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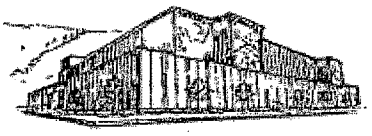

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AMERICAN INDIAN CULTURE AS A POTENTIAL INTERVENING FACTOR IN INTERNET ACCEPTANCE

By

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B.A., Stanford University, 1991

Presented in partial fulfillment of the requirements

for the degree of

Master of Business Administration

The University of Montana

May 2001

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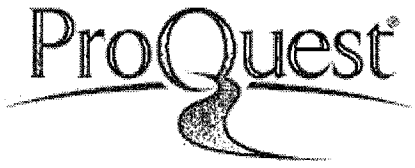

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American Indian Culture as a Potential Intervening Factor in Internet Acceptance

Committee Chair: Dr. Jeffrey Shay

A great deal has been written on the various barriers to Internet acceptance on American Indian reservations. These barriers include training, education, content, infrastructure, and sovereignty issues, which are all either directly or indirectly linked to lack of Internet access in Indian Country. However, having access to this technology does not necessarily ensure that it will be used or used effectively. In fact, understanding why people or groups of people either accept or reject technology is something that has caught the attention of several researchers in recent years.

Meanwhile, the Technology Acceptance Model (TAM) has been widely accepted and used by researchers to gain a better understanding of the adoption and use of technology. The TAM asserts to predict technology acceptance based on two specific beliefs about the technology in question. However, the model has not taken into account the impact of various cultural dimensions on one's basic beliefs, which are largely determined based on fundamental values, or culture.

The purpose of this thesis is to further the literature and understanding of how dimensions of traditional American Indian culture act as a potential intervening factor in the constructs of the Technology Acceptance Model and, specifically, the impact on Internet acceptance. Responses were gathered from 102 tribal member employees of one reservation, and the measures and research hypotheses were analyzed using various tools in SPSS Version 10.0 for Windows. The results show that the degree to which tribal member employees subscribe to traditional American Indian culture, as determined by their isolation within the culture or exposure to other cultures and outside influences, do have a potential impact on Internet acceptance. These findings confirm the need for, and importance of, further research to determine how culture might influence the relationships between constructs in the TAM.

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INTRODUCTION

Many people and groups of people are hesitant about new technologies, and understanding why they either accept or reject technology is difficult regardless of the person or groups of people who are under consideration (Swanson, 1988; Agarwal, et.al, 1999). Much of the literature referencing technology and, specifically, the Internet, in Indian Country has focused on issues of access, economic development and training, education, content, and sovereignty.[1] Although these forces are unquestionably impacting the rate of acceptance and usage of the Internet on American Indian reservations, it is likely that the cultural values of tribes have an impact as well. This possibility is evident in the voices of Two Horses (1998), Howe (1998), Savard (1998), Ereaux (1998), and Warner (1998), who warn against the potential cultural invasion imposed by the Internet. These authors warn of the cultural exploitation made possible through the massive reach of the Internet, the impact of low-context Internet communications on a traditional culture that values high-context, face-to-face communications, and other adverse impacts on tribes' efforts to preserve traditional cultural values on reservations.

CONCEPTUAL MODEL & RESEARCH HYPOTHESES

Technology Acceptance Model

The Technology Acceptance Model (TAM) provides a theoretical framework for understanding the relationship between computer technology acceptance and utilization among users (Davis, 1989). Although there are several such models, TAM is one of the

[1] www.ncai.org/indianissues/DigitalDivide, American Indians & the Digital Divide. Accessed January 2001. This site contains several links to articles addressing access, economic development and training, education, content, and sovereignty as it relates to Internet use in Indian Country. Maintained by the National Congress of American Indians.

most well-known and widely cited, and has been empirically supported in several studies (e.g., Taylor et. al., 1995; Doll et. al., 1998; and Agarwal et. al., 1999). The basic premise of TAM (Davis, 1986) is that two specific beliefs about technology, perceived usefulness and perceived ease of use, influence the potential user's attitude toward using the technology, which then influences the user's intention to use the technology, which subsequently results in actual usage. Perceived usefulness is defined by Davis et. al. (1989) as the degree to which a potential adopter sees the innovation as providing value over alternative means of performing the same task. He defines perceived ease of use as the degree to which a potential adopter sees usage of the technology to be relatively effortless (Davis, et. al,1989). Both perceived usefulness and perceived ease of use could be influenced by external variables such as the level of support and the opinions of others. Appendix A depicts a graphical representation of the TAM developed by Davis et. al. (1989).

Culture Intervenes in the Technology Acceptance Model

The cultural values instilled in individuals undoubtedly provide the foundation for forming basic beliefs and attitudes. Therefore, culture is likely an important but overlooked element impacting technology acceptance and intervening in the Technology Acceptance Model. In fact, Straub et. al. (1997) asserted that managers should learn about cross-cultural issues in technology acceptance and use because addressing such issues can determine the degree of success in technology implementation. Veiga et. al. (1999) argued that "It is easier to achieve [technology] acceptance when one is appealed to in a way that is convincing and therefore consistent with one's values. Thus, gaining

acceptance of a new information technology is likely to be most effective when the organization uses culturally appropriate introduction and support processes."

Given that one's fundamental values, or cultural grounding, provide the foundation in establishing basic beliefs and attitudes, then the Technology Acceptance Model is not complete without consideration for the possible effects of cultural differences on technology acceptance. Geert Hofstede (1993) has provided a comprehensive definition of culture along with several dimensions of culture. Although Hofstede has proposed and adopted five different dimensions of culture – collectivism versus individualism, power distance, uncertainty avoidance, femininity vs. masculinity, and time orientation – this project will focus on the dimensions of collectivism versus individualism, power distance, and uncertainty avoidance, and these dimensions will be further discussed in the following subsection.

Hofstede's Dimensions of Culture

Hofstede defines culture in terms of the mental programming that distinguishes one group of humans from another and for which values serve as the foundation (Hofstede, 1984). "The sources of one's mental programs lie within the social environments in which one grew up and collected one's life experiences. The programming starts within the family; it continues within the neighborhood, at school, in youth groups, at the work place, and in the living community" (Hofstede, 1991). Hofstede's dimensions are not meant to be absolute measures of culture, but instead are proposed by Hofstede for the purpose of relative comparisons of different cultural groups (Hofstede, 1991).

Hofstede defines the three dimensions used in this study as follows (Hostede, 1993):

Individualism vs. Collectivism: Individualism is the degree to which people prefer to act as individuals rather than as members of a group. Collectivism is low individualism.

Uncertainty Avoidance: The degree to which people prefer structured situations, in which there are clear rules for how one should behave.

Power Distance: The degree to which inequality among people is considered acceptable and even expected.

American Indian Culture on Hofstede's Cultural Dimensions & The Impact on Technology Acceptance

Although American Indians reside within the mainstream United States and are often considered part of the western culture, tribes have traditionally been separate nations with non-mainstream cultural values. The differences between traditional American Indian culture and the mainstream culture of the United States, which dominates more than 90 percent of what is available on the Internet (Kotler, 1996), are likely to impact the rate of Internet acceptance on American Indian reservations, just as it has in other non-Western communities. For example, although Japan leads the world in the production of computers, it trails the other G-7 nations in the application of this technology (Hedley, 1998). This phenomenon is attributed largely to differences in the Japanese culture, which is paternalistic, formalized, and relies on face-to-face communication, and the Internet culture, which is influenced by the mainstream United States values of individualism and egalitarianism (Hedley, 1998). Therefore, it is predicted that American Indian tribes, like other clearly distinct cultural groups, will either accept or reject new technology, specifically the Internet, based on the degree to which they hold their traditional cultural values.

There are currently 554 federally recognized tribes in the United States.[2] Each of these tribes is different from the others in many ways, including language, geographical location, and practices. However, most are also culturally similar in sharing larger aspects of their culture, and the overall pattern of culture still separates them, as a group, from non-Indians (Cornell, 1987).

Efforts were made in this thesis to limit cultural comparisons in the Hofstede framework based on those elements of American Indian culture that are largely universal between tribes. Additionally, efforts were also taken to rely heavily on literature authored by American Indian authors and those who have worked closely in American Indian communities. Again, the Hofstede model is not meant to measure absolutes, but rather to examine cultural relativism. Similarly, it is likely that although the scale for tribes, in general, will tip the balance in a common direction on each of the dimensions discussed, it is also likely that each tribe will be somewhat different relative to others.

American Indian Culture: Individualism vs. Collectivism. In individualistic societies, everyone is expected to take care of him/herself and his/her immediate family; in collectivist societies, people are socialized from birth to be part of a strong, cohesive group, and "family" is extended family (Hofstede, 1991). In American Indian communities, children learn from birth the importance of family and the foundations of relationship and kinship (Cajete, 1994). The extended family, even through the most remote family tie, is central (Gilliland et. al., 1988, Light et. al., 1986). The needs of the tribe are more important than individual needs or desires (Sanders, 1987). This obligation to the tribe is particularly true where one's family or clan is concerned. In

[2] "Labor Market Information On the Indian Labor Force: A National Report," U.S. Bureau of Indian Affairs, 1997.

fact, all tribal members consider themselves to have an obligation to assist their families throughout their lives, and this inherent duty is more important than anything else (Oppelt, 1989).

In collectivist cultures, obligations to the family include active participation in family occasions such as baptisms, marriages, and, especially, funerals. This element of collectivism also applies to American Indian culture, where children learn proper behavior at traditional ceremonies from a young age (Cajete, 1994), and emphasis is placed on family, spirituality, and ceremonies (Gilliland et. al., 1988; Smith, 1994; Oppelt, 1989). In fact, American Indians will often travel hundreds of miles for a wake and funeral. These ceremonies often take several days, and most traditional American Indians will stay for the duration, even if this means missing important school or work deadlines. Again, family comes first.

Collectivism is apparent in societies where resources are shared with family and community, and the economy is based on collective interests (Hofstede, 1991). Most Tribes place high value on sharing and giving, which is built into the culture through traditional redistribution of resources and wealth through giveaways (Cornell, 1987; Trosper, 1995; Black, 1996). American Indian culture typically emphasizes teamwork and group cooperation rather than individual competition (Oppelt, 1989). One of the strongest values in most American Indian communities is this: the bottom line is whatever most benefits the tribe and contributes to the success of its community (Cornell, 1987; Smith, 1994).

American Indian Collectivism & Technology Acceptance. It is clear from the above discussion that traditional American Indian culture is predominantly oriented toward

collectivism. Like all other values that are inherent within one's culture, this value placed on collectivism is brought to the workplace. Contrary to collectivism, the Internet encourages individual communication with little feedback about the social acceptance of such communication. It is low-context, while those who are oriented toward collectivism, such as American Indians holding traditional cultural values, are high-context, preferring face-to-face communication with non-verbal cues and group acceptance. Therefore, members of cultural groups such as traditional American Indians who are highly collectivist are more likely to be resistant to Internet acceptance.

American Indian Culture: Uncertainty Avoidance. In low uncertainty avoidance cultures, the expectation is that aggression and emotions should not be shown (Hofstede, 1991). In many American Indian communities, it is inappropriate for a person to openly express strong feelings (Gilliland et. al., 1988). Time is simply a framework for orientation, and punctuality is generally less important in low uncertainty avoidance cultures (Hofstede, 1991). Among members of the American Indian community, the concept of "Indian time" is well-known and accepted. Life should be enjoyable and patience is truly a valued virtue, so there is no need to live by the clock (Gilliland et. al., 1988). In fact, this is often evident even in conversation, where American Indian etiquette often includes a lapse of time for consideration of what another has said, followed by a thoughtful and deliberate answer (Gilliland et. al., 1988).

Low uncertainty avoidance cultures also value tolerance and moderation, have positive attitudes towards young people, and belief that one group's truth should not be pushed onto others nor should anyone be persecuted for their beliefs (Hofstede, 1991). Most American Indians are raised to have an appreciation of differences and a deep

respect for privacy, to believe that children are a special and sacred gift from the Creator (Cajete, 1994), and that one should only gather and take what is needed for survival without excess or waste (Cajete, 1994; Trosper, 1995; Black, 1996).

Based on the above cultural aspects within American Indian culture, one might draw the conclusion that American Indian culture is low in uncertainty avoidance. Traditionally, this is the case for many tribes, and this characteristic still rings true within American Indian communities in relations with one another. However, during the past 170 years, tribes have struggled to even survive under policies and practices of the United States government and mainstream American society, including the Indian Removal Act of 1830 (Fey et. al., 1959; McCluskey, 1997; Zinn, 1995; Casey et. al., 1999); the Homestead Act of 1862 (Fey et. al., 1959); the General Allotment Act of 1887 (Fey et. al., 1959; McCluskey, 1997; Casey et. al., 1999); the Bureau of Indian Affairs' Relocation Program started in 1951 (Fey et. al., 1959; Casey et. al., 1999); termination laws passed in 1954 (Fey et. al., 1959; McCluskey, 1997; Casey et. al., 1999); broken or illegitimate treaties (Hoxie, 1994; Zinn, 1995), ongoing assimilation efforts (Smith, 1994; Casey et. al., 1999), and stereotyped imagery and biased and inaccurate historical accounts (Hirschfelder et. al., 1999). Therefore, I would argue that, although tribes are low in uncertainty avoidance in interactions with one another, these exploitive experiences across several generations with non-Indians have likely resulted in many tribes being largely high in uncertainty avoidance in interactions with others who are non-Indian. In fact, Oppelt (1989) argues that American Indians have good reason to distrust non-Indians of European decent and, therefore, tend to be sensitive to any indication of manipulation by whites. Furthermore, American Indians generally only

participate in activities after long observations to establish a sense of certainty in their abilities regarding such activities (Sanders, 1987). This further supports that American Indian culture is largely high in uncertainty avoidance in dealings with non-Indians or non-Indian institutions.

American Indian Uncertainty Avoidance & Technology Acceptance. More than 90 percent of what is available on the Internet is said to be dominated by mainstream American culture (Kotler, 1996). Meanwhile, American Indians tend to be distrustful and high in uncertainty avoidance in dealings with mainstream, white America. Therefore, traditional American Indian cultures, having subscribed to high uncertainty avoidance in relation to non-Indian people and institutions, will be more resistant toward the Internet.

American Indian Culture: Power Distance. In small power distance cultures, inequalities among people should be minimized, there is interdependence between less and more powerful people, and hierarchy in organizations means an inequality of roles established simply for convenience (Hofstede, 1991). Traditionally, leaders within many tribes rise to leadership status based on their service to the tribe (Cajete, 1994). Leadership positions are earned through service to the tribe as well as demonstrating a level of integrity beyond reproach. Decisions within many tribes are made by consensus (Trosper, 1995). Pluralist forms of government based on majority rule are the norm in low power distance cultures, while autocratic or oligarchic forms of government are the norm in high power distance societies (Hofstede, 1991). Although most tribes are generous and non-competitive with flatter hierarchical forms of government (Black, 1996), the actual form of government varies by tribe. In traditional American Indian

communities, before the outside influence of Euro-Americans, many tribes had a direct democratic form of government in which decisions were made in "town hall meeting" style (Lopach et. al., 1998). Still, to other tribes, the rule of majority was a foreign concept (Fey et. al., 1959).

Although the various characteristics used to describe low power distance and high power distance cultures vary largely depending on the tribe, one aspect of American Indian culture that is strongly held universally among tribes is the respect one is to show elders within the general community and in the family, beginning with older siblings and extending upward and outward from the parents. Elders are respected for their experience and knowledge (Gilliland et. al., 1988; Cajete, 1994). In fact, American Indian children and young adults are taught and expected to be quiet in the presence of elders to show their respect (Oppelt, 1989). This is a characteristic of high power distance, in which children are raised with respect for parents and elders as a basic virtue, even into and through adulthood (Hofstede, 1991). For American Indians universally, respect for elders is one of the most strongly held values.

American Indian Power Distance & Technology Acceptance. Applying the universally accepted American Indian virtue of respect for elders to superiors in the workplace, it is likely that most traditional American Indians also accept high power distance between managers and employees on the job. Straub et. al. (1997) argues that "In societies in which managers and workers are separated by a large power distance, the leveling effect of the computer-based media is not seen or felt as a desirable feature." Therefore, traditional American Indian employees who are most accepting of this traditional cultural value will be less likely to accept the Internet.

Variables for Comparison & Hypotheses

Age, Traditional American Indian Cultural Values, & Internet Acceptance. Younger people within many cultures are more likely to question traditional values and explore alternative ideas and ways of doing things. In particular, younger groups of people within the American Indian community are further removed from the times when traditional practices were a daily part of life or struggles to survive as a people kept tribes bonded and, subsequently, isolated from other cultures. Therefore, American Indian tribal member employees in younger age groups are less likely to have internalized the traditional American Indian values of collectivism, uncertainty avoidance, and power distance. This argument results in the following hypothesis.

Hypothesis 1: Younger groups of tribal member employees of a reservation are more likely to accept the Internet than older tribal member employees of the same tribe.

Educational Level, Traditional American Indian Cultural Values, & Internet Acceptance. Tribal member employees who have completed higher levels of formal education are more likely to have left their reservations to attain this education. Therefore, they are also more likely to have interacted with people from other cultures at their respective institutions of higher education, engaged in more extensive exchanges of differing ideas, and become more open to learning new methods of accomplishing tasks. As a result, tribal member employees with higher levels of formal education are more likely to be influenced by values outside of the traditional American Indian values of collectivism, uncertainty avoidance, and power distance. This results in the second hypothesis.

Hypothesis 2: Tribal member employees of a reservation that have completed higher levels of formal education are more likely to accept the Internet than those tribal member employees of the same tribe with less formal education.

Occupational Status, Traditional American Indian Cultural Values, & Internet Acceptance. Tribal member employees who are in managerial or professional positions are more likely to travel off their reservations for meetings, trainings, conferences, etc. As a result, they are more likely to engage with individuals and groups of people from other backgrounds, holding various cultural values. Additionally, they are likely to have higher incomes, affording them more opportunities to engage in off-reservation activities. Therefore, tribal member employees who hold managerial or professional positions are less likely be isolated within the traditional values of collectivism, uncertainty avoidance, and power distance. This provides the basis for the following hypothesis.

Hypothesis 3: Tribal member employees of a reservation serving in managerial or professional positions are more likely to accept the Internet than tribal member employees of the same tribe who are in lower status positions.

Participation in Traditional Activities, Traditional American Indian Cultural Values, & Internet Acceptance. Tribal member employees who actively participate in activities that are considered traditional cultural activities and events within their respective tribe(s) are anticipated to place a higher value on traditional cultural values as well. As a result, these same employees are more likely to internalize the traditional American Indian values of collectivism, uncertainty avoidance, and power distance. The next hypothesis results from this argument.

Hypothesis 4: Tribal member employees of a reservation who actively participate in traditional cultural activities are less likely to accept the Internet than tribal member employees of the same tribe who are less involved in traditional cultural activities.

Residence During Formative Years, American Indian Cultural Values, & Internet Acceptance. Tribal member employees who grew up on the reservation most of their formative years, between ages one and fourteen years old, are more likely to have been raised in an environment where traditional cultural values are emphasized. Furthermore, they are more likely to have been exposed to tribal elders who are able to communicate these traditional values, while their counterparts raised off the reservation are more likely to be exposed to people with various other cultural values. Therefore, tribal member employees who grew up most of their formative years on the reservation are more likely to have internalized the traditional cultural values of collectivism, uncertainty avoidance, and power distance. The final hypothesis is based on this argument.

Hypothesis 5: Tribal member employees of a reservation having grown up primarily on the reservation during their formative years are less likely to accept the Internet than tribal member employees of the same tribe who have grown up primarily off the reservation.

Summary of Review

The Technology Acceptance Model developed by Davis (1989) is a widely tested and accepted model for predicting technology acceptance. However, because individual's and group's beliefs and attitudes are based on their fundamental values, or culture, the Technology Acceptance Model is not complete without consideration for cultural variables. In fact, Veiga et. al. (1999) argue that cultural dimensions are important

variables in technology acceptance and should be included in the Technology Acceptance Model. Appendix B shows a graphical depiction of the Veiga et. al. model. The five hypotheses proposed in this thesis are based on the degree to which dimensions of traditional American Indian culture impact constructs in Davis' Technology Acceptance Model in the context of Internet acceptance on American Indian reservations. These five hypotheses were then tested using an Internet Acceptance Survey developed for this thesis and administered to over 100 tribal member employees of a tribe on a specific reservation. This research is discussed in the next section.

METHODOLOGY

Securing Approval to Conduct the Study

Before surveys to test the hypotheses could be distributed to prospective participants, approval was sought from various bodies with an interest in the methods and results of the research. The first of these were the culture and elder committees on the reservation chosen for data collection. Tribes commonly establish these types of committees or commissions to preserve cultural integrity in decisions under consideration by or potentially affecting tribes or tribal members. Once adaptations were made based on the concerns of these organizations and approval was granted, permission to conduct the study on the reservation chosen was requested from the respective tribal council, which was granted in writing by a majority vote (see Appendix C). Finally, approval was sought and granted by The University of Montana Institutional Review Board (see Appendix D).

Operationalizing the Constructs

To operationalize the constructs, the work of several different researchers was used. The researchers from whom instruments were borrowed included Chau (1996), Davis (1989), Mathieson et. al. (1991), Thompson et. al. (1991), and Veiga (2000). Each instrument was found by its respective researcher to be both a valid and reliable measure of the intended variable. Constructs for perceived usefulness, perceived ease of use, attitude toward use, behavioral intention to use, and actual usage (frequency of use) were included in the instrument based on their direct link to the Technology Acceptance Model. Additionally, external variables including intention to use, subjective norms, and level of support were included as additional factors that might be barriers to system use (Mathieson et. al, 1991).

Although exact replications of many of the instruments were not possible because of the different contexts for which the measures were originally designed, in most cases only slight changes in wording were made to fit the specific technology – the Internet – under consideration. Altogether, 35 items were either modified or used directly from previously developed instruments. Appendix E shows all of the measurement scale items that were ultimately selected for use, along with notes identifying modifications from the original instruments as well as the introduction and instructions provided to respondents. Demographic data regarding age, education level, occupation, residency during formative years, and involvement in traditional cultural activities were gathered for the purpose of testing the thesis hypotheses. Gender of respondents was also gathered to ensure representation in the study of both males and females.

Perceived Near-Term Usefulness. Adaptations from Chau's (1996) six-item perceived near-term usefulness scale, which were adapted from Davis' (1989) six-item perceived usefulness scale, were used to assess respondent self-reports of the degree to which the respondent perceived the Internet to be useful. Respondents were asked to indicate the extent to which they agreed that using the Internet is useful to them in their workplace in the near-term. A sample item was, "The Internet makes it easier to do my job." Response choices ranged from 1 (strongly disagree) to 5 (strongly agree). The Cronbach alpha for this scale was .96.

Perceived Long-Term Usefulness. Adaptations from Chau's (1996) four-item scale, which were adapted from Thompson's (1991) six-item long-term consequences scale, were used to assess respondent self-reports of the degree to which the respondent perceived the Internet to be useful in the long-term. Respondents were asked to indicate the extent to which they agreed that using the Internet would be useful to them in their workplace in the long-term. A sample item was, "Knowledge of the Internet will increase my flexibility of changing jobs." Response choices ranged from 1 (strongly disagree) to 5 (strongly agree). The Cronbach alpha for this scale was .90.

Perceived Ease of Use. Adaptations from Chau's (1996) six-item perceived ease of use scale, which were adapted from Davis' (1989) six-item perceived ease of use scale, were used to assess respondent self-reports of the degree to which the respondent perceived the Internet to be easy to use. Respondents were asked to indicate the extent to which they agreed that it is easy to use the Internet. A sample item was, "Learning the Internet was easy for me." Response choices ranged from 1 (strongly disagree) to 5 (strongly agree). The Cronbach alpha for this scale was .96.

Attitude Toward Using. Adaptations from Mathieson's (1991) three-item scale were used to assess respondent self-reports of the degree to which the respondent had a positive attitude toward the Internet. Respondents were asked to indicate the extent to which they agreed that the Internet is better than the previous means of gathering and sharing information. A sample item was, "I think the Internet is much better than previous means of gathering and sharing information." Response choices ranged from 1 (strongly disagree) to 5 (strongly agree). The Cronbach alpha for this scale was .91.

Behavioral Intention to Use. Adaptations from Chau's (1996) two-item scale were used to assess respondent self-reports of the degree to which the respondent had the behavioral intention to use the Internet. Respondents were asked to indicate the extent to which they agreed that they had the behavioral intention to use the Internet. A sample item was, "I always try to use the Internet to do a task whenever it has a feature to help me perform it." Response choices ranged from 1 (strongly disagree) to 5 (strongly agree). The Cronbach alpha for this scale was .91.

Intention to Use. Adaptations from Mathieson's (1991) three-item scale based upon the theory of planned behavior, and as adapted by Veiga (2000), were used to assess respondent self-reports of the degree to which the respondent had the intention to use the Internet. Respondents were asked to indicate the extent to which they agreed that they had the intention to use the Internet. A sample item was, "I have every intention of adopting the Internet in my work." Response choices ranged from 1 (strongly disagree) to 5 (strongly agree). The Cronbach alpha for this scale was .92.

Subjective Norms. Adaptations from Mathieson's (1991) three-item scale based upon the theory of planned behavior were used to assess respondent self-reports of the degree

to which the respondent identifies barriers to Internet use based on opinions of groups who might be important to the respondent. Respondents were asked to indicate the extent to which they agreed that these potential groups support the respondent's use of the Internet. A sample item was, "People whose opinions I value would prefer me to use the Internet rather than the previous means of gathering and sharing information." Response choices ranged from 1 (strongly disagree) to 5 (strongly agree). The Cronbach alpha for this scale was .86.

Level of Support. Adaptations from Veiga's (2000) six-item scale, which were based primarily on Thompson's (1991) four-item social factors scale and four-item facilitating conditions scale, were used to assess respondent self-reports of the degree to which the respondent received support to acquire the skills necessary to utilize the Internet. Respondents were asked to indicate the extent to which they agreed that they have received the support and/or tools necessary to understand and utilize the Internet. A sample item was, "I have received sufficient training to understand the Internet." Response choices ranged from 1 (strongly disagree) to 5 (strongly agree). The Cronbach alpha for this scale was .91.

Frequency of Use. Adaptations from Veiga's (2000) two-item scale, based on Chau's (1996) and Thompson's (1991) work, were used to assess respondent self-reports of the degree to which the respondent actually uses the Internet. Respondents were asked to indicate the extent to which they agreed that they utilize the Internet. A sample item was, "I currently use the Internet frequently." Response choices ranged from 1 (strongly disagree) to 5 (strongly agree). The Cronbach alpha for this scale was .92.

Procedure

Instrumentation. The final measurement tool used to test the thesis hypotheses was the collaboration of adaptations, previously mentioned, from Chau (1996), Davis (1989), Mathieson et. al. (1991), Thompson et. al. (1991), and Veiga (2000). The resulting instrument (see Appendix E – minus measure labels and notes) was administered to participants and designed to measure Internet acceptance by American Indian tribal member employees of one reservation – determined by attitude toward the Internet, behavioral intention to use the Internet, intention to use the Internet, and frequency of use (actual usage) – as affected by perceived usefulness and perceived ease of use, with consideration of subjective norms and level of support for Internet use. Demographics information on age, educational level, occupational status, reservation residence during formative years, and the extent of involvement in traditional cultural activities were also gathered for the necessary comparisons to test the thesis hypotheses. The gender demographic question was included to ensure that respondents represented both males and females.

Description of the Subjects. Participants for the study included tribal member employees of the specific reservation asked to participate in the thesis study. The reservation was chosen for participation in the study because it has a large employee base working for the tribe and over 4,000 tribal members that reside within the exterior boundaries of the reservation. Respondents were asked to participate if they met the following criteria: 1) tribal member of the specific reservation's tribe(s), 2) employee of that reservation's tribe(s), and 3) access to the Internet in the workplace. Participants included men, 26 percent, and women, 74 percent.

Gathering Respondent Data. The method used to gather data was through the distribution of surveys. Fourteen (14) tribal offices were involved in the study. Upon approval from a facility representative, potential respondents were approached and asked if they would be willing to participate in the survey, which was determined to take an average of ten (10) minutes to complete. Participants who agreed to participate were then asked to read the introduction to the Internet Acceptance Survey, in which they were reminded that their responses would be confidential and anonymous and that their participation was voluntary such that they could terminate the survey at any time. Completed surveys were retrieved from the respondents on the same day in which they were distributed. No identifying information was retained that would connect any respondent to his/her responses.

Sample. A total of 107 respondents agreed to participate in the study. Of these, 105 surveys were adequately completed, meaning that each item on the survey was completed but no item contained more than one response. Of these surveys, 102 were tribal members on the reservation involved. This resulted in a response rate of 95 percent of usable surveys.

The majority of the respondents had an education level of some college, with zero (0) having some high school, seven (7) high school degrees, forty (40) with some college, twenty-one (21) college associate's degrees, thirteen (13) college bachelor's degrees, four (4) with some graduate school, nine (9) graduate school degrees, and eight (8) with other types of education such as trade schools, vocational education, etc. The overwhelming majority – 80 percent – had been raised during their formative years, between ages one and fourteen years old, on the reservation, with the remainder, only 20 percent, growing

up off the reservation. Managers made of up 23 percent of the respondents, while 33 percent of the respondents were professionals, 13 percent were paraprofessionals, and 31 percent were clerical employees. Females made up 75 of the total 102 respondents, and males made up the remaining 27 respondents. The majority of respondents were between the ages of 41 and 50 years old, with seventeen (17) between 21 and 30 years old, twenty-four (24) between 31 and 40 years old, forty-three (43) between 41 and 50 years old, fifteen (15) between 51 and 60 years old, and three (3) over 60 years old. Those respondents considered to be active in traditional cultural activities, meaning they had an average score above the mean of 2.68 on the scale to measure participation in traditional cultural activities, made up 46 percent of the respondents. Meanwhile, those considered less active in traditional cultural activities, meaning an average score below the mean, made up 55 percent.

RESULTS

Descriptive Statistics

Table A provides descriptive statistics and a correlation matrix for the 102 responses used to compare the impact of the hypotheses variables on Internet acceptance.

Table A: Means, Standard Deviations, and Correlation Table

	Mean	Std. Dev.	1	2	3	4	5	6
1 Age	.60	0.49						
2 Education	.47	0.50	0.05					
3 Occupational status	.44	0.50	-0.12	-0.32**				
4 Cultural involvement	.46	0.50	0.00	-0.04	0.17			
5 Attitude toward use	3.95	0.84	-0.10	0.24*	-0.29**	-0.04		
6 Intention to use	3.49	0.84	-0.10	0.30**	-0.30**	0.09	0.64**	
7 Frequency of use	3.08	1.20	-0.20*	0.26**	-0.35**	0.17	0.56**	0.75**

Notes: *p<.05, **p<.01
Age variable: 21-40 coded as "0", 41 and older coded as "1"
Education variable: Less than college degree coded as "0", college degree and higher coded as "1"
Position variable: Manager/Professional coded as "0", Paraprofessional/Clerical coded as "1"
Cultural involvement variable: Mean =2.68, lower than mean coded as "0", higher than mean coded as "1"

Construction of Data Sets for Hypothesis Testing

Internet acceptance is measured in the analysis based on attitude toward use, intention to use, and frequency of use variables, which are the three acceptance variables in the Technology Acceptance Model. Each of the remaining hypotheses variables is also defined in this sub-section. First, the age variable was broken into two age categories for comparison – 21 to 40 years old for the younger group and over 40 years old for the older group. Next, the education variable was also categorized into two levels of education for comparison – completion of a college degree or higher and less than a college degree. Third, the occupational status data were categorized into two sets – manager/professional and paraprofessional/clerical. Fourth, participants were categorized as either active in traditional cultural activities (above the mean) or less active in traditional cultural activities (below the mean). Finally, respondents were categorized into two comparison groups based on their residence during their formative years – having grown up primarily on the reservation and having grown up primarily off the reservation.

Hypothesis Testing

Hypothesis 1. Tables 1a and 1b provide the results from ANOVA tests and the means and standard deviations for each of the respondent groups based on age. A significant difference was not found between the 21-40 and 41+ age groups on either the "Attitude toward use" or "Intention to use" variables ($p>.05$ in both cases). However, a significant difference ($p<.05$) was found between these age groups on their "Frequency of use". Based on the means for each age group and ANOVA results, it is clear that the younger age group (age = 21 to 40) has a significantly higher frequency of use (mean=3.66) than the older age group's (age = 41+) frequency of use (mean=2.66). These findings are

consistent with the significant correlation found only between age and frequency of use in Table A above. Thus, partial support was found for Hypothesis 1.

Table 1a:
Analysis of Variance for Age Differences on Internet Acceptance Variables

Variable		Sum of Squares	df	Mean Square	F	Sig.
attitude toward use	Between Groups	0.66	1	0.66	0.93	0.34
	Within Groups	70.77	100	0.71		
	Total	71.42	101			
intention to use	Between Groups	0.66	1	0.66	0.93	0.34
	Within Groups	70.67	100	0.71		
	Total	71.33	101			0.05
frequency of use	Between Groups	5.66	1	5.66	4.04	
	Within Groups	140.21	100	1.40		
	Total	145.87	101			

Table 1b:
Means and Standard Deviations for the Two Age Groups

Variable	Group	N	Mean	Std. Deviation
attitude toward use	21-40	41	4.05	0.84
	40+	61	3.89	0.84
	Total	102	3.95	0.84
intention to use	21-41	41	3.59	0.86
	40+	61	3.43	0.83
	Total	102	3.49	0.84
frequency of use	21-42	41	3.37	1.10
	40+	61	2.89	1.24
	Total	102	3.08	1.20

Hypothesis 2. Tables 2a and 2b provide the results from ANOVA tests and the means and standard deviations for each of the respondent groups based on education. A significant difference ($p<.001$ to $p<.01$) was found between the college degree or higher and less than college degree education groups and their "Attitude toward use" ($p<.01$), "Intention to use" ($p<.001$) and "Frequency of use" ($p<.01$). Based on the means for each education group and ANOVA results, it is clear that the higher education level group (education = college degree or higher) has a significantly higher attitude toward use (mean=4.17) than the lower education level group's (education = less than college degree) attitude toward use (mean=3.76); the higher education level group has a

significantly higher intention to use (mean=3.76) than the lower education level group's intention to use (mean=3.25); and the higher education level group has a significantly higher frequency of use (mean=3.41) than the lower education level group's frequency of use (mean=2.79). These findings are consistent with the significant correlation found between education and attitude toward use, intention to use, and frequency of use in Table A above. Thus, support was found for Hypothesis 2.

Table 2a:
Analysis of Variance for Educational Level Differences on Internet Acceptance Variables

Variable		Sum of Squares	df	Mean Square	F	Sig.
attitude toward use	Between Groups	4.22	1	4.22	6.28	0.01
	Within Groups	67.20	100	0.67		
	Total	71.42	101			
intention to use	Between Groups	6.63	1	6.63	10.24	0.001
	Within Groups	64.71	100	0.65		
	Total	71.33	101			
frequency of use	Between Groups	9.74	1	9.74	7.16	0.01
	Within Groups	136.13	100	1.36		
	Total	145.87	101			

Table 2b:
Means and Standard Deviations for the Two Education Groups

Variable	Group	N	Mean	Std. Deviation
attitude toward use	Less than college degree	54	3.76	0.88
	College degree or higher	48	4.17	0.75
	Total	102	3.95	0.84
intention to use	Less than college degree	54	3.25	0.87
	College degree or higher	48	3.76	0.72
	Total	102	3.49	0.84
frequency of use	Less than college degree	54	2.79	1.11
	College degree or higher	48	3.41	1.23
	Total	102	3.08	1.20

Hypothesis 3. Tables 3a and 3b provide the results from ANOVA tests and the means and standard deviations for each of the respondent groups based on occupation status. A significant difference ($p<.0003$ to $p<.002$) was found between the managerial/professional and paraprofessional/clerical occupation groups and their "Attitude toward use" ($p<.002$), "Intention to Use" ($p<.002$) and "Frequency of use" ($p<.0003$). Based on the means for each occupation group and ANOVA results, it is clear that the higher status occupation group (occupation = manager or professional) has a

significantly higher attitude toward use (mean=4.17) than the lower status occupation group's (occupation = paraprofessional or clerical) attitude toward use (mean=3.67); the higher status occupation group has a significantly higher intention to use (mean=3.72) than the lower status occupation group's intention to use (mean=3.21); and the higher status occupation group has a significantly higher frequency of use (mean=3.45) than the lower status occupation group's frequency of use (mean=2.61). These findings are consistent with the significant correlation found between occupation and attitude toward use, intention to use, and frequency of use in Table A above. Thus, support was found for Hypothesis 3.

Table 3a:
Analysis of Variance for Occupational Status Differences on Internet Acceptance Variables

Variable		Sum of Squares	df	Mean Square	F	Sig.
attitude toward use	Between Groups	6.17	1	6.17	9.46	0.002
	Within Groups	65.25	100	0.65		
	Total	71.42	101			
intention to use	Between Groups	6.46	1	6.46	9.96	0.002
	Within Groups	64.87	100	0.65		
	Total	71.33	101			
frequency of use	Between Groups	17.59	1	17.59	13.71	0.0003
	Within Groups	128.29	100	1.28		
	Total	145.87	101			

Table 3b:
Means and Standard Deviations for the Two Occupation Groups

Variable	Group	N	Mean	Std. Deviation
attitude toward use	Manager/professional	57	4.17	0.74
	Paraprofessiona/clerical	45	3.67	0.89
	Total	102	3.95	0.84
intention to use	Manager/professional	57	3.72	0.79
	Paraprofessiona/clerical	45	3.21	0.83
	Total	102	3.49	0.84
frequency of use	Manager/professional	57	3.45	1.15
	Paraprofessiona/clerical	45	2.61	1.11
	Total	102	3.08	1.20

Hypothesis 4. Tables 4a and 4b provide the results from ANOVA tests and the means and standard deviations for each of the respondent groups based on participation in traditional cultural activities. No significant difference was found between the active participant (participation = respondents higher than the participation mean of 2.68) and

the less active participant (participation = respondents lower than the participation mean of 2.68) groups on the "Attitude toward use," "Intention to use," or "Frequency of use" variables ($p>.05$ in all three cases). Thus, no support was found for Hypothesis 4.

Table 4a:
Analysis of Variance for Participation in Traditional Cultural Activities Differences on Internet Acceptance Variables

Variable		Sum of Squares	df	Mean Square	F	Sig.
attitude toward use	Between Groups	0.11	1	0.11	0.16	0.69
	Within Groups	71.31	100	0.71		
	Total	71.42	101			
intention to use	Between Groups	0.59	1	0.59	0.83	0.36
	Within Groups	70.74	100	0.71		
	Total	71.33	101			
frequency of use	Between Groups	4.20	1	4.20	2.96	0.09
	Within Groups	141.68	100	1.42		
	Total	145.87	101			

Table 4b:
Means and Standard Deviations for the Two Participation Groups

Variable	Group	N	Mean	Std. Deviation
attitude toward use	Lower participation	55	3.98	0.78
	Higher participation	47	3.91	0.92
	Total	102	3.95	0.84
intention to use	Lower participation	55	3.42	0.73
	Higher participation	47	3.57	0.95
	Total	102	3.49	0.84
frequency of use	Lower participation	55	2.89	1.16
	Higher participation	47	3.30	1.23
	Total	102	3.08	1.20

Hypothesis 5. Tables 5a and 5b provide the results from ANOVA tests and the means and standard deviations for each of the respondent groups based on residence during formative years. No significant difference was found between the off reservation (residence during formative years = more time off the reservation) and the on reservation (residence during formative years = more time on the reservation) groups on the "Attitude toward use," "Intention to use," or "Frequency of use" variables ($p>.05$ in all three cases). Thus, no support was found for Hypothesis 5.

Table 5a:
Analysis of Variance for Residence During Formative Years Differences on Internet Acceptance Variables

Variable		Sum of Squares	df	Mean Square	F	Sig.
attitude toward use	Between Groups	0.44	1	0.44	0.61	0.44
	Within Groups	70.99	100	0.71		
	Total	71.42	101			
intention to use	Between Groups	0.35	1	0.35	0.49	0.49
	Within Groups	70.99	100	0.71		
	Total	71.33	101			
frequency of use	Between Groups	0.37	1	0.37	0.25	0.62
	Within Groups	145.50	100	1.46		
	Total	145.87	101			

Table 5b:
Means and Standard Deviations for the Two Residence During Formative Years Groups

Variable	Group	N	Mean	Std. Deviation
attitude toward use	Off the reservation	20	4.08	0.78
	On the reservation	82	3.92	0.86
	Total	102	3.95	0.84
intention to use	Off the reservation	20	3.61	0.56
	On the reservation	82	3.46	0.90
	Total	102	3.49	0.84
frequency of use	Off the reservation	20	3.20	1.17
	On the reservation	82	3.05	1.21
	Total	102	3.08	1.20

DISCUSSION

The results found only partial support for hypothesis 1 regarding the relationship between age and the variables in the TAM model. More specifically, it appears that although there is not a significant difference among the younger and older American Indians in this tribe regarding their attitudes toward using the Internet or in their intentions to use the Internet, there is a significant difference between age groups when it comes to the actual frequency of use. The non-significant differences regarding attitudes toward use and intentions to use were surprising considering the earlier discussion regarding the cultural characteristics of American Indians. It was hypothesized that the older tribal members would be more apprehensive regarding their attitudes toward Internet use and intentions to use the Internet based on the perception that this group

would consider the Internet as a threat to their culture. As hypothesized, this study did find that younger members of this tribe are using the Internet more frequently than older members. This might be due to the fact that the Internet is relatively new and that younger tribal members are being exposed to the Internet through education.

Hypothesis 2, regarding Internet acceptance based on educational level, and hypothesis 3, regarding Internet acceptance based on level of occupational status, were both supported and accepted. Hypothesis 4, regarding differences in Internet acceptance based on level of participation in traditional cultural activities, did not result in significant differences in the Internet acceptance variables and was subsequently rejected. Additionally, hypothesis 5, regarding differences in Internet acceptance based on primary residence during formative years, did not result in significant differences in the Internet acceptance variables either and, thus, it appears that hypothesis 5 should be rejected as well. However, it may be premature to fully reject hypothesis 5 at this time because the off reservation group represented only 20 percent of the sample, and this may have been too small of variation in the number of respondents in each group to make reliable comparisons.

The results are interesting given that one might think that participation in traditional cultural activities is most closely tied to having internalized traditional cultural values. The outcome of this hypothesis suggests that perhaps the assumption that those who participate more actively in traditional activities are also those who place higher value on traditional cultural values is both an external and internalized stereotype. Additionally, this is the only variable included in the five hypotheses in which adherence to traditional cultural values is not based on having been isolated within the culture versus having been

exposed to other cultures and outside influences. Therefore, perhaps the primary factor influencing one's internalization of traditional American Indian cultural values, and for the purpose of this study – Internet acceptance, are those factors that differentiate between tribal member employees that have been isolated within the traditional culture and those who have been exposed to other cultures and outside influences.

As predicted, the results of this study supported the basic premise of TAM (Davis, 1986) that two specific beliefs about the Internet, specifically, perceived usefulness and perceived ease of use, influence the potential user's attitude toward using the Internet, which then influences the user's intention to use the Internet, subsequently resulting in some degree of acceptance based on attitude toward use, intention to use, and actual usage. However, this study went further to demonstrate that traditional American Indian cultural values of collectivism, uncertainty avoidance, and power distance also potentially impact Internet acceptance on American Indian reservations. This conclusion is drawn based on the results of the differences in Internet acceptance based on educational level, hypothesis 2, and occupational status, hypothesis 3, which are argued to delineate differences in the degree to which respondents subscribe to traditional American Indian cultural values based on isolation within the traditional culture or exposure to other cultures and outside influences.

Although there are several other factors currently impacting the rate of Internet acceptance in Indian Country such as access, training, education, content, infrastructure, and sovereignty issues, this study demonstrates that isolated traditional American Indian cultural values can also potentially inhibit the rate of Internet acceptance on reservations. As the other various issues get resolved over time, the cultural issue may need to be

addressed if tribes are to capitalize on the economic opportunities afforded by the Internet.

Two Horses (1998), Howe (1998), Savard (1998), Ereaux (1998), and Warner (1998) warn of the potential exploitation of American Indian culture made possible through the massive reach of the Internet, the impact of low-context Internet communications on a traditional culture that values high-context, face-to-face communications, and other adverse impacts on tribes' efforts to preserve traditional cultural values on reservations. Although these concerns are warranted with regard to culturally specific information, and tribes must progress with caution, the Internet can also provide a potentially valuable economic development tool to American Indian reservations across the country in business related transactions and relationships.

The Internet has opened the door to e-commerce, allowing even small and home-based businesses access to global markets for their products and services. The Internet further allows tribes, tribal organizations, and tribal members to access these markets without having to leave their reservation homes. Additionally, in many ways, the Internet may be a useful tool to ultimately assist tribes in cultural preservation efforts.

Although certain information such as sacred sights, traditional cultural practices, and other cultural information may need protection from the mass distribution and potential exploitation made possible by the Internet, participating in the new Internet economy on an official business basis can potentially increase the cultural activities, and involvement in those activities, on reservations. If tribes, as well as individual tribal members, can increase their disposable incomes, then they will not only be able to stimulate their local economies, but they will have more time and money to invest in their involvement in

cultural events and activities. Examples of this phenomenon include having more money to travel to powwows, host powwows, and invest in cultural preservation efforts, cultural immersion programs, and land purchasing programs.

Furthermore, by participating in the Internet, tribes can increasingly impact Internet content and distribution, tailoring its capabilities to be more culturally appropriate to American Indian culture. Already American Indian web developers, Internet Service Providers, and American Indian-sponsored portals are emerging that provide culturally appropriate services to other American Indians on the Internet.

Finally, this thesis should serve as a valuable tool not only to tribes but also to non-Indians working with tribes to introduce, and generate use of, the Internet on American Indian reservations. This study supports the notion that culture is a potential intervening factor in technology acceptance, specifically the Internet. Therefore, if non-Indians and non-Indian institutions want to successfully assist tribes in developing the necessary tools such as infrastructure, training, etc. to capitalize on the Internet, then they will need to do so within the parameters of an existing culture that values collectivism, has high uncertainty avoidance in relation to non-Indians and non-Indian institutions, and accepts high power distance relationships within the tribe. Efforts might include emphasizing how the Internet can benefit valued collective groups such tribes, tribal members, and families in American Indian communities; offering support and training in the use of the Internet to help alleviate any uncertainties; and working cooperatively with tribal governments to ensure endorsement by tribal leadership of such activities.

Limitations

As mentioned previously, each American Indian tribe in the United States is a different nation and often holds highly diverse values. This not only applies to tribes, but it also applies to individual members of each tribe based on a variety of factors including whether or not the person was raised with traditional values or mainstream values. The argument in this study has been built around generalizations about American Indian culture, and any time such generalizations or stereotypes are made, there is a chance of misrepresentation of differing tribal groups or individuals. Therefore, the extent to which tribes fall on either end of any given cultural dimension will likely vary by tribe and/or individuals, and those generalizations made within the context of this study may be not be accurate for all tribes or all individual tribal members.

This study argued that adherence to traditional American Indian cultural values on the three dimensions of collectivism versus individualism, uncertainty avoidance, and power distance can be determined on American Indian reservations by factors such as educational level and occupational status, and based on the degree of exposure to groups of people from other cultures as well as other outside influences. However, these relationships were based on assumptions supported by argument rather than by empirical evidence. Although this potentially inhibits the data and resulting conclusions, the relationships are strong enough to warrant further study in the area of American Indian culture, or any culture, as an intervening factor in technology acceptance.

The hypotheses in this study were tested on a relatively small sample, and the criteria for respondent eligibility were narrowly defined. This limits the extent to which conclusions can be drawn based on the data, and a larger sample with less narrowly

defined criteria would have provided a larger variation for more reliable comparisons. For example, opening the criteria to all tribal members rather than the limitations placed on participation in this study might have produced different results. However, the results of this study suggest strong enough relationships between American Indian cultural dimensions and Internet acceptance to warrant further study. Furthermore, this study tested the relationship between two variables at a time, which may not fully represent the potential relationships between various other variables. For this reason, future work on the project will include regression analysis to expand on the comparisons between the variables under consideration in the study.

Recommendations

Given the limitations of the present study, recommendations can be made for future research. First, to provide real empirical support for the influence of American Indian culture, within Hofstede's cultural dimensions (Hofstede, 1991), as an intervening factor in technology acceptance, culturally appropriate measures should be developed and thoroughly field-tested to measure these dimensions of culture as they pertain to tribal member employees on a reservation. Next, future research should be conducted on a broader basis to ensure the inclusion of a variety of tribes based on the potential and likely cultural differences between various tribes. Finally, future research could be better served by gathering data from both on-reservation and off-reservation American Indian respondents to conduct a more comprehensive comparison between tribal members who are more clearly impacted by the traditional cultural values that are within the parameters of the reservation versus those who have been more significantly influenced by non-Indian culture.

CONCLUSION

In summary, this study was intended to further the literature and understanding of American Indian culture as a potential intervening factor in the constructs of the Technology Acceptance Model and, specifically, the impact on Internet acceptance. In fact, the acceptance of two of the five hypotheses and the rejection of only one indicates that there is, in fact, reason to believe that culture must be considered by both American Indians and non-Indians when faced with the challenges and opportunities associated with introducing the Internet in Indian Country. Future research will be required to provide more empirical evidence for the connection between American Indian cultures as an intervening factor in the Technology Acceptance Model and increase our current understanding. Furthermore, future research should test the Veiga et. al. (1999) model in terms of how culture might influence relationships between the various constructs in the Technology Acceptance Model.

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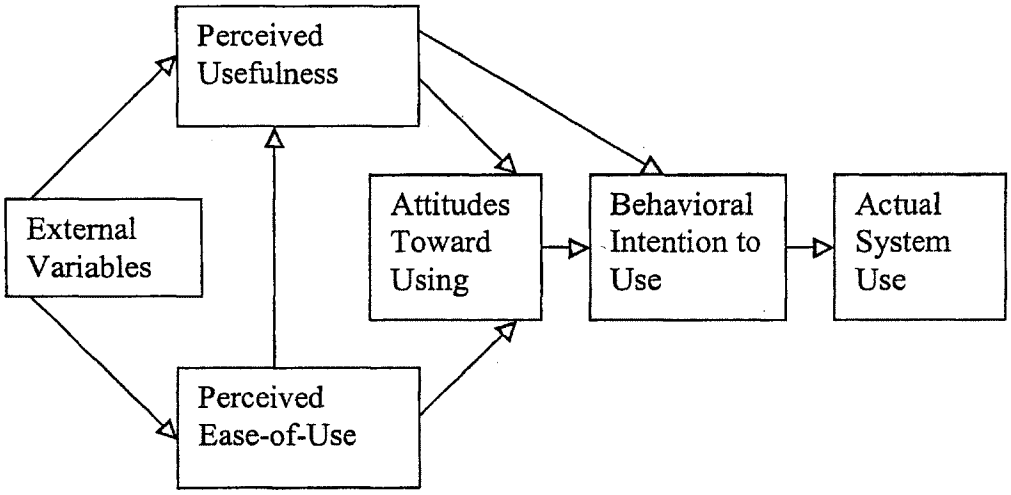
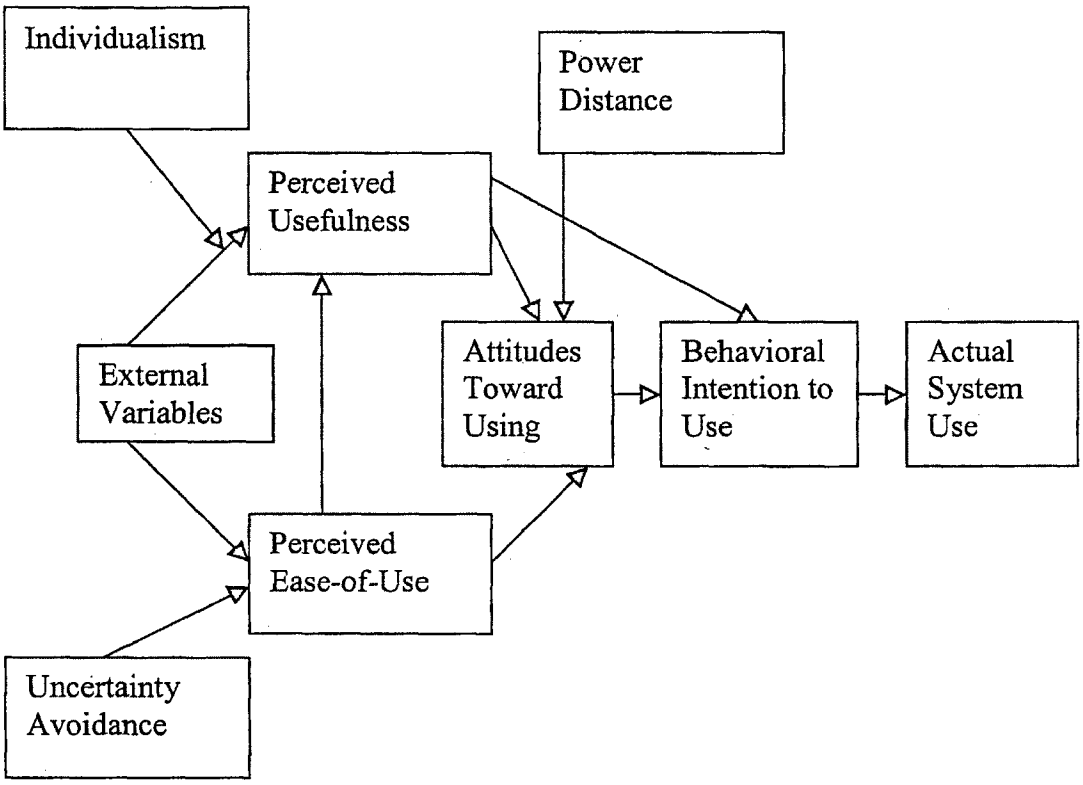
APPENDIX A:
The Technology Acceptance Model



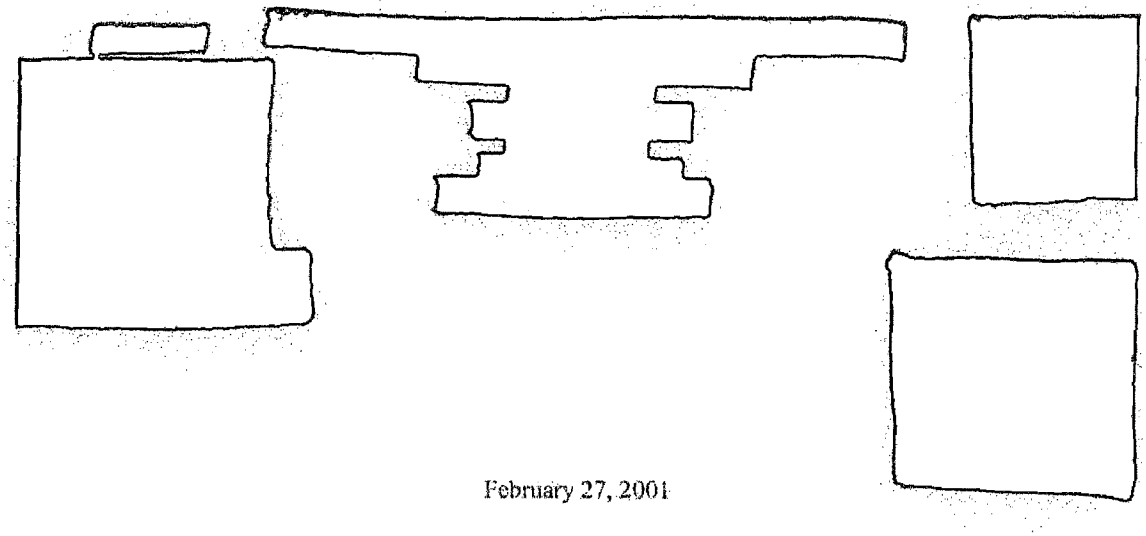
Source: Davis, Bagozzi, & Warshaw, 1989

APPENDIX B:
Cultural Extension of the Technology Acceptance Model



Source: Veiga, Floyd, Dechant, 1999

APPENDIX C:
Tribal Council Approval to Conduct Study



February 27, 2001

To Whom It May Concern:

The [redacted] Tribal Council of the [redacted] Reservation took action today February 27, 2001 to authorize and support Trina Finley in her efforts to conduct her research and gather survey data on the reservation of tribal member employees. This data will be used in her MBA thesis.

Sincerely,

[redacted]
Executive Secretary

APPENDIX D:
The University of Montana Institutional Review Board Approval

For Internal Use Only

RECEIVED
Form RA-100
(Rev. 7/00)
FEB 28 2001
UNIVERSITY OF MONTANA
VICE PRESIDENT FOR RESEARCH

The University of Montana
INSTITUTIONAL REVIEW BOARD (IRB)
CHECKLIST

Submit one completed copy of this Checklist, including any required attachments, for each course involving human subjects. The IRB meets monthly to evaluate proposals, and approval is granted for one academic year. See *IRB Guidelines and Procedures* for details.

Project Director: Trina L. Finley Dept.: BADM Phone: 728-2105

Signature: Trina L. Finley Date: 2-28-01

Co-Director(s): _____ Dept.: _____ Phone: _____

Project Title: American Indian Culture as an Intervening Factor in the Technology Acceptance Model

Project Description: MBA Thesis: Designed to look at culture, American Indian culture specifically, as a predicting factor in Internet usage and acceptance.

All investigators on this project must complete the NIH self-study course on protection of human research subjects.
Certification: I/We have completed the course - (Use additional page if necessary)

Signature	Date	Signature	Date
Trina L. Finley	2-25-01		

Students Only:
Faculty Supervisor: Dr. Jeffrey Shay Dept.: BADM Phone: 243-5880

Signature: Jeffrey P. Shay
(My signature confirms that I have read the IRB Checklist and attachments and agree that it accurately represents the planned research and that I will supervise this research project.)

For IRB Use Only

IRB Determination:

___ Approved Exemption from Review

X Approved by Administrative Review

___ Full IRB Determination:
- ___ Approved
- ___ Conditional Approval (see attached memo)
- ___ Resubmit Proposal (see attached memo)
- ___ Disapproved (see attached memo)

Signature IRB Chair: [signature] Date: 3/8/01
(over)

APPENDIX E:
Internet Acceptance Survey with Notes Regarding Adaptations

Introduction

I am conducting a study for my graduate thesis at The University of Montana. This study is designed to examine various factors that are believed to influence one's use and acceptance of the Internet. I have asked you to participate as a tribal member employee from this reservation for your insights into Internet usage in the tribal offices on this reservation.

This research is designed to help tribes better understand how the Internet can be used most beneficially as a tool to help them meet their goals and objectives. Additionally, it is intended to help non-Indians understand how to most effectively assist tribes in adopting the Internet in a way that will be most beneficial.

The study will involve approximately 100 participants, and all of the responses will be aggregated. The identity of the reservation, tribes, and individual participants who participate will remain anonymous. Your responses will be kept confidential, and no identifying factors that could tie you to your responses or to the study will be asked or otherwise kept on record.

Although permission to conduct this study has been granted by the Tribal Council, you are in no way required to participate. Your participation is voluntary, and you may terminate at any time.

APPENDIX E:
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Based on your experience working for a tribal organization, please CIRCLE the degree to which you either agree or disagree with each of the following statements:

	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
Perceived Near-Term Usefulness (Chau, 1996; Davis 1989) Rather than beginning statements with "Using (A) can...," statements were begun with "The Internet...," applying the context to the Internet and eliminating the word "can."					
1. The Internet makes it easier to do my job.	1	2	3	4	5
2. The Internet enables me to accomplish tasks more quickly.	1	2	3	4	5
3. The Internet improves my job performance.	1	2	3	4	5
4. The Internet increases my productivity.	1	2	3	4	5
5. The Internet enhances my effectiveness on the job.	1	2	3	4	5
6. I find the Internet useful in my job.	1	2	3	4	5
Perceived Long-Term Usefulness (Chau, 1996; Thompson et. al. (1991) The words "can increase" were replaced with "will increase."					
7. Knowledge of the Internet will increase my flexibility of changing jobs.	1	2	3	4	5
8. Knowledge of the Internet will increase the opportunity for more meaningful work.	1	2	3	4	5
9. Knowledge of the Internet will increase the opportunity for preferred future job assignments.	1	2	3	4	5
10. Knowledge of the Internet will increase the opportunity to gain job security.	1	2	3	4	5
Perceived Ease of Use (Chau, 1996; Davis, 1989) The wording in statement 11 was changed from "Learning to operate (A) is..." to "Learning the Internet was...," and the wording in all statements was changed from "(A)" to "the Internet."					
11. Learning the Internet was easy for me.	1	2	3	4	5
12. I find it easy to get the Internet to do what I want it to do.	1	2	3	4	5
13. My interaction with the Internet is clear and understandable.	1	2	3	4	5
14. I find the Internet to be flexible to interact with.	1	2	3	4	5
15. It was easy for me to become skillful at using the Internet.	1	2	3	4	5
16. I find the Internet easy to use.	1	2	3	4	5

APPENDIX E:
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Attitude (Mathieson, 1991) The wording was changed from "would be" to "is," from "the spreadsheet" to "the Internet," and from "my calculator for the assignment" to "the previous means of gathering and sharing information" in all statements; from "very good/very bad" to "much better" in statement 17; from "very desireable/very undesirable" to "much more desirable" in statement 18; and "rather than" was reduced to "than" in statements 17 and 18.					
17. I think the Internet is much better than previous means of gathering and sharing information.	1	2	3	4	5
18. In my opinion, it is much more desirable to use the Internet than previous means of gathering and sharing information.	1	2	3	4	5
19. It is much better to use the Internet than the previous means of gathering and sharing information.	1	2	3	4	5
Subjective Norms (Mathieson, 1991) The wording was changed from "Those people who are important to me would..." to "Those coworkers who are closest to me..." in statement 20; the wording in all statements was changed from "the spreadsheet" to "the Internet" and from "my calculator for the assignment" to "the previous means of gathering and sharing information."					
20. Those coworkers who are closest to me strongly support using the Internet rather than the previous means of gathering and sharing information.	1	2	3	4	5
21. People whose opinions I value would prefer me to use the Internet rather than the previous means of gathering and sharing information.	1	2	3	4	5
22. I think those people who are important to me want me to use the Internet rather than the previous means of gathering and sharing information.	1	2	3	4	5
Level of Support (Veiga, 2000; Thompson, 1991) The wording was changed from "GGL" to "Internet."					
23. I have received sufficient training to understand the Internet.	1	2	3	4	5
24. I have been encouraged by my supervisor to use the Internet.	1	2	3	4	5
25. I have been given all the tools I need to help me effectively use the Internet.	1	2	3	4	5
26. I feel my supervisor has fully supported me in developing my skills with the Internet.	1	2	3	4	5
27. Senior management of my unit has been generally supportive of the Internet.	1	2	3	4	5
28. Assistance is readily available to help me with the Internet.	1	2	3	4	5

APPENDIX E:
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Intention to Use (Veiga, 2000; Mathieson, 1991) The wording was changed from "GGL" to "Internet" in all statements and from "software to do my work" to "means of gathering and sharing information."					
29. I intend to use the Internet rather than other means of gathering and sharing information to do my work.	1	2	3	4	5
30. I have every intention of adopting the Internet in my work.	1	2	3	4	5
31. My intention is to use the Internet whenever I can.	1	2	3	4	5
Behavioral Intention to Use (Chau, 1996) The word "Internet" was inserted to adapt the statements to the technology under consideration.					
32. I always try to use the Internet to do a task whenever it has a feature to help me perform it.	1	2	3	4	5
33. I always try to use the Internet on as many occasions as possible.	1	2	3	4	5
Frequency of Use (Veiga, 2000; Chau, 1996; Thompson, 1991) The wording was changed from "GGL" to "Internet."					
34. I currently use the Internet very frequently.	1	2	3	4	5
35. I use the Internet often.	1	2	3	4	5

The following questions provide some information on your background. At this point I would like to remind you again that your responses are confidential and anonymous.

Personal Information:

1. Are you a tribal member on this reservation? _____ YES _____ NO **(Demographic question added for the purpose of this study.)**

2. Education (please check (✓) your highest education level only): **(Education demographic)**

	A. Some High School
	B. High School Degree
	C. Some College
	D. College Associate's Degree
	D. College Bachelor's Degree
	E. Some Graduate School
	F. Graduate School Degree
	G. Other (please specify) _____

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3. Did you live more months on or off the reservation between the ages of 1 and 14? **(Demographic added for the purpose of this study to determine residence during the respondent's formative years.)**

_____ ON THE RESERVATION _____ OFF THE RESERVATION

4. Which of the following best describes your current job position? **(Occupation demographic)**

_____ MANAGER _____ PROFESSIONAL
_____ PARAPROFESSIONAL _____ CLERICAL

5. What is your gender? _____ FEMALE _____ MALE **(Gender demographic)**

6. What is your age? **(Age demographic)**

_____ 21-30 years _____ 31-40 years
_____ 41-50 years _____ 51-60 years
_____ Over 60 years

7. To what extent do you participate in the following activities? **(The remaining questions are demographic questions designed to measure the degree of participation in traditional American Indian cultural activities designed for the purpose of this study.)**

	Never	Rarely	Sometimes	Most of the time	Always
8. Powwows on this reservation	1	2	3	4	5
9. Other powwows	1	2	3	4	5
10. Culture camps	1	2	3	4	5
11. Wakes	1	2	3	4	5
12. Funerals	1	2	3	4	5
13. Jump dances	1	2	3	4	5
14. Traditional medicinal practices	1	2	3	4	5
15. Sweat lodge	1	2	3	4	5
16. Formal or informal language lessons	1	2	3	4	5
17. Hide tanning	1	2	3	4	5
18. Beading	1	2	3	4	5

	Not at all				Fluently
19. How well do you speak your native language?	1	2	3	4	5

Thank you for your participation in this study. If you are interested in the results of the study, a copy of the completed thesis will be available at The University of Montana library.