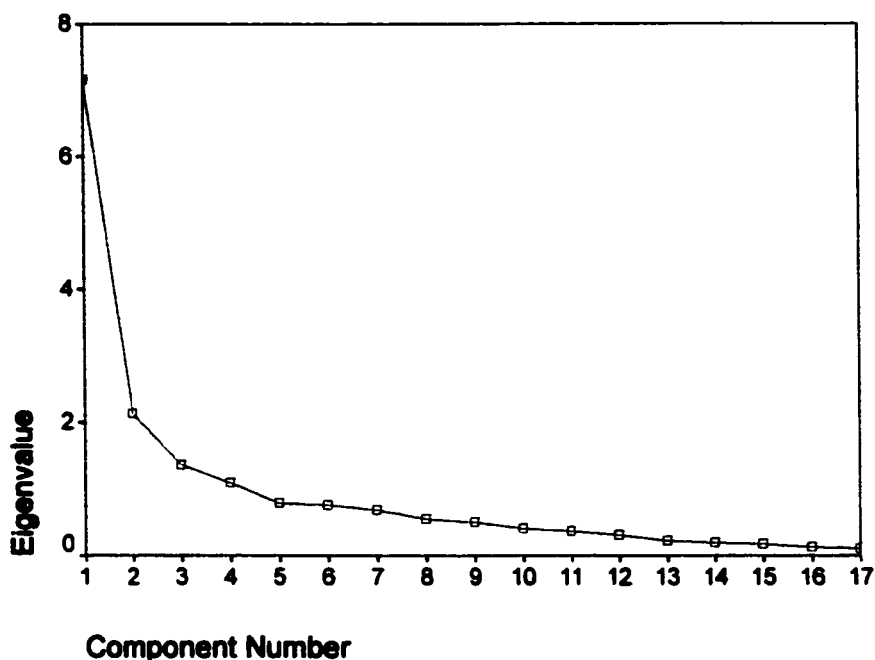
Extraction Method: Principal Component Analysis.

Total Variance Explained

Component	Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	7.162	42.130	42.130	5.426	31.917	31.917
2	2.132	12.538	54.668	3.125	18.381	50.298
3	1.361	8.006	62.674	1.896	11.154	61.452
4	1.100	6.468	69.142	1.307	7.691	69.142
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						

Extraction Method: Principal Component Analysis.

Scree Plot



Component Matrix^a

	Component			
	1	2	3	4
The performance of the World Wide Web (WWW) always meets my expectations	.596	-6.968E-02	-.259	.427
The quality of the World Wide Web service is consistently high	.560	.155	-.140	.628
The World Wide Web can be counted on to protect my privacy	.427	.296	-.419	.281
The World Wide Web is a reliable channel for product purchases	.675	-.248	-.145	.167
I am proud to purchase products on the WWW	.814	-.306	.106	2.274E-03
I care about the long-term success of WWW shopping	.737	-.312	.109	-2.231E-02
I have a sense of loyalty to the WWW	.770	-9.390E-02	6.881E-03	-8.475E-02
I feel a sense of belonging when purchasing on the WWW	.801	-.255	-4.371E-02	-2.790E-02
I will use the WWW for future purchases	.795	-.389	8.586E-02	-.148
I will do whatever I can to ensure the future success of WWW shopping	.850	-.253	7.334E-02	-.191

Extraction Method: Principal Component Analysis.

Component Matrix^a

	Component			
	1	2	3	4
I would donate either time or money to any effort that increases WWW usage for shopping	.765	-.139	-4.974E-02	-.172
How would you characterize your experience with the WWW? (Scale 1-7; 1=Unpleasurable, 7=Pleasurable)	.651	.606	1.782E-03	-9.293E-02
How would you characterize your experience with the WWW? (Scale 1-7; 1=Unexciting, 7=Exciting)	.647	.636	7.210E-02	-.143
How would you characterize your experience with the WWW? (Scale 1-7; 1=Boring, 7=Fun)	.646	.649	7.988E-02	-.162
Where do you primarily access the WWW	-.150	6.075E-02	.605	.496
Connection type	.152	-.184	.708	.133
WWW usage per week (hours)	.411	.472	.398	-2.938E-02

Extraction Method: Principal Component Analysis.

a. 4 components extracted.

Rotated Component Matrix^a

	Component			
	1	2	3	4
The performance of the World Wide Web (WWW) always meets my expectations	.415	6.445E-02	.658	-2.415E-02
The quality of the World Wide Web service is consistently high	.232	.211	.792	.158
The World Wide Web can be counted on to protect my privacy	9.997E-02	.290	.602	-.262
The World Wide Web is a reliable channel for product purchases	.637	3.819E-02	.396	-3.433E-02
I am proud to purchase products on the WWW	.835	.146	.193	.110
I care about the long-term success of WWW shopping	.781	.111	.144	.102
I have a sense of loyalty to the WWW	.696	.301	.180	-3.452E-02

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

Rotated Component Matrix^a

	Component			
	1	2	3	4
I feel a sense of belonging when purchasing on the WWW	.792	.158	.235	-3.940E-02
I will use the WWW for future purchases	.894	9.971E-02	5.880E-02	2.754E-02
I will do whatever I can to ensure the future success of WWW shopping	.874	.248	6.826E-02	-1.518E-02
I would donate either time or money to any effort that increases WWW usage for shopping	.730	.270	.125	-.122
How would you characterize your experience with the WWW? (Scale 1-7; 1=Unpleasant, 7=Pleasant)	.226	.826	.238	-9.699E-02
How would you characterize your experience with the WWW? (Scale 1-7; 1=Unexciting, 7=Exciting)	.222	.876	.170	-6.172E-02
How would you characterize your experience with the WWW? (Scale 1-7; 1=Boring, 7=Fun)	.219	.892	.153	-6.463E-02
Where do you primarily access the WWW	-.214	-1.076E-02	.106	.763
Connection type	.247	3.402E-02	-.169	.697
WWW usage per week (hours)	.118	.671	1.738E-02	.293

Extraction Method: Principal Component Analysis.
 Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 6 iterations.

Component Transformation Matrix

Component	1	2	3	4
1	.815	.464	.346	-.010
2	-.535	.828	.148	-.079
3	.074	.208	-.428	.876
4	-.208	-.236	.822	.475

Extraction Method: Principal Component Analysis.
 Rotation Method: Varimax with Kaiser Normalization.

Component Score Coefficient Matrix

	Component			
	1	2	3	4
The performance of the World Wide Web (WWW) always meets my expectations	-.010	-.120	.424	.020
The quality of the World Wide Web service is consistently high	-.102	-.060	.551	.175
The World Wide Web can be counted on to protect my privacy	-.102	.018	.383	-.160
The World Wide Web is a reliable channel for product purchases	.100	-.111	.186	-.013
I am proud to purchase products on the WWW	.175	-.050	-.014	.079
I care about the long-term success of WWW shopping	.173	-.052	-.037	.071
I have a sense of loyalty to the WWW	.128	.033	-.035	-.030
I feel a sense of belonging when purchasing on the WWW	.158	-.048	.014	-.032
I will use the WWW for future purchases	.221	-.055	-.127	.004
I will do whatever I can to ensure the future success of WWW shopping	.201	.009	-.143	-.027
I would donate either time or money to any effort that increases WWW usage for shopping	.152	.025	-.085	-.102
How would you characterize your experience with the WWW? (Scale 1-7; 1=Unpleasant, 7=Pleasant)	-.060	.298	.004	-.062
How would you characterize your experience with the WWW? (Scale 1-7; 1=Unexciting, 7=Exciting)	-.055	.331	-.054	-.040
How would you characterize your experience with the WWW? (Scale 1-7; 1=Boring, 7=Fun)	-.054	.341	-.070	-.043
Where do you primarily access the WWW	-.093	.000	.177	.602
Connection type	.077	.018	-.129	.520
WWW usage per week (hours)	-.044	.277	-.095	.225

Extraction Method: Principal Component Analysis.
 Rotation Method: Varimax with Kaiser Normalization.

Component Score Covariance Matrix

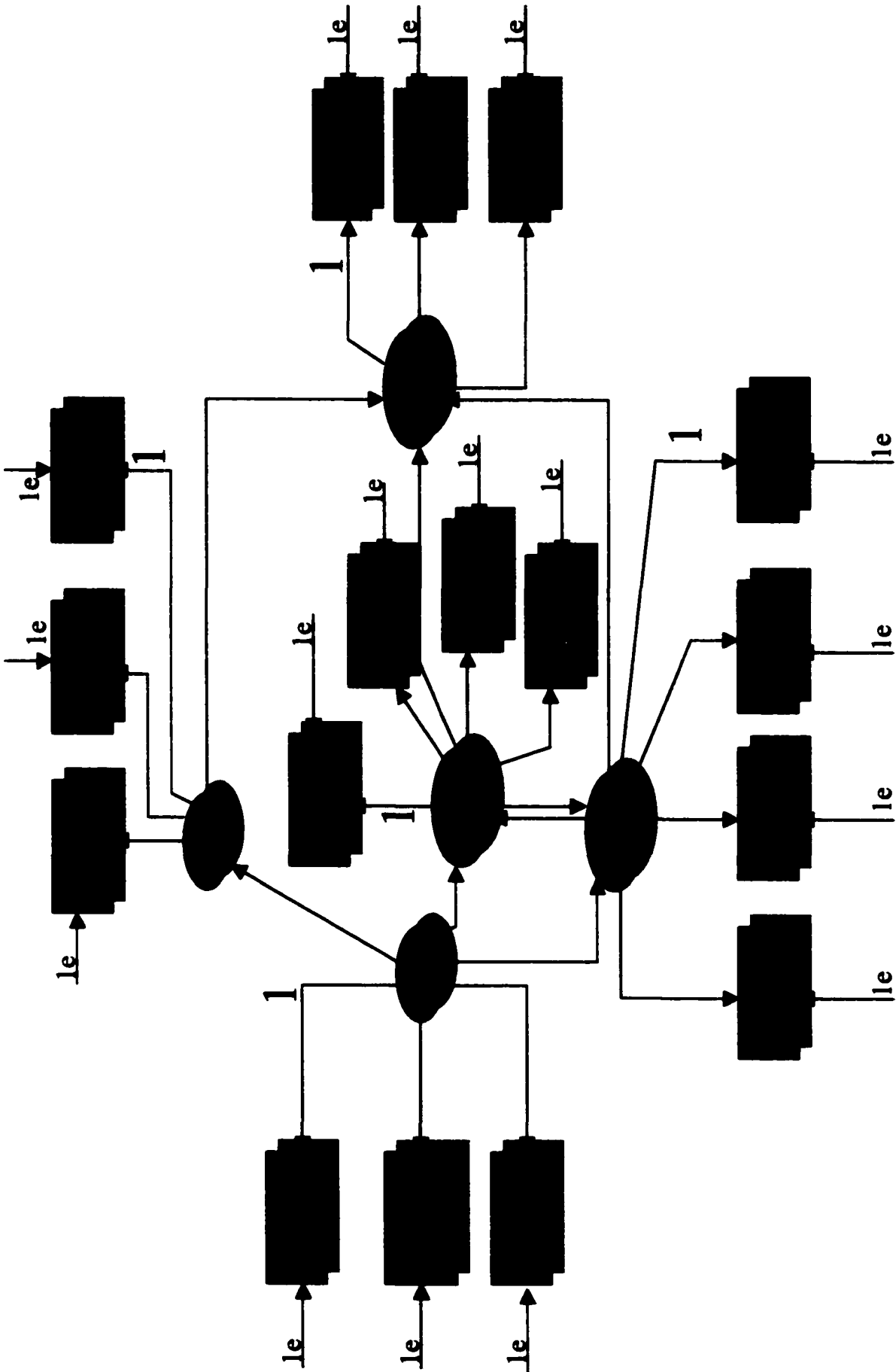
Component	1	2	3	4
1	1.000	.000	.000	.000
2	.000	1.000	1.251E-16	.000
3	.000	1.251E-16	1.000	.000
4	.000	.000	.000	1.000

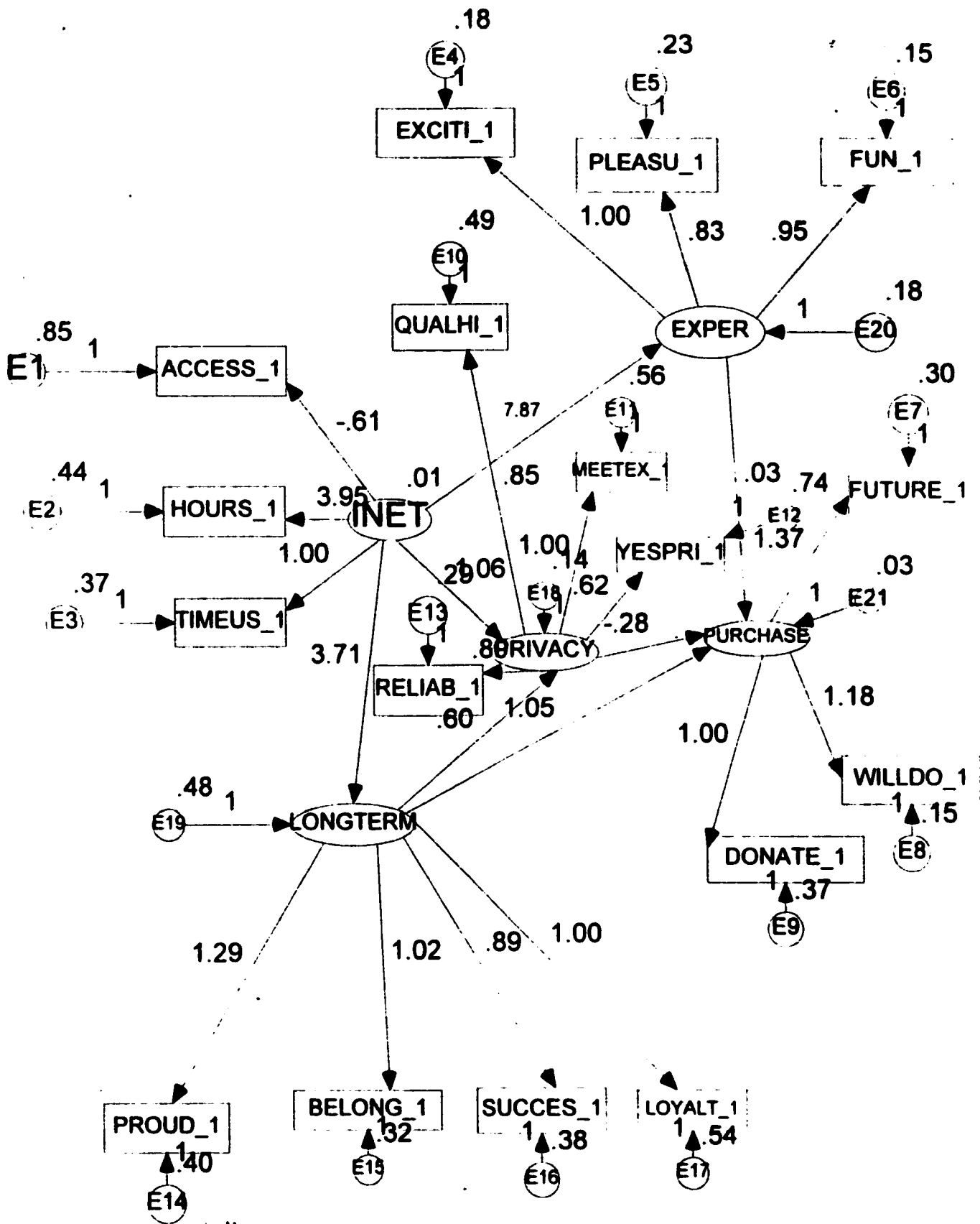
Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

APPENDIX G

STRUCTURAL EQUATIONS MODEL





Amos

by James L. Arbuckle

Version 4

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<http://www.smallwaters.com>

.....

Title

Dissertationsem: Thursday, September 27, 2001 04:33 PM

Your model contains the following variables

TIMEUS_1	observed	endogenous
HOURS_1	observed	endogenous
ACCESS_1	observed	endogenous
RELIAB_1	observed	endogenous
MEETEX_1	observed	endogenous
YESPRI_1	observed	endogenous
FUN_1	observed	endogenous
PLEASU_1	observed	endogenous
EXCITI_1	observed	endogenous
PROUD_1	observed	endogenous
BELONG_1	observed	endogenous
SUCCESS_1	observed	endogenous
LOYALT_1	observed	endogenous
DONATE_1	observed	endogenous
WILLDO_1	observed	endogenous
FUTURE_1	observed	endogenous
QUALHI_1	observed	endogenous
EXPER	unobserved	endogenous
PRIVACY	unobserved	endogenous

LONGTERM
PURCHASE

unobserved endogenous
unobserved endogenous

INET

E1
E2
E3
E4
E5
E6
E7
E8
E9
E11
E12
E13
E17
E16
E15
E14
E10
E21
E19
E20
E18

unobserved exogenous
unobserved exogenous
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unobserved exogenous

Number of variables in your model: 43
Number of observed variables: 17
Number of unobserved variables: 26
Number of exogenous variables: 22
Number of endogenous variables: 21

Summary of Parameters

	Weights	Covariances	Variances	Means	Intercepts	Total
Fixed:	26	0	0	0	0	26
Labeled:	0	0	0	0	0	0
Unlabeled:	19	0	22	0	0	41
Total:	45	0	22	0	0	67

NOTE:

The model is recursive.

Assessment of normality

	min	max	skew	c.r.	kurtosis	c.r.
QUALHI_1	1.000	5.000	-0.114	-0.737	-0.535	-1.727
FUTURE_1	1.000	5.000	-0.215	-1.390	-0.826	-2.664
WILLDO_1	1.000	5.000	-0.061	-0.395	-0.576	-1.859
DONATE_1	1.000	5.000	0.484	3.127	-0.342	-1.105
LOYALT_1	1.000	5.000	0.046	0.299	-0.851	-2.746
SUCCES_1	1.000	5.000	-0.059	-0.381	-0.295	-0.951
BELONG_1	1.000	5.000	0.284	1.830	-0.809	-2.610
PROUD_1	1.000	5.000	0.181	1.169	-1.082	-3.493
EXCITI_1	2.000	7.000	0.041	0.263	0.314	1.015
PLEASU_1	2.000	7.000	-0.309	-1.993	1.206	3.893
FUN_1	2.000	7.000	-0.476	-3.070	0.969	3.128
YESPRI_1	1.000	5.000	0.198	1.280	-0.680	-2.196
MEETEX_1	1.000	5.000	-0.407	-2.630	-0.550	-1.774
RELIAB_1	1.000	5.000	-0.387	-2.498	0.134	0.432
ACCESS_1	1.000	5.000	2.965	19.142	8.364	26.993
HOURS_1	1.000	4.000	0.779	5.028	0.360	1.161
TIMEUS_1	1.000	3.000	-0.787	-5.077	-0.074	-0.240
Multivariate					41.829	13.011

Observations farthest from the centroid (Mahalanobis distance)

Observation number	Mahalanobis d-squared	p1	p2
123	45.851	0.000	0.044
27	45.717	0.000	0.001
88	44.514	0.000	0.000
101	43.866	0.000	0.000
122	38.791	0.002	0.000
12	38.501	0.002	0.000
50	38.063	0.002	0.000
94	37.965	0.002	0.000
87	37.952	0.002	0.000
77	37.725	0.003	0.000
183	37.595	0.003	0.000
7	36.454	0.004	0.000
59	34.799	0.007	0.000
52	34.489	0.007	0.000
82	33.958	0.009	0.000
35	33.023	0.011	0.000
119	32.217	0.014	0.000
49	32.199	0.014	0.000
174	31.997	0.015	0.000
92	30.823	0.021	0.000
139	29.970	0.027	0.000
58	29.649	0.029	0.000
83	28.887	0.036	0.000
248	28.725	0.037	0.000
76	28.370	0.041	0.000
6	28.370	0.041	0.000
62	28.233	0.042	0.000
109	27.708	0.048	0.000
107	27.093	0.057	0.000
108	27.085	0.057	0.000
3	26.933	0.059	0.000
172	26.902	0.060	0.000
160	26.456	0.067	0.000
48	26.447	0.067	0.000
228	26.409	0.067	0.000
19	26.409	0.067	0.000
4	26.079	0.073	0.000
163	25.853	0.077	0.000
45	25.696	0.080	0.000
223	25.416	0.086	0.000
244	25.394	0.086	0.000
247	25.387	0.086	0.000
30	25.254	0.089	0.000
95	24.792	0.099	0.000
161	24.670	0.102	0.000
90	24.602	0.104	0.000
24	24.290	0.112	0.000
13	24.104	0.117	0.000
65	23.976	0.120	0.000
148	23.827	0.124	0.000
132	23.643	0.129	0.001
2	23.630	0.130	0.000
75	23.179	0.144	0.002
21	23.085	0.146	0.002
10	22.413	0.169	0.023
80	22.413	0.169	0.016
146	22.246	0.175	0.020
195	22.190	0.178	0.017
164	22.045	0.183	0.021
250	21.845	0.191	0.031
127	21.836	0.191	0.023
43	21.512	0.204	0.053
118	21.422	0.208	0.053
201	21.385	0.210	0.045
42	20.735	0.238	0.231

44	20.658	0.242	0.228
25	20.636	0.243	0.197
63	20.582	0.246	0.184
215	20.550	0.247	0.161
134	20.479	0.250	0.157
103	20.373	0.256	0.169
190	20.362	0.256	0.140
210	19.977	0.275	0.300
85	19.950	0.277	0.270
15	19.950	0.277	0.226
138	19.887	0.280	0.219
170	19.844	0.282	0.202
185	19.284	0.312	0.530
38	19.168	0.319	0.564

51	19.155	0.320	0.520
184	19.151	0.320	0.469
153	19.039	0.326	0.501
8	18.861	0.337	0.585
102	18.804	0.340	0.575
112	18.789	0.341	0.534
209	18.747	0.343	0.514
26	18.739	0.344	0.467
100	18.545	0.355	0.566
186	18.402	0.364	0.625
121	18.373	0.366	0.597
177	18.200	0.376	0.678
245	17.997	0.389	0.772
189	17.957	0.392	0.757
22	17.753	0.405	0.838
130	17.566	0.417	0.893
23	17.521	0.420	0.887
192	17.423	0.426	0.901
229	17.401	0.428	0.885
233	17.398	0.428	0.860
28	17.277	0.436	0.886

Sample size: 250

Model: Default model

Computation of degrees of freedom

Number of distinct sample moments: 153
Number of distinct parameters to be estimated: 41

Degrees of freedom: 112

0e	10	0.0e+000	-6.1386e-001	1.00e+004	2.80439364768e+003	0	1.00e+004
1e	10	0.0e+000	-4.1493e-001	3.23e+000	1.57629491192e+003	20	3.84e-001
2e	4	0.0e+000	-2.7691e-001	9.34e-001	9.44110366732e+002	5	9.61e-001
3e	4	0.0e+000	-2.4222e-001	4.21e-001	7.80359637691e+002	4	7.45e-001
4e	2	0.0e+000	-4.6247e-002	5.47e-001	6.11229575189e+002	5	8.90e-001
5e	1	0.0e+000	-4.7611e-002	8.19e-001	4.96486923427e+002	6	8.26e-001
6e	0	2.2e+002	0.0000e+000	9.26e-001	4.22725212608e+002	5	8.61e-001
7e	0	2.6e+002	0.0000e+000	9.62e-001	4.00295052937e+002	1	8.63e-001
8e	0	6.7e+002	0.0000e+000	4.21e-001	3.88463489218e+002	1	1.22e+000
9e	0	1.5e+003	0.0000e+000	5.73e-001	3.84954206327e+002	1	1.09e+000
10e	0	5.9e+003	0.0000e+000	4.27e-001	3.82704678968e+002	1	1.22e+000
11e	0	9.9e+003	0.0000e+000	7.19e-001	3.82483330703e+002	1	2.32e-001
12e	0	5.0e+004	0.0000e+000	3.09e-001	3.81185106960e+002	1	1.06e+000
13e	0	4.8e+004	0.0000e+000	6.41e-001	3.81180980892e+002	1	1.80e-002
14e	0	2.3e+005	0.0000e+000	1.75e-001	3.80873038568e+002	1	1.03e+000
15e	0	2.4e+005	0.0000e+000	2.84e-001	3.80856097310e+002	1	8.74e-001
16e	0	4.2e+005	0.0000e+000	4.84e-002	3.80850314118e+002	1	1.02e+000
17e	0	4.4e+005	0.0000e+000	2.39e-002	3.80850221578e+002	1	1.01e+000
18e	0	4.3e+005	0.0000e+000	3.75e-004	3.80850221365e+002	1	1.00e+000

Minimum was achieved

Chi-square = 380.850
 Degrees of freedom = 112
 Probability level = 0.000

Maximum Likelihood Estimates

Regression Weights:	Estimate	S.E.	C.R.	Label
LONGTERM <----- INET	3.712	1.463	2.538	
EXPER <----- INET	7.870	3.078	2.557	
PRIVACY <----- INET	1.063	0.601	1.769	
PRIVACY <----- LONGTERM	0.604	0.082	7.397	
PURCHASE <----- LONGTERM	1.051	0.126	8.354	
PURCHASE <----- PRIVACY	-0.282	0.129	-2.192	
PURCHASE <----- EXPER	0.029	0.035	0.824	
TIMEUS_1 <----- INET	1.000			
HOURS_1 <----- INET	3.946	1.517	2.602	
ACCESS_1 <----- INET	-0.606	0.600	-1.009	
RELIAB_1 <----- PRIVACY	0.800	0.088	9.090	
MEETEX_1 <----- PRIVACY	1.000			
YESPRI_1 <----- PRIVACY	0.621	0.102	6.066	
FUN_1 <----- EXPER	0.955	0.040	24.034	
PLEASU_1 <----- EXPER	0.832	0.040	20.699	
EXCITI_1 <----- EXPER	1.000			
PROUD_1 <----- LONGTERM	1.290	0.092	13.980	
BELONG_1 <----- LONGTERM	1.019	0.076	13.443	
SUCCES_1 <----- LONGTERM	0.887	0.072	12.246	
LOYALT_1 <----- LONGTERM	1.000			
DONATE_1 <----- PURCHASE	1.000			
WILLDO_1 <----- PURCHASE	1.176	0.073	16.122	
FUTURE_1 <----- PURCHASE	1.365	0.089	15.350	
QUALHI_1 <----- PRIVACY	0.850	0.102	8.370	

Variates:	Estimate	S.E.	C.R.	Label
INET	0.014	0.010	1.333	
E19	0.480	0.079	6.091	
E20	0.180	0.128	1.406	
E18	0.142	0.038	3.759	
E21	0.030	0.019	1.546	
E1	0.853	0.077	11.143	
E2	0.443	0.051	8.685	
E3	0.375	0.034	11.057	
E4	0.181	0.028	6.549	
E5	0.234	0.027	8.834	
E6	0.151	0.024	6.177	
E7	0.304	0.036	8.408	
E8	0.149	0.021	6.934	
E9	0.368	0.037	9.984	
E11	0.556	0.062	8.958	
E12	0.739	0.070	10.541	
E13	0.294	0.035	8.460	
E17	0.543	0.053	10.226	
E16	0.382	0.038	10.108	
E15	0.319	0.034	9.443	
E14	0.401	0.045	8.912	
E10	0.491	0.052	9.373	

Modification Indices

Covariances:

	M. I.	Par Change
E10 <-----> E19	5.909	-0.087
E10 <-----> E21	4.111	-0.038
E7 <-----> INET	7.007	-0.014
E7 <-----> E20	10.323	-0.105
E8 <-----> E20	5.522	0.058
E9 <-----> E7	5.082	-0.056
E17 <-----> INET	5.702	0.015
E17 <-----> E21	13.441	0.068
E17 <-----> E8	11.167	0.076
E17 <-----> E9	6.059	0.076
E16 <-----> E21	4.113	0.032
E16 <-----> E7	23.583	0.123
E16 <-----> E9	8.702	-0.077
E16 <-----> E17	16.392	-0.126
E15 <-----> E7	4.862	-0.052
E15 <-----> E16	9.409	-0.076
E14 <-----> E21	6.570	-0.041
E14 <-----> E7	5.724	0.065
E14 <-----> E8	15.604	-0.080
E14 <-----> E17	6.630	-0.086
E14 <-----> E16	8.646	0.083
E14 <-----> E15	21.564	0.122
E4 <-----> E7	5.377	-0.048
E4 <-----> E9	6.694	0.055
E5 <-----> E18	6.109	0.045
E5 <-----> E7	6.718	0.055
E12 <-----> INET	5.078	0.016
E12 <-----> E19	6.954	-0.110
E12 <-----> E20	19.450	0.203
E12 <-----> E10	7.374	0.113
E12 <-----> E7	6.828	-0.091
E12 <-----> E8	4.915	-0.058
E12 <-----> E9	21.913	0.167
E11 <-----> E10	9.857	0.119
E11 <-----> E17	4.808	0.086
E11 <-----> E14	9.919	-0.112
E13 <-----> E19	10.957	0.094
E13 <-----> E18	7.460	-0.051
E13 <-----> E20	6.026	-0.077
E13 <-----> E10	7.770	-0.078
E13 <-----> E7	6.925	0.062
E13 <-----> E9	7.953	-0.069
E13 <-----> E16	7.476	0.067
E13 <-----> E5	5.555	0.048
E1 <-----> E10	5.957	0.107
E2 <-----> E1	5.600	0.097
E3 <-----> E18	4.566	0.045
E3 <-----> E20	5.602	-0.076
E3 <-----> E12	4.300	-0.071
E3 <-----> E13	10.745	0.077
E3 <-----> E1	4.310	0.075
E3 <-----> E2	4.145	0.055

Variances:

M. I.	Par Change
-------	------------

Regression Weights:

	M. I.	Par Change
QUALHI_1 <----> FUTURE_1	4.911	-0.091
QUALHI_1 <----> YESPRI_1	5.705	0.118
QUALHI_1 <----> MEETEX_1	4.658	0.101
QUALHI_1 <----> ACCESS_1	5.502	0.120
FUTURE_1 <-----> INET	7.007	-0.994
FUTURE_1 <-----> EXPER	8.686	-0.119

FUTURE_1	<-----	SUCCES_1	10.011	0.131
FUTURE_1	<-----	EXCITI_1	11.309	-0.121
FUTURE_1	<-----	FUN_1	10.019	-0.120
FUTURE_1	<-----	YESPRI_1	5.648	-0.098
WILLDO_1	<-----	LOYALT_1	4.130	0.055
WILLDO_1	<-----	PROUD_1	4.197	-0.050
DONATE_1	<-----	EXCITI_1	4.896	0.082
DONATE_1	<-----	YESPRI_1	18.471	0.181
LOYALT_1	<-----	INET	5.702	1.103
LOYALT_1	<-----	EXPER	6.028	0.122
LOYALT_1	<-----	SUCCES_1	6.366	-0.129
LOYALT_1	<-----	EXCITI_1	5.096	0.100
LOYALT_1	<-----	FUN_1	6.637	0.120
LOYALT_1	<-----	HOURS_1	5.472	0.140
SUCCES_1	<-----	FUTURE_1	5.135	0.080
SUCCES_1	<-----	LOYALT_1	6.853	-0.097
BELONG_1	<-----	PROUD_1	4.902	0.069
PROUD_1	<-----	BELONG_1	6.076	0.108
PROUD_1	<-----	MEETEX_1	5.634	-0.103
PROUD_1	<-----	ACCESS_1	4.000	0.095
PLEASU_1	<-----	RELIAB_1	7.300	0.119
YESPRI_1	<-----	INET	5.078	1.194
YESPRI_1	<-----	EXPER	8.302	0.164
YESPRI_1	<-----	FUTURE_1	4.616	-0.104
YESPRI_1	<-----	EXCITI_1	9.944	0.160
YESPRI_1	<-----	PLEASU_1	6.069	0.141
YESPRI_1	<-----	FUN_1	8.198	0.153
MEETEX_1	<-----	QUALHI_1	5.244	0.129
RELIAB_1	<-----	PURCHASE	5.886	0.128
RELIAB_1	<-----	QUALHI_1	4.162	-0.085
RELIAB_1	<-----	FUTURE_1	10.074	0.105
RELIAB_1	<-----	WILLDO_1	6.974	0.105
RELIAB_1	<-----	SUCCES_1	9.968	0.126
RELIAB_1	<-----	EXCITI_1	4.752	-0.076
RELIAB_1	<-----	FUN_1	4.137	-0.074
RELIAB_1	<-----	TIMEUS_1	8.815	0.181
ACCESS_1	<-----	DONATE_1	4.419	-0.128
ACCESS_1	<-----	BELONG_1	4.559	-0.124
ACCESS_1	<-----	TIMEUS_1	4.130	0.191
HOURS_1	<-----	YESPRI_1	4.013	-0.097
HOURS_1	<-----	ACCESS_1	5.561	0.113
TIMEUS_1	<-----	QUALHI_1	4.022	0.086
TIMEUS_1	<-----	SUCCES_1	4.439	0.086
TIMEUS_1	<-----	RELIAB_1	11.158	0.169
TIMEUS_1	<-----	ACCESS_1	4.280	0.087

Summary of models

Model	NP	CMIN	DF	P	CMIN/DF
Default model	41	380.850	112	0.000	3.400
Saturated model	153	0.000	0		
Independence model	17	2759.820	136	0.000	20.293

Model	RMR	GFI	AGFI	PGFI
Default model	0.061	0.845	0.788	0.618
Saturated model	0.000	1.000		
Independence model	0.397	0.274	0.184	0.244

Model	DELTA1 NFI	RHO1 RFI	DELTA2 IFI	RHO2 TLI	CFI
Default model	0.862	0.832	0.898	0.876	0.898
Saturated model	1.000		1.000		1.000
Independence model	0.000	0.000	0.000	0.000	0.000

Model	PRATIO	PNFI	PCFI
Default model	0.824	0.710	0.739
Saturated model	0.000	0.000	0.000
Independence model	1.000	0.000	0.000

Model	NCP	LO 90	HI 90
Default model	268.850	213.314	331.986
Saturated model	0.000	0.000	0.000
Independence model	2623.820	2456.756	2798.228

Model	FMIN	F0	LO 90	HI 90
Default model	1.530	1.080	0.857	1.333
Saturated model	0.000	0.000	0.000	0.000
Independence model	11.084	10.537	9.866	11.238

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	0.098	0.087	0.109	0.000
Independence model	0.278	0.269	0.287	0.000

Model	AIC	BCC	BIC	CAIC
Default model	462.850	469.240	723.392	648.230
Saturated model	306.000	329.844	1278.265	997.784
Independence model	2793.820	2796.469	2901.849	2870.685

Model	ECVI	LO 90	HI 90	MECVI
Default model	1.859	1.636	2.112	1.884
Saturated model	1.229	1.229	1.229	1.325
Independence model	11.220	10.549	11.921	11.231

Model	HOELTER	HOELTER
	.05	.01
Default model	91	98
Independence model	15	16

Execution time summary:

Minimization: 0.111
 Miscellaneous: 3.284
 Bootstrap: 0.000
 Total: 3.395

APPENDIX H

ANALYSIS OF COVARIANCE

Univariate Analysis of Variance

Between-Subjects Factors

	Value Label	N
Ethnic Group	1 Caucasian-Non Hispanic	160
	2 African American-Non Hispanic	70
	3 Other-Non Hispanic	12
	4 Hispanic	3
	5 Refused to Answer	5

Tests of Between-Subjects Effects

Dependent Variable: INTENT

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	86.464 ^a	6	11.077	1.550	.163
Intercept	654.272	1	654.272	91.525	.000
RACE	40.938	4	10.235	1.432	.224
INCOME	1.505	1	1.505	.211	.647
EDUC	2.897	1	2.897	.405	.525
Error	1737.092	243	7.149		
Total	17501.000	250			
Corrected Total	1803.556	249			

a. R Squared = .037 (Adjusted R Squared = .013)

Estimated Marginal Means

Ethnic Group

Estimates

Dependent Variable: INTENT

Ethnic Group	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Caucasian-Non Hispanic	8.212 ^a	.213	7.793	8.632
African American-Non Hispanic	7.302 ^a	.335	6.642	7.962
Other-Non Hispanic	7.990 ^a	.780	6.454	9.526
Hispanic	6.712 ^a	1.545	3.668	9.755
Refused to Answer	7.977 ^a	1.268	5.479	10.475

a. Evaluated at covariates appeared in the model: Household Income = 3.69, Education Level = 3.41.

Pairwise Comparisons

Dependent Variable: INTENT

(I) Ethnic Group	(J) Ethnic Group	Mean Difference (I-J)	Std. Error	Sig. ^a
Caucasian-Non Hispanic	African American-Non Hispanic	.910	.403	.249
	Other-Non Hispanic	.222	.805	1.000
	Hispanic	1.500	1.560	1.000
	Refused to Answer	.235	1.279	1.000
African American-Non Hispanic	Caucasian-Non Hispanic	-.910	.403	.249
	Other-Non Hispanic	-.688	.861	1.000
	Hispanic	.590	1.579	1.000
	Refused to Answer	-.675	1.339	1.000
Other-Non Hispanic	Caucasian-Non Hispanic	-.222	.805	1.000
	African American-Non Hispanic	.688	.861	1.000
	Hispanic	1.278	1.731	1.000
	Refused to Answer	1.300E-02	1.470	1.000
Hispanic	Caucasian-Non Hispanic	-1.500	1.560	1.000
	African American-Non Hispanic	-.590	1.579	1.000
	Other-Non Hispanic	-1.278	1.731	1.000
	Refused to Answer	-1.265	2.011	1.000
Refused to Answer	Caucasian-Non Hispanic	-.235	1.279	1.000
	African American-Non Hispanic	.675	1.339	1.000
	Other-Non Hispanic	-1.300E-02	1.470	1.000
	Hispanic	1.265	2.011	1.000

Based on estimated marginal means

Pairwise Comparisons

Dependent Variable: INTENT

(I) Ethnic Group	(J) Ethnic Group	95% Confidence Interval for Difference ^a	
		Lower Bound	Upper Bound
Caucasian-Non Hispanic	African American-Non Hispanic	-.233	2.053
	Other-Non Hispanic	-2.058	2.502
	Hispanic	-2.919	5.920
	Refused to Answer	-3.388	3.858
African American-Non Hispanic	Caucasian-Non Hispanic	-2.053	.233
	Other-Non Hispanic	-3.127	1.750
	Hispanic	-3.883	5.064
	Refused to Answer	-4.468	3.117
Other-Non Hispanic	Caucasian-Non Hispanic	-2.502	2.058
	African American-Non Hispanic	-1.750	3.127
	Hispanic	-3.625	6.182
	Refused to Answer	-4.152	4.178
Hispanic	Caucasian-Non Hispanic	-5.920	2.919
	African American-Non Hispanic	-5.064	3.883
	Other-Non Hispanic	-6.182	3.625
	Refused to Answer	-6.962	4.431
Refused to Answer	Caucasian-Non Hispanic	-3.858	3.388
	African American-Non Hispanic	-3.117	4.468
	Other-Non Hispanic	-4.178	4.152
	Hispanic	-4.431	6.962

Based on estimated marginal means

a. Adjustment for multiple comparisons: Bonferroni.

Univariate Tests

Dependent Variable: INTENT

	Sum of Squares	df	Mean Square	F	Sig.
Contrast	40.938	4	10.235	1.432	.224
Error	1737.092	243	7.149		

The F tests the effect of Ethnic Group. This test is based on the linearly independent pairwise comparisons among the estimated marginal means.

Univariate Analysis of Variance

Between-Subjects Factors

		Value Label	N
Ethnic Group	1	Caucasian-Non Hispanic	125
	2	African American-Non Hispanic	32
	3	Other-Non Hispanic	8
	4	Hispanic	2
	5	Refused to Answer	4

Tests of Between-Subjects Effects

Dependent Variable: NETUSE

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	49.884 ^a	6	8.314	1.947	.076
Intercept	309.445	1	309.445	72.478	.000
RACE	37.790	4	9.447	2.213	.070
INCOME	2.110	1	2.110	.494	.483
EDUC	9.356	1	9.356	2.191	.141
Error	700.198	164	4.269		
Total	9540.000	171			
Corrected Total	750.082	170			

a. R Squared = .067 (Adjusted R Squared = .032)

Estimated Marginal Means

Ethnic Group

Estimates

Dependent Variable: NETUSE

Ethnic Group	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Caucasian-Non Hispanic	7.445 ^a	.185	7.080	7.810
African American-Non Hispanic	6.372 ^a	.370	5.642	7.103
Other-Non Hispanic	6.266 ^a	.740	4.805	7.728
Hispanic	7.492 ^a	1.473	4.583	10.401
Refused to Answer	6.587 ^a	1.098	4.419	8.755

a. Evaluated at covariates appeared in the model: Household Income = 3.92, Education Level = 3.57.

Pairwise Comparisons

Dependent Variable: NETUSE

(I) Ethnic Group	(J) Ethnic Group	Mean Difference (I-J)	Std. Error	Sig. ^a
Caucasian-Non Hispanic	African American-Non Hispanic	1.072	.414	.104
	Other-Non Hispanic	1.179	.763	1.000
	Hispanic	-4.714E-02	1.485	1.000
	Refused to Answer	.858	1.113	1.000
African American-Non Hispanic	Caucasian-Non Hispanic	-1.072	.414	.104
	Other-Non Hispanic	.106	.833	1.000
	Hispanic	-1.120	1.514	1.000
	Refused to Answer	-.214	1.178	1.000
Other-Non Hispanic	Caucasian-Non Hispanic	-1.179	.763	1.000
	African American-Non Hispanic	-.106	.833	1.000
	Hispanic	-1.226	1.662	1.000
	Refused to Answer	-.320	1.304	1.000
Hispanic	Caucasian-Non Hispanic	4.714E-02	1.485	1.000
	African American-Non Hispanic	1.120	1.514	1.000
	Other-Non Hispanic	1.226	1.662	1.000
	Refused to Answer	.905	1.862	1.000
Refused to Answer	Caucasian-Non Hispanic	-.858	1.113	1.000
	African American-Non Hispanic	.214	1.178	1.000
	Other-Non Hispanic	.320	1.304	1.000
	Hispanic	-.905	1.862	1.000

Based on estimated marginal means

Pairwise Comparisons

Dependent Variable: NETUSE

(I) Ethnic Group	(J) Ethnic Group	95% Confidence Interval for Difference ^a	
		Lower Bound	Upper Bound
Caucasian-Non Hispanic	African American-Non Hispanic	-.105	2.250
	Other-Non Hispanic	-.993	3.350
	Hispanic	-4.272	4.178
	Refused to Answer	-2.310	4.026
African American-Non Hispanic	Caucasian-Non Hispanic	-2.250	.105
	Other-Non Hispanic	-2.265	2.477
	Hispanic	-5.427	3.188
	Refused to Answer	-3.566	3.137
Other-Non Hispanic	Caucasian-Non Hispanic	-3.350	.993
	African American-Non Hispanic	-2.477	2.265
	Hispanic	-5.956	3.504
	Refused to Answer	-4.031	3.390
Hispanic	Caucasian-Non Hispanic	-4.178	4.272
	African American-Non Hispanic	-3.188	5.427
	Other-Non Hispanic	-3.504	5.956
	Refused to Answer	-4.394	6.204
Refused to Answer	Caucasian-Non Hispanic	-4.026	2.310
	African American-Non Hispanic	-3.137	3.566
	Other-Non Hispanic	-3.390	4.031
	Hispanic	-6.204	4.394

Based on estimated marginal means

a. Adjustment for multiple comparisons: Bonferroni.

Univariate Tests

Dependent Variable: NETUSE

	Sum of Squares	df	Mean Square	F	Sig.
Contrast	37.790	4	9.447	2.213	.070
Error	700.198	164	4.269		

The F tests the effect of Ethnic Group. This test is based on the linearily independent pairwise comparisons among the estimated marginal means.

APPENDIX I

REGRESSION ANALYSIS

Regression

Variables Entered/Removed^a

Model	Variables Entered	Variables Removed	Method
1	COMMIT, INVOLVE, TRUCOM		Enter

a. All requested variables entered.

b. Dependent Variable: INTENT

Model Summary^a

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.876 ^a	.768	.765	1.3040

a. Predictors: (Constant), COMMIT, INVOLVE, TRUCOM

b. Dependent Variable: INTENT

ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1385.231	3	461.744	271.532	.000 ^a
	Residual	418.325	246	1.701		
	Total	1803.556	249			

a. Predictors: (Constant), COMMIT, INVOLVE, TRUCOM

b. Dependent Variable: INTENT

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.639	.497		-1.285	.200
	TRUCOM	4.581E-03	.041	.005	.112	.911
	INVOLVE	.118	.034	.128	3.497	.001
	COMMIT	.594	.030	.804	19.665	.000

Coefficients^a

Model		95% Confidence Interval for B	
		Lower Bound	Upper Bound
1	(Constant)	-1.618	.341
	TRUCOM	-.076	.085
	INVOLVE	.051	.184
	COMMIT	.535	.654

a. Dependent Variable: INTENT

Coefficient Correlations^a

Model		COMMIT	INVOLVE	TRUCOM	
1	Correlations	COMMIT	1.000	-.274	-.506
		INVOLVE	-.274	1.000	-.265
		TRUCOM	-.506	-.265	1.000
	Covariances	COMMIT	9.127E-04	-2.790E-04	-6.240E-04
		INVOLVE	-2.790E-04	1.133E-03	-3.648E-04
		TRUCOM	-6.240E-04	-3.648E-04	1.669E-03

a. Dependent Variable: INTENT

Casewise Diagnostics^a

Case Number	Std. Residual	INTENT
49	3.114	10.00
88	4.829	14.00
227	3.084	9.00

a. Dependent Variable: INTENT

Residuals Statistics^a

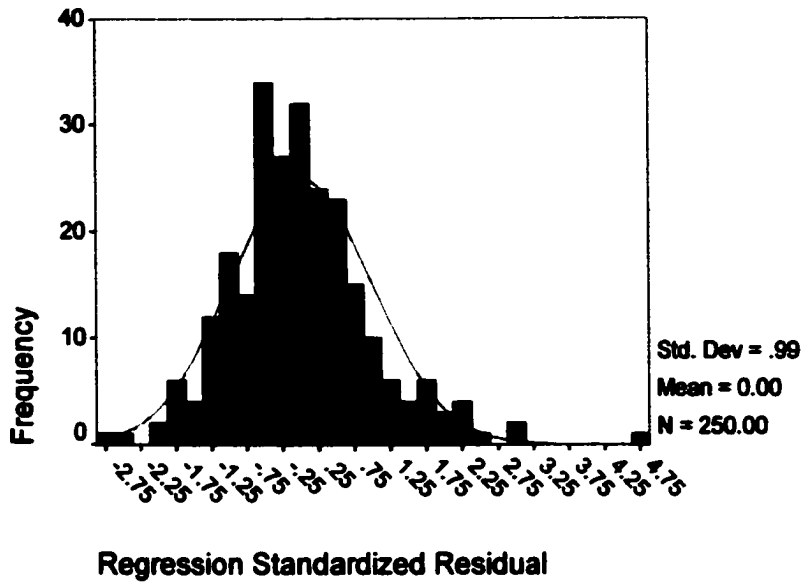
	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	3.5499	13.5620	7.9240	2.3586	250
Residual	-3.5372	6.2969	2.167E-16	1.2962	250
Std. Predicted Value	-1.854	2.390	.000	1.000	250
Std. Residual	-2.712	4.829	.000	.994	250

a. Dependent Variable: INTENT

Charts

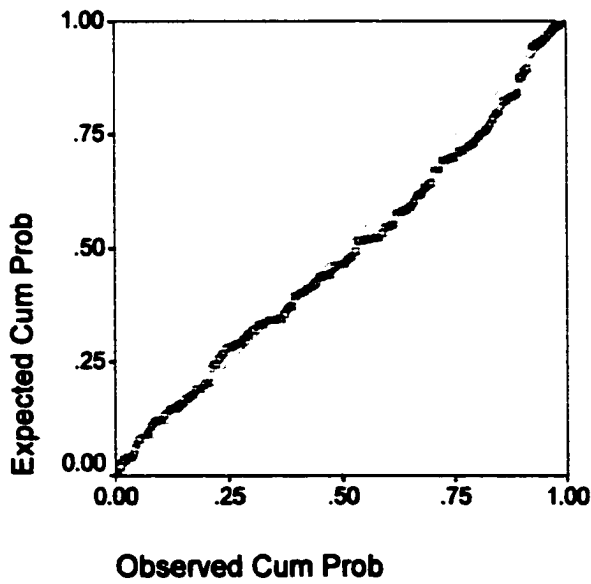
Histogram

Dependent Variable: INTENT



Normal P-P Plot of Regression Standardized Residuals

Dependent Variable: INTENT



Regression

Variables Entered/Removed^a

Model	Variables Entered	Variables Removed	Method
1	Ethnic Group, Household Income, Education Level		Enter

- a. All requested variables entered.
 b. Dependent Variable: INTENT

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.154 ^a	.024	.012	2.6752

- a. Predictors: (Constant), Ethnic Group, Household Income, Education Level
 b. Dependent Variable: INTENT

ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	42.994	3	14.331	2.002	.114 ^a
	Residual	1760.562	246	7.157		
	Total	1803.556	249			

- a. Predictors: (Constant), Ethnic Group, Household Income, Education Level
 b. Dependent Variable: INTENT

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	7.476	.576		12.978	.000
	Education Level	.173	.161	.079	1.072	.285
	Household Income	9.406E-02	.106	.065	.888	.375
	Ethnic Group	-.328	.210	-.099	-1.562	.120

Coefficients^a

Model		95% Confidence Interval for B	
		Lower Bound	Upper Bound
1	(Constant)	6.342	8.611
	Education Level	-.145	.490
	Household Income	-.114	.303
	Ethnic Group	-.740	.085

a. Dependent Variable: INTENT

Coefficient Correlations^a

Model		Ethnic Group	Household Income	Education Level	
1	Correlations	Ethnic Group	1.000	.025	-.096
		Household Income	.025	1.000	-.518
		Education Level	-.096	-.518	1.000
1	Covariances	Ethnic Group	4.395E-02	5.648E-04	-3.253E-03
		Household Income	5.648E-04	1.121E-02	-8.836E-03
		Education Level	-3.253E-03	-8.836E-03	2.595E-02

a. Dependent Variable: INTENT

Residuals Statistics^a

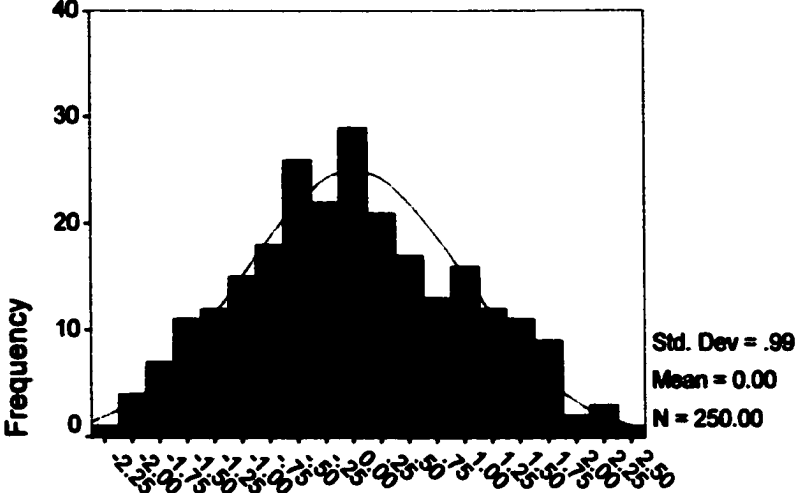
	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	6.6388	9.0157	7.9240	.4155	250
Residual	-6.0157	6.7058	2.380E-16	2.6590	250
Std. Predicted Value	-3.093	2.627	.000	1.000	250
Std. Residual	-2.249	2.507	.000	.994	250

a. Dependent Variable: INTENT

Charts

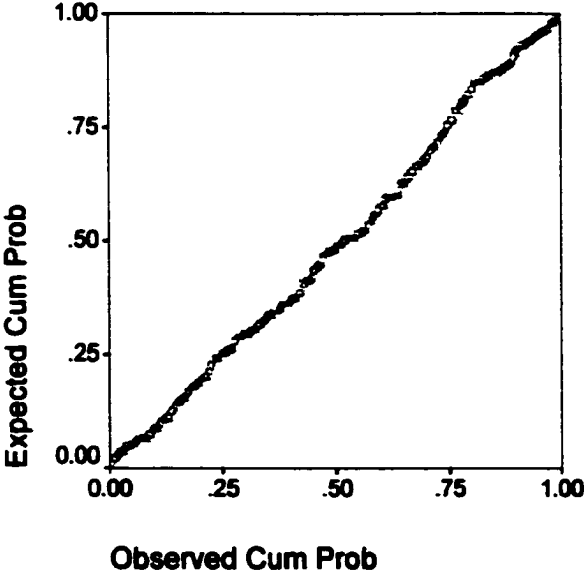
Histogram

Dependent Variable: INTENT



Normal P-P Plot of Regression Sta

Dependent Variable: INTENT



VITA

FRANKLIN D. GAILLARD

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SUMMARY

Over thirty years of supervisory experience in civilian and military environments relating to computer systems, management information systems, systems design, systems analysis, budget, accounting, and technology. Over twenty-five years experience teaching undergraduate and graduate computer science courses at major universities.

EXPERIENCE

1989-Present

Manager of computing at Thomas Nelson Community College. I am responsible for all aspects of computing which includes hardware, software, data, and corresponding procedures. Duties include computer security, programming, educational systems design, administrative computing, and disaster recovery planning. Teach computer science and management information systems courses for Troy State University throughout the United States.

1966-1989

Twenty three years of military experience as a Naval officer working in various aspects of management and computer systems. Performed hands on leadership and technical direction in automated data processing and management information systems to 1000+ Naval personnel over the 23 year career. Administered budgets in excess of \$3,000,000 and negotiated contracts in excess of \$12,000,000 in the area of computer technology. I am a highly decorated retired Naval officer.

EDUCATION

**Doctor of Philosophy
International Business
Marketing
Old Dominion University – Norfolk, Va.**

Master of Business Administration

Marketing, Finance, Management Science, Economics
Old Dominion University – Norfolk, Va.
1994

Master of Science Technology of Management
Computer Science, Management Information Systems
The American University – Washington, D.C.
1973
Certificate in Data Processing
Graduated with Distinction

Bachelor of Science
Psychology, Mathematics
Howard University – Washington, D.C.
1968

HONORS

Beta Gamma Sigma National Honor Society in Business
Psi Chi National Honor Society in Psychology