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Internet Use Among Racial/ Ethnic Groups In The United States

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Abstract
The purpose of this study is to determine whether race and/or ethnicity makes a difference in internet use among groups in the United States. The researcher found that even though the rate and intensity of internet use appears to increase among all racial groups in the United States, minorities, especially, Blacks and Hispanic are significantly less likely than Whites to subscribe, and use the internet frequently and intensely. In other words, “digital divide” indeed does exist based on race/ethnicity, regardless of the increase in computer and internet usage among all demographic groups in the United States. The gap however, appears to be widening along the fault-lines of race, geography, education, age, urban vs. rural and more especially, gender. Targeted government initiatives are necessary at least in the short-run to get all the disadvantaged groups hooked up to the computers and the internet as well as support and expand the computer and internet (online) services already provided by libraries, colleges and other community access centers.

Key Terms
Digital Divide, Internet Penetration, Information Elite, Digital Inclusion; Digital Age, Technology Diffusion, Technology Adoption, information Literacy.

Introduction
As the need for global communication and interaction has grown, so has the competition for access to computers and the internet grown in order to participate effectively in the global market-place of ideas. That is, the ability to actively participate or immerse ourselves in the political, economic and social life of the world. Hence, the ability to access the computer and the internet has become as equally as important. But, not everyone or group has easy access to information communication technology (ICT). While some sections or groups in society are either connected or enjoy a higher and more significant level of connectivity, others enjoy a lesser access. This gap in group access to information communication technology (ICT) is called “digital divide.” According to empirical research, the populations that are already connected include the high income earners, the educated, white households and urban and suburban dwellers.

In contrast, the demographic groups with the lower rates of computer and internet penetration or usage are primarily the underprivileged members of the society that include the poor, rural dwellers, the elderly who lack mobility, the handicapped, the illiterate and the minority (black, Hispanic, Native American). Data show that although more Americans have bought computers and are connected to internet services, some groups are purchasing and utilizing computers and the internet at a higher rate than others. On the whole, all groups show steady increase in computer and internet penetration or usage. Yet, a significant portion of the American population remains unconnected since there still exists residual “have-nots” or “disadvantaged” among the racial/ethnic minorities, young, female–headed households, urban and rural inhabitants.

Targeted government policies and initiatives should attempt to connect these vulnerable populations so that they can also be wired (connected to the computer or the internet). These disadvantage communities need ICT connectivity to access vital electronic or online services, in such sectors as employment, housing and health. Since digital inclusion (the goal of increasing the number of people using technology) will take a long time to materialize, decision makers may be better advised in the short-time, to expand the services that already exist – those of libraries, schools, as well as other community centers in other to provide ICT access and connectivity to the significant segments of the society whose computer and internet access and usage continue to lag far behind others.
The racial and ethnic disparities in the use of information technologies, such as computers and the internet are dubbed “digital divide. The digital divide poses crucial policy issues because the internet has become a significant means of communication and commerce in the United States in particular and the world in general. American households with access to information communication technologies (ICTs) use the internet for important personal, cultural and civic activities. In contrast, those without access to the internet (disadvantages communities) have no access to conduct their daily activities in similar ways. Hence, the disadvantaged are more likely to be disenfranchised as a result of limited access to information, knowledge and skill in terms of fewer job opportunities; limited access to information; knowledge and support; and ability to leverage basic facilities such as consumer services, e-mails and financial services.

The goal of this study is to determine whether race or ethnicity makes a difference in internet use among groups in the United States. The study will also present new data on internet use among members of different racial/ethnic groups, as well as trends in internet use across racial lines. Data on whites, Hispanic and African Americans users of the internet will shine light on the breadth and scope of internet use among racial/ethnic groups in the United States. Data analyses appear to present a complex picture of disparities in internet use across demographic groups. That is, differential use based on education, location, age, gender, income, single-parent families, disability, race and ethnicity, as well as urban and suburban. As Trujillo (2000) clearly and succinctly put it, “Most of these described statistics have stated how access to the internet ran along the fault lines of national societies, dividing educated from illiterate, men from women, rich from poor, young from old, urban from rural”

Put in another way, the intersect of these listed variables on internet penetration puts forward plausible causes of action the government should introduce in order to bridge or close the “digital divide” In the process, scholarly literature on the elements will be reviewed. In this study, we measure the extent of digital inclusion by examining household and individuals who own computer and internet access or connection. In the same vein, we measure the “digital divide” by probing the differences in the rates at which each ethnic or racial group is digitally connected. The race is on across nationalities, cultures and groups in society to keep up with the application and challenges of emerging information technologies. As the new technologies
emerge, those able to purchase the hardware are able to purchase them, while others are not. This paper, therefore, is intended to:

- Explore the nature and scope of “digital divide” among racial groups in the United States.
- Determine the potential implications of not addressing current inequalities in access to advanced ICTs.
- Explore efforts being made or already made to close the technology gaps among groups with respect to access to information technology, as well as possible future programs aimed at eliminating these gaps.
- Analyze the pros and cons of implementing targeted digital programs to eliminate the digital gap.
- Recommend plans aimed at closing the “digital divide” based on ethnicity/race.
- Determine whether digital divide really exists among racial groups in the United States.
- Define “digital divide” as a concept.
- Discuss why digital divide is an important issue of investigation.
- Discuss trends in digital penetration among racial/ethnic groups in the United States.
- Determine whether the differences have been on the increase or decrease.
- Discuss the role of race/ethnicity in internet use among racial groups in the United States.
- Discuss the impacts of other demographic factors such as income, location, gender, income, age, education etc. that predict the rate of ICT adoption and use among racial/ethnic groups.
- Discuss factors that influence technology adoption and diffusion decisions.
- Review academic/empirical literature on the subject.
- Make policy recommendation on what should be done to improve access and thus bridge the digital gap.

For the purpose of this study, race and ethnicity will be used interchangeably: black and African-American; White and Caucasian; as well as Hispanic and Latino.

**Digital Divide: Concept and Definitions**
DiMaggio et al. (2001) has defined digital divide as “inequalities in access to the internet, extent of use, knowledge of search strategies, quality of technical connections and social support, ability to evaluate the quality of information, and diversity of uses.” Perhaps one of the simplest definitions is that given by the U.S. Department of Commerce (2000) which defines digital divide as the “difference in the rates of access to computers and the internet among different demographic groups.” For Campbell (2001), digital divide is “an uneven pattern or gap of Information Communication Technology (ICT) diffusion between or among groups, as measured by the number of phone lines per inhabitant (teledensity), the number of internet hosts, the number of internet users, the number of households that own computers, and the number of cell and mobile phone users.” Moreover, Rice (2001) defined it as the “technological divide” or the lack of “digital inclusion.” The concept of digital divide can be applied with nations, culture, geographic as well as demographic groups.

Other scholars, such as Crews & Feinberg (2002) and Rogers (2001) used digital divide to refer to groups advantaged or disadvantaged by their contacts or lack thereof with information communication technologies (ICTs); Wilson, Wallin & Reiser (2003), argued that digital divide refers to “the gap between those who are reaping the advantages of these new technologies (computers and the internet) and those who are not.” Gunkel, (2003) and Selwyn (2004) define Digital divide as differences in access to ICTs (Information Communication Technologies). Tennessee Regulatory Authority and Tennessee Department of Education (2001) define the digital divide as “the inability of some people to participate fully in the new information age in ways that ensure equality of opportunity in social, educational, political, and economic systems.”

**Trends in Internet Use by Race and Ethnicity**

According to the Pew Hispanic Center Report (2011), Latinos are less likely than Whites and blacks to use the internet. The report shows the rate of internet use by Hispanics at 65%, compared to whites at 77% and blacks at 66%. The report further observed that when variables such as income and education were controlled the disparities in internet
use tend to disappear, signifying that the rate of internet utilization is similar for Hispanics and whites who have comparable levels of education and income. However, the report indicated a slight difference in the channels of access to information technology, such as mobile or smart phones. Moreover, the study showed a special Hispanic group preference inclined to accessing information through a mobile device, rather than a home internet access; the implication of which is that Hispanics are more likely to work longer hours and thus spend less time at home or choose to consolidate their access channels for economic reasons.

The Pew survey also identified other demographic variables that influence the rate of internet use among racial groups – ethnicity, education, nativity, language, age, language, education and income, and place of residence. In terms of ethnicity, the study found that while Latinos are significantly less likely than Caucasians to have a home internet connection (55%: 75%), the probability of Latinos to have a home internet connection is similar to that of African Americans. With respect to education and income, Hispanics with higher levels of education and income are more likely to use mobile applications. As regards Nativity, native born Latinos are more likely than their foreign-born counterparts to be online (81%: 54%); have home broadband connection (60% vs. 35%); own cell phone (86% to 70%); and to have their homes wired (have home internet connection) at the rate of (71% versus 45%).

For age, the percentage of Latinos who were online between the ages 18 and 29 jumped from 75% to 85% and the share of those with cell phones spiked from 81% to 90%. The native born Latinos are more prone to use non-voice application on cell phones (74% than their foreign born contemporaries at 48%). Focusing on language, the Pew study also discovered that 47% of Spanish-dominant Latinos use the internet, compared with 74% of bilingual-Latinos and 81% of English-dominant Latinos. In the overall it concluded that while the internet usage rate among Spanish-dominant Latinos remained low, their share of those using internet increased significantly, from 36% in 2009 to 47% in 2010.
On place of residence, the study, while acknowledging the fact that cell phone ownership is considerably less prevalent in suburban or rural neighborhoods than in urban centers and areas among other groups; the rates of internet use, home internet access, and broadband access are similar for Latinos living in urban, suburban and rural areas.

**Digital Divide Matters: The Benefits of Increasing internet Usage**

The importance of the issue of “digital divide” is magnified by the work of Luke (1997) who argued that the nature of cultures formed and the resulting network of social relationships are increasingly shaped in the new virtual community of the World Wide Web. Hence, he argues that since so much of communication is conducted over digital networks, many personal relationships with all of their cultural meanings are being reframed by the forms of “cyber-subjectivity” in such networked “info-structure”. Therefore, he argues that with the politics of “digital inequality” now surfacing, questions are arising regarding the transformational issues such as access, capability and distribution in cyberspace.

Riedel et al. (1998) joined the discussion with the findings of his survey research designed to assess inequalities in knowledge, access and use of technologies as they relate to underlying inequalities in socioeconomic status and social capital. Their research showed that initial adoption of technological advances occurs among those with greater resources; and that those with resources such as social, but not necessarily economic tend to attract capital once an opportunity arises. They suggest that citizens lacking resources need to be actively recruited into using new technology as a means of bolstering their existing resources.

Shapiro (1999); Bajan (1998); Myers (1994) and Escobar (1995) argued about the challenges posed by the unpredictability of events in the world engendered by the internet. They observed that among the curious events about living through the “digital age” is that it is difficult to understand exactly what is changing. They also argued that new technology has given us the ability to transform basic aspects of our lives: the way
we converse; work, shop and even play; as well as the way we participate in social and political life. They enumerated some examples that include how dissidents use the internet to evade censorship and get messages out; how musicians bypass record companies and post their songs on the web and how traders buy and sell stocks and securities online with the click of the mouse.

They further argued that the internet has not only brought change in how we communicate or compute but has brought a radical shift as to who is in control of information, experience and resources; and that technology now allows individuals to make what was once made by governments and institutions and corporations. On the contrary, they maintain that it gives people the opportunity to earn a living in different ways; take more control of how goods are distributed; exercise a new degree of political power as well as exercise unlimited potential for personal growth and social progress.

Du Pont (1999) in discussing the revolutionary impacts of the internet observes that the computer, internet and microprocessors are enhancing the power of the individual; and that the age of the technology is bound to alter the entire paradigm of knowledge accumulation, as well as open up new vistas, opportunities and areas traditionally known as belonging in the province of government and industry. Dyson et al. (1996) discussed the new areas of influence which Du Pont (1999) referred to or alluded to mean changes in the meaning, structure and definitions of freedom, structures of government, definition of property, nature of competition, conditions for cooperation, sense of community, and the nature of progress. Further, Dyson (1996) expanded the list of elements to be reshaped in the knowledge age to include the nature of cyberspace, ownership of property, freedom, marketplace, essence of community, as well as the role of government.

There are many reasons why we should be concerned about the emerging gaps in access to available information technology:
1. **Social Use**: People use the Internet for e-mailing and web searching for information purposes. Other uses of internet technology are for civic organizing; access to online services such as online banking, job searching; interpersonal communication, and interacting with public authorities. In the developing world, much of human interface is by face-to-face. Also there is more activity toward consuming information rather than producing information or knowledge. This is primarily because of lack of technology culture, rising cost of internet access and censorship. Notess (1999) maintains that the communication side of the Net is often the most important to the Net users; and that communication and building a sense of community revolve around many different online approaches that include e-mails, chat sessions, discussion forums, Usenet news, guest books and e-mail lists.

For the content managers of web sites, Notess (1999) also notes that the communication tools can be used to notify clients, customers, patrons, and other users when websites change, move or are updated. He also discussed at length, the use of guest books, forums, message boards, e-mails, Usenet and Chat in web sites. Parks et al. (1998) add that the most commonly reported types of relationships are friendships and romances, with majority of the latter form being with members of the opposite sex at the rate of 83%. They conclude that while most relationships have migrated to other virtual environments, a third of them (33.33%) have resulted in face-to-face meetings.

2. **Online Shopping and Bill-Paying** Increased consumer participation is always a boost for firms due to the large volume of traffic by consumers for shopping. More especially, the health service industry appears to gain more as older consumers participate online to access crucial health information related to crucial health and medical products and services. As Moschis et al. (2004) observed, older consumers tend to have greater wealth, spending power and store loyalty than young consumers. Hence, online shopping and bill paying are currently seeing the fastest growth among all groups.
3. **Economic Development and Jobs**: Low income users will be more likely to use the internet to look for a job. African Americans and Hispanics have acquired significant purchasing power in recent years, and trends in their online behavior have created enormous commercial advantages in the United States. As firms increasingly design websites, businesses acquire an added incentive to expand and employ more people and also, according to Bruner and Kumar (2005) companies become better positioned to capture an increasing share of online-minority consumers. One of the areas of challenge here may be related to job skills.

A business must increasingly look to far distant places or even overseas to fill high tech positions. The need to upgrade the skills of Americans becomes even more challenging and paramount. Every state and group in the United States benefits from a well-educated workforce. Many states with new immigrants, such as Georgia, Florida, Texas, Nevada, South Carolina and Arizona are more likely to recruit large companies to locate in their states thereby bringing jobs to their citizens. Where these states are unable to provide the required skills to man these high-tech jobs, the businesses are more likely to choose to locate in other places.

Expanding internet use among less-educated consumers could not only help them find better jobs, but will eventually facilitate their participation in online shopping as well as increase their earning and purchasing power. As indicated in the U.S. Commerce Department report of (2000), e-mail remains the internet’s most widely used application as (79.9%) of internet users reported using e-mails.

Townsend (1998) stated that virtual teams linked through advanced computer and telecommunication technologies provide potent response to the challenges associated with downsized and lean organizations. Also, virtual teams address new work force demographics, where essential and skilled workers can operate and perform task from any part of the globe; and where skill and capital are mobile. Also, firms benefit from virtual teams by their ability to tap expertise without necessarily dispersing or transferring their workers.
4. **Hobbies and Entertainment:** There is a large volume of untapped opportunities by firms, of low income and less educated consumers. Studies have shown that low income individuals tend to increasingly pursue hobbies and entertainment online. Also, in the words of Dauherty (2004), the growing trend in “advergaming” could provide marketers the opportunity to leverage the power of the internet as a promotion tool for such consumers.

5. **Civic Involvement:** E-government has grown drastically. More government services are posted online, citing savings in time, paperwork and record-keeping. The internet has become a standard and efficient means of delivering government information, making government purchases and providing government services. For example, some public universities no longer accept paper applications for admission. As more government services move online, those without access to internet will find themselves increasingly disadvantaged in their ability to access and use government services. Even legislative votes and committee votes are now made via the internet. Also, citizens nowadays pay their mortgage, property and income taxes online.

6. **Educational Opportunities:** Bridging the “digital divide” helps to provide educational opportunities designed to remedy existing differences in student achievements. Students who currently lag behind in information technology usage can benefit from new approaches to reaching, engaging and teaching them. Internet access is no longer a luxury item, but a resource used by many from all corners of the globe. Schools, libraries and other public access points continue to especially serve those underprivileged groups that do not have access to computers and the internet at home. For example, less educated and unemployed blacks, Latinos, Asian Americans and others are far more likely to use public libraries to access the internet.

**Why The “Digital Divide” Among Groups in the United States?**

There is an abundance of empirical data based on research on the causes of digital divide in the United States and beyond.
1. **Socio-Economic Status: Education and Income:** It is not surprising that education has featured prominently as one of the factors that contribute to digital divide. Widening levels of education tend to magnify the effects of “digital divide”. People with higher levels of educational attainment and household income are more likely to own, install, as well as use computers and the internet. As the earlier cited Pew Hispanic Center report of 2011 showed, Hispanics with more education and more income are generally more likely to use mobile applications.

For the Hispanic population, higher levels of educational attainment and increased household incomes were directly correlated with higher rates of internet use, home internet access, owning a home internet access and cell phone, as well as having a home broadband connectivity. The same was the case with respect to non-voice cell phone applications. Even, the study by the U.S. Department of Commerce (2004) supported this thesis. The two studies examined 2003 national demographic data and found that 455 of internet users with incomes less than $15,000 had internet access at home.

They found also, that approximately 25% of the same population had internet access at home. Next, they discovered that 28% of internet users with annual household incomes of less than $30,000 logged on from locations other than their place of work, home, school, libraries or friends’ houses; and that almost half actually had private internet access. A study by Callison (2004) showed that the incident of digital divide declines as household increases. In addition to enjoying increased access to information technology, Masson and Dodds (2005) also discovered that students of high income families have a higher propensity and tendency to use the internet. This study was also supported by the findings of Eamon (2004), which stated that children from low income families are 15% less likely to use computers compared to their counterparts from high income families who are only 3% less likely to use computers.
2. **Gender:** Numerous studies have identified gender as a predictor of "digital divide". In a study of U.S. college students, it is established that gender remains a predictor of internet use. In fact, studies by Bimber (2000); Katz et al. (2001); and Losh (2003) strongly establish the fact that differences between female and male students persisted over time, thereby establishing the existence of gender-based digital divide. However, Ching, Basham, and Jang (2005) while acknowledging that the gender gap may be narrowing, suggest as a matter of trend that more females than males are actually accessing technology.

The study by Jackson et al. (2001a) observed in their study of males and females that while male and female college students used the internet often and in the same amount, they often used them in different ways. They concluded that females were more communicative users of the internet, because they were more interpersonally oriented than men whom they found to be more information/task oriented than women. In a subsequent study, Fortson et al. (2007) found that male college students are more likely to use the Internet as a source of entertainment, as opposed to female college students who showed more tendencies to go online for communicative and educational purposes. Nevertheless, they found no difference in their exhibition of academic uses of the internet or even the rates of e-mail uses based on gender. Put in another way, males and females exhibited similar academic uses of the internet as well as similar rates of e-mail use.

Another survey study by Odell et al. (2000) of 843 students from eight colleges and universities found that males were at the ratio of 36.4% to 26.6% more likely than females to research purchases; look for news at a rate of 59.5% to 39.7%; and play games at the ratio of 43.6% vs. 26.6%. Other studies by Van Dijk et al. (2003); Korupp et al. (2005) and Venkatesh et al. (2004) show that gender inequality is present when studying the adoption and participation rates of women in technological fields. They observe that women are less likely to own a computer than men; are more practical in their use; more likely to use them in their place of work; less likely to own them or access the computer for private use. They also found that although
gender divide in terms of computer use is closing, the skills and usage gap still remain quite wide.

3. **Race/Ethnicity:** Several studies have also established a linkage between race and computer use. The Pew Hispanic Center (2011) found that Latinos are less likely than whites to have a home internet connection (55% to 75%); and that this difference persists at a rate of 85% to 96% when the analysis only focused on internet users of the racial groups. When compared with blacks, Hispanics have almost identical chance of having home internet connection as blacks at a rate of 55% to 58% respectively. With respect to internet users, the study found that Hispanics are less likely to have a home broadband connectivity of (69%) compared to blacks (78%) and whites (84%). In terms of cell phone owners, Hispanics are as likely as whites or blacks to use at least one of the four non-voice cell phone applications – more than 77% of Hispanics; 79% of blacks and 75% of whites do so. But, the study also found that Hispanic Cell phone owners are more likely than their white counterparts to access the internet (40%; 34%); e-mail (36% to 31%) and instant message (45% Vs. 24%) from their cell phones. However, black cell phone owners are more likely than Hispanics (51% to 40%) to access the internet from their cell phones.

In a related study, Cullen (2001) argued that people of ethnic minority groups are often disadvantaged in the “digital world” in part due to inferior educational and income status, as well as the dominance of western culture which permeates the internet world; a finding consistent with that of Gordon, Door and Gordon (2003) whose study of the Aborigines showed an evidence of digital divide. Other Researchers, such as Cooper (2006); Mullis, Mullis & Cornille (2007) and Slate et al. (2002) have found continued evidence of differential use of ICT and attitudes towards the medium. Others like Cotton and Jelenewicz (2006) and Jackson et al (2001b) report that the digital divide is becoming less pronounced; and that the differences in use between races do not appear to be an artifact of time, as both recent and decade –
old studies show differential evidence in access and use of information technology across racial lines.

4. **Region- Rural Versus Urban/Suburban**

   The Pew Hispanic Center (2011) report shows that where people live, whether in the urban or rural neighborhoods or regions have a lot to do with their information technology behaviors. The study found that cell phone ownership is significantly less prevalent in suburban areas than in urban or rural areas. However, it found no difference between the rates of internet use, broadband access or home internet access among Latinos. When contrasted with Pew report of February 2006, titled “rural broadband Internet use”, three demographic factors were identified as responsible for the persistent differences in internet penetration between rural and non-rural America.

   One factor was that a greater percentage or share of older Americans resided in rural parts of the United States than urban and Sub-urban areas. The Pew study found that 43% of rural inhabitants in the United States were over the age of 50 years; 18% over age 65 while 38% of non-rural area inhabitants were over the age of 50, with 16% over 65 years old. Moreover, much of rural America falls in the lower end of the nation’s income distribution, with 33% of rural respondents in the survey saying that they lived in households with incomes less than $30,000 per annum, compared with 24% of non-rural respondents. Furthermore, most of the population who lived in rural America were on the average less educated than inhabitants of urban and suburban neighborhoods. In fact, 29% of non-rural Americans between 2005 and 2006 had college degrees or higher, compared to 18% of rural America. In all, the study concluded that in spite of the demographic factors, urban and suburban internet use still increased by only 11%.

5. **Age:** Most studies have shown that people over 50 years old are less likely to use personal computers and the internet. The 2011 Pew Hispanic Center study concluded that among Hispanics, home internet use, home broadband access, internet use and cell phone ownership were less prevalent at older age. It also showed that for
Latinos, the likelihood of utilizing any type of non-voice cell phone application also declined with age. Further, it found that between 2009 and 2010, the number of Latinos aged 18 to 29 who were online jumped from 75% to 85%. The case was similar for Latinos with cell phones whose share of use rose from 81% to 90%.

**Factors That Support Adoption Decisions By End Users**

Bridging the digital divide will entail the implementation of the recommendations of the ITU Report of (2002); Tennessee Regulatory Authority and Tennessee Department of Education (2001) that cited select factors that drive implementation of computer and internet adoption policies:

(a) **Awareness of Social Use. (Social Access):** The state and people should be aware of the importance of digital technologies and their implications in their lives. There should be mass education to inform the people around whom technology is designed for, when to use them and under what purposes and circumstances. People should be educated on the benefits of these technologies in terms of improving their socio-economic wellbeing, education benefits, commercial benefits, hobbies and entertainments benefits, general social and transactional communications and civic responsibilities, all carried out within the context of cultural sensitivity. It is very important to allay the fears of the people about the social and cultural impacts of any emerging technology as suggested by empirical research. For example, Korupp and Szydlak (2005) examined and provided insight on how the causes and trends in emerging technology use contribute to the digital divide as well as social inequality.

Stanley (2003) established in his study that racial, social and cultural differences and characteristics have a lot to do with respect to the adoption and use of technology. For example, non-computer users have shown a profound fear, bias, preconceived notions and unease about technology, in terms of how relevant the technology is to their lives; sources of their fears about the new technologies and how they envision themselves using the technology.
Postmes et al. (1998); Ryan (1997) and Turkle (1996) argued the basis of concern of groups and communities to embrace information technology. Turkle (1996) argues that one of the concerns is the fact that the politics of virtuality means that some people will better be informed in society while others will not be informed; and that the situation is exacerbated by the reality that access to the emerging information technologies breaks down along class lines which have the potential to create and maintain what he called an "information elite". In support of this claim, Postmes et al. (1998) argue that computer-mediated communication will unleash the power to breakdown social boundaries; liberate individuals from social influences, group pressure and dynamics; undermine status and power relations that characterize traditional societies that usually depend on face-to-face interaction.

Ryan (1997), posits that even though the use of the term community to refer to electronic forms of interaction is inappropriate, as true communities are not amenable to the internet or e-mail in terms of their creation and maintenance. While expressing support for the legitimate fears of the community in terms of the potential negative impacts ushered by the proliferation of communication, such as threat to freedom of speech and the proliferation of what he called "simplistic and nonsensical" communication. He concludes that these concerns though not necessarily baseless remain exaggerated.

This position was also buttressed by the work of Warschauer (2003) who came up with the "social embeddedness" of technology paradigm. The theory argues that there is a social context to technology adoption and not just providing everyone with a computer or internet connection as a way to close the technology gap. He argues that technology and society are "co-constitutive", because as technology shapes society, so will Society influence technology. This premise is cemented by Hearst, M.A. and J. Grudin (1999) who stated that society and information technology are rapidly and in a surprising way co-evolving. Although they argue that there are controversies surrounding the way society and network information are changing one another, they however, agreed without hesitation that for one to be socialized means learning what kinds of behaviors are appropriate in a given social context or situation.
(b) **Accessibility to information Technology:** Policies should be directed toward infrastructural provision and expansion, designed to provide the necessary connectivity for effective deployment and use of information communication technology. Income, lack of awareness and interest, affordability, user-friendliness issues will have to be addressed because the adoption and diffusion of computers and the internet are contingent upon these forces. For the condition of access to information technology to be satisfied, everybody should have affordable and readily available access to the information communication technology (ICT). This will ensure mass and full participation in the use of the internet.

(c) **Technology Availability and Affordability:** Government policies should try to offer within reasonable proximity or reach, appropriate technologies, hardware and software. Different kinds of technologies exist in the market. They include hardware, broadband, software and bandwidth for accessing computers and the internet. These differences in mode of access to information dictate volume, diversity in internet use, as well as determine efficiencies. For example, using dial-up modems makes a huge difference from accessing the internet using high-speed broadband connections or even cable modems. In terms of affordability, government policies should try to provide low-cost services to users, including low cost equipment, and training for effective use of information communication technologies for national and personal development.

(d) **Technology (Computer) and Information Literacy:** Possessing a computer and being able to use it are two different things. Effective, meaningful and productive internet use requires special skills and training. In order to satisfy the computer literacy requirement, everybody should know how to use computers as well as possess the skills to be able to access the internet. With respect to information literacy, the standard of measurement should be that every person should know how to find information on the web or internet, as well as be able to distinguish between reliable and unreliable forms of information.

(e) **Appropriate Information Content:** Language, content and location barriers come into play in determining technology adoption decisions. What consumers of information
technology bring with them on the line invariably determines what they can get from the internet in return. Appropriate information content threshold requires that everyone have the capability to find online, information that is relevant to their everyday life. Hence, the diffusion of computers and the internet have a lot to do with their affordability, relevance to people’s lives and the degree of user-friendliness.

Van Dijk (2003) simply classified the following barriers to digital access and the types of access they constrain as:

- **Mental Access** – Restricted by lack of basic digital experience due to lack of interest, computer anxiety as well as unattractiveness of the emerging technology.
- **Usage Access** – When significant lack of usage opportunities limits access.
- **Material Access** – This form of restriction occurs when computers and network connections are not available.
- **Skills Access** – A form of restriction driven by lack of computer or digital skill as a result of insufficient user-friendliness and limited social and educational support.

**Conclusion and Recommendations**

There are major challenges that must be addressed for people and cultures to be able to embrace the emerging technologies, bridge the technology gap and then fully adopt the emerging technologies. They include:

(a). **Confidentiality and Content**: Online confidentiality and content concerns exist because there exist legitimate concerns by technology consumers regarding the collection and transmission of privileged and confidential personal information via the internet, such as individual financial and health records.

(b). **Cost**: Lowering the cost of computers through competition and universal service are desirable. Already, increased PC manufacturers and internet service provider have, through competition substantially reduced cost associated with owning and installing personal computers.

(C) **Access**: Expanding community access centers, such as community centers and public libraries is imperative. These centers will provide, through competition, public access to the
internet for the poor and minority who generally lack internet access at home and on the job. This will help to provide affordable access to computers and the internet to digitally vulnerable groups. Government should also help subsidize access for low-income households.

(d) **Awareness**: Building awareness is paramount because of concerns that while many people are embracing computers and the internet, many do not, partly because they do not realize the depth and reach that these emerging technologies are relevant and of value to their lives. There should be outreach programs to these isolated groups, to educate them on why they should care about the “digital divide” as well as educate them on how the new technologies will open new vistas and opportunities to them and their children.

There should also be a focus on structural and infrastructural issues in terms of discovering why many people are not connected. On governmental level, there should be emphasis on sharing information and relevant data on the rate and causes of disparities in computer and internet penetration, then educate the policy makers on all levels of government in order to fashion appropriate policies to expand internet access to all communities especially those that are showing disparities in access.

Finally, there should be continued monitoring by the government through data collection and research in order to assess or gauge efficiencies and deficiencies associated with internet access and connectivity. Based on available data, policies will be fashioned to eliminate disparities in access to computers and the internet based on such forces as geography (location), race/ethnicity, age, education, earning power (income), education, disability, and single-parent families' status.

In order to be able to drastically bridge the digital divide among members of different ethnic and racial groups, government policy should be designed in such a way as to:

First, promote **awareness** and change of attitude regarding technology through mass education, in order to educate people about the importance of digital technologies like the computer and the internet. The public should be made to realize that technology is more of a necessity than a luxury; and that its incredible power in shaping the future, in terms of increased productivity and efficiencies should be embraced. Next, government initiatives should try to guarantee expanded
accessibility by providing improved infrastructure and platforms required for connectivity for ICT and internet use.

Also, government plans should also guarantee availability through the offering of appropriate software and hardware within reasonable proximity to information technology users. Further, government should promote universal access through policies and programs that should make ICT use more affordable by making available to technology consumers, training and low cost services. Moreover, government policies should support more community access centers by way of support for schools, libraries and other public access points that continue to provide computer and internet accesses and services to vulnerable groups such as the elderly, poor and minority groups that have limited access.

Finally, government should provide additional training to technical staff. It is not enough just to own a computer and other technologies such as the internet. Communities as well as educational establishments should be encouraged to develop cultures of technology by training and providing better trained and qualified staff alongside new technologies in order to provide the best opportunity for the efficient deployment and utilization of available technological resources. In addition to setting up and servicing, the technical staff should develop the technology and practice of maintaining the hardware and training new technical staff for future information communication maintenance and capacity building.
References


Daugherty T. “from the Guest Editor: Special issue on Gaming and its Relationship with Advertising, Marketing and Communication.” *Journal of Interactive Advertising*, 2004; 1 (5)


Ryan, Alan (Fall 1997)). Exaggerated Hopes and Baseless Fears, *Social Research*, Volume 64, No. 3, pp. 1167 -1190.


Shapiro, Andrew L. (1999), the Net that Binds: Using Cyberspace to Create Real Communities. *The Nation*


