Transcending the Digital Divide: A Framing Analysis of Information and Communication Technologies News in Native American Tribal Newspapers.

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Abstract

It appears that the divide between the Native American communities and the mainstream population is multifaceted. The social divide affects the perception of and the ability to use Information and Communication Technology to bring about improvements in the lives of people living in Native American communities. While the technology may be available in some parts and not in others, its effects on the development of these communities appears to be important. The purpose of the paper is to investigate how information and communication technology is communicated in Native American communities. Following a framing analysis of tribal newspapers, this paper develops key concepts and relationships that explain how the digital divides take place. The contribution of this paper is in a model that provides insight into the perceptions and use of ICTs to bring about development.

1. Introduction

The majority of the 561 federally recognized Native American tribes or nations registered in the U.S. do not have a geographic location or significant land base in which they can reside. Members of these communities are often scattered across the country with little or no means of communicating as communities of people except through tribal newspapers. Reservations tribes/nations also face the issue of disenfranchised membership, as more and more youth leave to pursue opportunities. There appears to be a multifaceted digital divide that forces large portions of the Native American communities to remain separated from the rest of the country. Pippa Norris [23] suggests that the digital divide is a multidimensional phenomenon that encompasses three distinct aspects: global, social and democratic divides. The global divide refers to the divergence of internet access between industrialized and developing societies. The social divide refers to the gap between the information rich and information poor in each nation. The democratic divide signifies the difference between those who do and those who do not use digital resources to engage, mobilize, and participate in public life [23]. While there are disparities in internet access between the Native American nations and the more developed parts of the US, it appears that it is the social and democratic divides that fuel the digital divide.

Servon [41] suggests that while information technology has wrought fundamental changes throughout society, it benefits and hinders the progress to social and economic development. In addition to altering commerce, education, government, and communications, ICT affects the construction of and response to social problems such as poverty and inequality. The very existence of the "digital divide" – or lack of access to ICT to certain segments of the population exacerbates inequalities [41]. At the same time ICT can bring education to people, healthcare to disadvantaged communities, promote civic engagement and better management of natural resources. The digital divide represents not so much the unequal access to ICTs but the unequal ways in which they are used [47]. In particular Queau [29] argues that a new culture is emerging of 'information literacy' through online interactions comprised of visual representations and mental images that can potentially increase the disparities between people who are part of this culture in industrialized countries and those who are not, as well as within societies themselves. This has implications for the level of civic engagement and level of participation in public life [23], [11].

It appears that although the Native American communities could potentially become empowered through the development of communication processes and infrastructures to connect their dispersed populations, little has been done to investigate this opportunity. The majority of development efforts focus on infrastructure development, while contributions can be made as to how underserved Native American communities can be empowered through the use of technology infrastructures, services, and skills to address their information needs. This moves what we know about Development forward by suggesting that

while ICTs can be viewed as technical innovations that stimulate growth, as is the economic perspective on development, ICTs can also empower people by enabling them to take control of their lives [40], [39], [38].

This paper focuses on how information and communication technology is communicated in Native American communities through their traditional means of community communication in modern times, namely, the tribal newspaper. The question being investigated is how is ICT framed in Native American Tribal publications? Specifically, the research explores the ways in which Native American, tribally-owned newspapers frame messages about information and communication technology for their audiences. In other words, what does ICT news look like when it makes the news in Native American communities? Research suggests that media use frames most easily understood by their audiences [2]. Frames provide central themes that organize information and supply a context for understanding its meaning [20]. In turn, those frames can create attitudes or beliefs in the Native communities and governments that may affect policy.

2. Information Technology for Development and Framing Analysis

There is an established record of how ICTs can bring about development. Some of the areas in which ICTs have been shown to bring about development are in education [33], [32], [36]; healthcare [3], [21], [16]; software development [5]; direct reduction in poverty [4], [15]; better government [46], [28], [22]; civic engagement [23], off-Shore outsourcing [25], [12], [34] and small business development [8], [27]. While a plethora of research has taken place in the effects of ICTs in the developing regions of the world, little work has been undertaken in Native American communities on how ICTs can bring about development, even though just about any measure indicates that American Indians are among the poorest, sickest, and least educated populations in the United States. Also, the U.S. government reports that a growing body of evidence indicates that the trends in many cases are worsening, not improving (U.S. Department of Commerce, 1999).

In a study that examined perceptions of Native American tribal media, researchers found support for the idea that tribal media can be effective tools in encouraging and maintaining cooperation, and they may be the likely starting points for tackling important community issues [18]. In working toward bridging the digital divides, development may take place through social, human and economic processes. ICTs can bring about development by enabling access to information and expertise, competitiveness and access to new markets, administrative efficiencies, and learning and labor productivity. ICTs can have a direct effect on development by generating wealth and reducing poverty. Social development takes place in government, healthcare, the environment and education. The socio-economic model of development proposed by Qureshi [30] also incorporates economic development through financing in the form of loans, aid and/or trade agreements, the use of knowledge and expertise for innovation and the sourcing of raw materials, goods and services needed for production. These in turn may create an impact on public policy, education and healthcare [30]. While opportunities for development using ICTs abound, it appears that the divide between the Native American population's access to ICTs is large.

The most recent U.S. Census Bureau estimates put the total population of American Indians and Alaska Natives (AIAN) at 4 million, about 1.4 percent of U.S. household population [45]. Of that population, approximately 32% live in California, Oklahoma, or Arizona. American Indians and Alaska Natives are a younger population as compared to total U.S. population. Their median age is 33.4 years compared to the U.S. total population median age of 36.2. Nearly 30% of the Native population is under age 30, as compared to 25.5% of total U.S. In the age 18-44 category, U.S. and Native population percentages are comparable at approximately 38% as well as the 45-64 category at about 24%. But at age 65 and above the differences return. The age group represents about 12% of total U.S. population compared to 7.6% of Native population. Between 14% and 17% of AIAN population have received at least a bachelor's degree compared to nearly 30% in total U.S. population. The poverty rate for AIAN is double the poverty rate of total U.S. population. "American Indians and Alaska Natives die at higher rates than other Americans from tuberculosis (600% higher), alcoholism (510% higher), motor vehicle crashes (229% higher), diabetes (189% higher), unintentional injuries (152% higher), homicide (61% higher) and suicide (62% higher)" (Indian Health Service, 2006).

The ICT statistics for AIAN also appear troubling, even though officials have noted improvements in the last decade. In 2003, a government official testified before a U.S. Senate committee that the digital divide was better likened to a "dial-tone divide" in most Native communities [9]. "This urgent situation continues to exist today where the current infrastructure capabilities of these areas fall far behind that of the rest of the country, threatening the economic, educational and cultural self- sufficiency of tribes and their communities" ([9], p.2). As the world entered a new millennium and the Western world enjoyed superior

technology, the American Indian and Alaska Native population were still struggling to get a phone line. A U.S. Department of Commerce report [31] found the following:

- Less than 40% of Native rural household had telephones compared to 95% in non-Native rural communities.
- Nearly ¼ of all U.S. tribes reported having no 911 service, 44% reported no radio station, 61% had no manufacturing facility.
- 12% of Native households were without electricity and 23% were without gas.
- 17% of tribes reported having a technology infrastructure plan, 44% reported an economic development plan, and 35% reported having a strategic plan in place.

It would appear that ICTs can be used in Native American communities to bring about measurable improvements in their lives. In order to investigate this potential, framing theory is used. As a mass media effects theory, framing is often confused with such theories as agenda-setting, gatekeeping, or priming [37]. What differentiates framing theory is a focus on salience and selection attributes within an issue, not on the perceived importance or selection of the issue itself. [10], [37]. "The object is to examine overt elements of text to expose covert meanings embedded in the newspaper's content" [20]. Dimitrova and Stromback [7] further differentiate framing by relegating salience below the effects on perception. "The subtlety of framing is in the way it can construct reality, impact interpretations and influence audience responses and opinions toward a particular event after the event enters the public agenda" ([7], p.405).

Although Entman [10] lamented a "scattered conceptualization" of framing theory, numerous scholars have attempted a holistic definition. Those most relevant to this study include:

- "A media frame is a particular way in which journalists compose a news story to optimize audience accessibility. … News frames give the audience direction on how to conceive of a specific issue or event …" ([44], p.550).
- "Framing refers to the observation that media can portray one and the same topic in very different ways, emphasizing certain evaluations or only part of an issue at the expense of others" ([42], p. 5)

Research in psychology and mass communication has shown that content frames "extend and reinforce" dominant views [20]. Researchers agree that the political elite impacts media framing [7]. "Content frames are the products of the specific group(s) that produce cultural products" ([20], p. 11). Journalists are also apt to attend to some frames over others because of accessibility, as in what is easiest to obtain from sources [37]. In studies of mainstream media, researchers have found that journalistic routines and standards – such as norms, deadlines, and resources – produce an unintentional effect on news framing [20]. Entman, who has originated much of the theoretical work on framing, clearly links the influence of news frames to the production of "culturally congruent news frames" [10], in [7], p. 406).

We began our framing analysis using the content of Native American newspapers, the most common, prolific, and culturally relevant media in Indian Country. A basic question (RQ1) guides this study – How are ICT and media framed in Native American tribal publications? Tribal newspapers are defined as official publications of the 561 federally recognized Native government entities (nations, tribes, or bands) in the United States. Most Native tribes and nations have at least a monthly publication in the form of a newspaper or newsletter. Anecdotal evidence from tribal press editors suggests that tribal newspaper have a pass-along readership of 4 to 5 individuals. More often than not, the tribal newspaper is the only media reporting news specific to a community of Native Americans.

3. Methodology

The approach of this research is interpretive and follows a framing analysis to arrive at insight into the ways in which Native American communities perceive and use ICTs to develop the concepts and generalize these to a theoretical model. Framing analysis can be an appropriate first step in cases in which very little is known about a phenomenon. Framing allows researchers to first gather information and indigenous ways of knowing through public communication mediums so that the dominant ontology does not necessarily set the path of the research agenda. Through framing analysis the ways in which ICTs may be perceived and used can be explored. This framing analysis follows a constant comparison approach in which a wide range of meanings may be revealed through an objective procedure [43]. "The method begins with scrutinizing one text at a time and proceeds to create tentative categories of frames until a set of categories that are mutually exclusive and exhaustive for all frames comprising the articles is established" ([43], p. 79).

Following a framing analysis this research uses for the discovery of theory from data systematically gathered and analyzed from the research process. While there is a debate as to the extent to which the researcher should begin without any a priori understanding of the phenomenon being investigated, this research follows Klein and Myers's [17] view that it is better to have some principles than none at all. The absence of any

criteria increases the risk that interpretive work will continue to be judged inappropriately.

Newspapers published by Native American nations were accessed through the American Native Press Archives (ANPA) at the Sequoyah Research Center at the University of Arkansas at Little Rock. According to its website, "ANPA stands today as one of the world's largest repositories of Native thought." The center director aided researchers in identifying newspapers to represent a wide range of Native nations, both geographically and culturally. The sample was also based on convenience and availability. Eleven newspapers were chosen based on the following criteria: 1) The publication was owned and operated by the tribe/nation; 2) The archive had issues available for a five-year period (2002-2006) and at least 12 issues per year for most years; and 3) the newspapers represented a range of tribes/nations across the United States, not including Alaska and Hawaii, and represented a range of tribes/nations in membership size, from small to large. The final newspapers selected for analysis were:

Newspaper	Tribe	State	Members
Prairie Band Potawatomi News	Prairie Band Potawatomi Nation	Kansas	1625
How-Ni-Kan	Citizen Potawatomi Nation	Oklahoma	26000
Pequot Times	Mashantucket Pequot Tribal Nation	Connecticut	800
The Seminole Tribune	Seminole Tribe	Florida	5000
Fort Apache Scout	White Mountain Apache Tribe	Arizona	13000
Ak-Chin O'Odham Runner	Ak-Chin Indian Community	Arizona	600
Sho-Ban News	Shoshone-Bannock Tribes	Idaho	5000
Chickasaw Times	Chickasaw Nation	Oklahoma	38000
The Sault Tribe News	The Sault Tribe of Chippewa Indians	Michigan	26000
The Red Lake Nation	Red Lake Bank of Chippewa Indians	Minnesota	10000
Char-Koosta News	Flathead Indian Nation	Montana	7000

The selection of stories to be included in the framing analysis was conducted onsite at ANPA over a two-day period. One research and two volunteer coders – a former tribal government official and a student worker – examined twelve issues per year for a 5-year period for news, photographs, and feature articles on information and communication technology. In cases of biweekly or semimonthly publication, one issue was selected for each month. A coder first examined the front page of every issue in the month before selecting the issue to be included in the sample. In total, 660 newspapers were examined in full (all pages) and an additional 100 issues were examined for front page content as well. The unit of analysis was the news article, which could also include feature news and stand-alone photographs and graphics. Eight themes were predetermined and operationalized to assist coders in selecting news for inclusion in the framing sample. The IT content themes were:

1. Education: Includes all news about adolescent education and all education related to degree obtainment. Also includes curriculum and program development.
2. Training or Career Development: Continued education or training for the purpose of skill development, career advancement, job training, or job preparation.
3. Entertainment: Films, DVDs, videos, broadcast productions, including documentaries.
4. Technology Workshops: Focusing on individual skill development, i.e. learning new software, operating computers or other electronic communication devices.
5. Business or Economic Development: IT use in business or economic development; establishing IT businesses.
6. IT Products & Services: Services and products related to cell phones, computers, internet connections, broadcast stations, radio towers, application service providers.
7. Internet/New Media: Tribe or community's use of Internet and new media; information via the Internet
8. Language: Use of IT in language development

In addition to coder training, the researcher worked alongside the volunteer coders and all three consulted on story selection and inclusion. Coders were instructed to look at news headlines as well as caption overlines. If relevance was indicated, the coder examined the first five paragraphs of the article or read the caption. Out of nearly 800 newspaper issues, coders found 214 stories for the research sample. All stories were photocopied so that both researchers could conduct the framing analysis in tandem. Stories were then analyzed for themes related to information and communication technology. A second researcher conducted a second-level analysis for themes as a control check and both researchers conducted a concurrent framing analysis. The framing analysis began within the context of

predefined list of three frames, which had been determined vis-à-vis extant IT scholarship. Those frames evolved from the concept of Development, which is the creation of new opportunities and income generation as a result of interventions, in this case ICT. Those frames were Workforce Development -- increase of productivity of people as a result of training in ICT; Infrastructure Development -- provision of technologies, services, and media networks to support a region or geographical area; and Community Development -- use of ICTs to support the creation of shared goals and values as they relate to a group of people, in this case a tribe or nation.

4. Results

This section reports on the results from the coding of 214 stories from 11 tribal newspapers. Each news story was assigned to one of the existing frames or an "other" frame, which was later analyzed and grouped into one of the emergent frames based on the dominant characteristic and perspective of the story. Each story was entered into a matrix in which the concept, theme, and finally the frame were coded. This was an open coding process in which the frames emerged from the themes and context that the stories reported on.

Mashantucket Pequot (Connecticut) Tribal Nation's newspaper contained the majority (20%) of IT news in comparison to the other 10 papers. The Sault Tribe of Chippewa (Michigan) was second with 14% and the Char-Koosta News of the Flathead Indian Nation (Montana) accounted for 13% of the IT news in the sample. The two nations accounting for the lowest occurrence of IT news in the 5-year sample were the Red Lake Chippewa Nation (Minnesota) (3%) and the White Mountain Apache (1%). (See Table 1.)

Table 1: NA nation perception of ICT and Media

Tribe	Frequency
Mashantucket Pequot	43
Sault Tribe (Chippewa)	30
Flathead	28
Chickasaw	21
Seminole (Fla.)	20
Shoshone-Bannock	19
Citizen Potawatomi	17
Prairie Band Potawatomi	16
Ak-Chin	10
Red Lake (Chippewa)	7
White Mountain Apache	3

Of the eight themes coded, the theme of Internet/New media dominated (32%) as compared to the second most occurring theme IT Product or Service (28%). The themes of Entertainment (15%), Education (9%), and Business or Economic Development (8%) rounded off the top five themes. (See Table 2.) For the Ak-Chin O'Odham Runner the theme of IT Product & Service occurred in six of the eleven stories (55%). In the 27 stories from the Char-Koosta News, the theme of Business or Economic Development accounted for about 40% of stories; however, the themes of IT Product and Service (18%), Internet/New Media (14%), and Technology Workshops (14%) were also prominent. In the Chickasaw Times, the dominant themes were IT Product & Service (38%) and Internet New Media (29%). The three stories from the Fort Apache Scout were all Internet/New Media theme. Themes occurring most frequently in the How-Ni-Kan were Internet/New Media (53%) and Entertainment (35%). The top three themes in the Pequot Times were Entertainment (40%), Internet/New Media (21%), and IT Product & Service (19%). Of the 16 stories over 5 years in the Prairie Band Potawatomi News, the dominant theme was IT Product & Service (44%) followed by four stories with an Education theme and 4 stories with the Internet/New Media theme. The 17 stories in The Seminole Tribune were divided into two themes only: IT Product & Service (55%) and Internet/New Media (45%). In the Sho-Ban News (19 stories), Internet/New Media (37%) and IT Product & Service (32%) were also the top two themes.

Three of the stories were Training or Career Development theme. Of the seven stories in The Red Lake Nation, two were Entertainment, two were IT Product & Service, and the remaining three were Education, Internet/New Media, and Business or Economic Development. In the Sault Tribe News, half of the stories fell under the Internet/New Media theme and the themes of IT Product & Service and Education each accounted for about ¼ of the stories. The themes and the frequency of their occurrence are illustrated in the following Table 2:

Table 2: Frequency of Themes

Themes	Frequency
Internet/New Media	68
IT Product & Service	59
Entertainment	32
Education	20
Business or Economic Development	18
Training or Career Development	8
Technology Workshop	5
Language	3
Politics	1

Examples of stories that were categorized by the theme of Internet/New Media include: websites, website development, and multimedia broadcasting. The IT Product & Service theme often included stories such as tips for using computers and software, telecommunication products and services, IT equipment and donations, and databases. The Entertainment theme was likely to include stories about movie production and releases, TV programming, or documentaries. The education theme captured stories such as IT use in the classroom, websites for youth education or scholarships, and multimedia projects for youths. In the theme of Business or Economic Development, stories include: IT companies and media businesses. Examples of the theme of Training or Career Development were mostly about courses in IT to develop the workforce. Technology Workshop theme included stories about conferences or skills related IT courses that might appeal to individuals, such as learning how to use Microsoft Excel, regarding daily lives, not necessarily related to work or career development.

The 16 frames that emerged in the coding were Information Provision, related to the use of ICTs and media to provide information; Safety & Security, referred to stories in which concerns or tips relating to safety or security issues were raised; Infrastructure development referred to the implementation of ICT or Media infrastructures such as cell phone towers; Amusement, related to stories in which entertainment was paramount; Workforce development, related to stories in which ICTs were used to train workers; Technology provision refers to the donation or use of ICTs; Heritage refers to stories in which ICTs or media were use to convey aspects of the Native American history, traditions, and values; Community engagement refers to the use of ICTs to bring together elements of the Native American tribe; Wealth creation refers to the direct creation of jobs and income for the tribe as a result of an IT company or implementation; Honoring refers to stories in which ICTs or the media were used to honor members of the tribe or stories related to ICT awards for employees or departments; New Market Access refers to the use of ICTs to access new customers; Administrative efficiencies refers to the use of ICTs to make processes more efficient; Collective Identity refers to stories in which ICTs or Media were used to assert the Native culture; Business development refers to the use of ICTs to develop new businesses; Activism refers to stories in which ICTs or media were used for civic engagement; and Community development refers to the stories in which ICTs were used in community projects. These are illustrated in Table 3 in the order of the frequency in which they were found.

Table 3: Frames of ICT and Media

Frames	Frequency
Information Provision	64
Safety & Security	21
Infrastructure development	19
Amusement	18
Workforce development	16
Technology provision	14
Heritage	12
Community engagement	11
Wealth creation	8
Honoring	6
New Market Access	6
Administrative efficiencies	5
Collective Identity	5
Business development	4
Activism	3
Community development	2

These story frames represent viewpoints and perceptions of different tribal governments in respect to ICT. An emergent frame, Information Provision with respect to ICTs, was by far the most frequent frame identified (30%). Information Provision related largely to creating a web presence for the tribe; websites featuring information geared to Native Americans; and general interest websites related to health, education, and consumers. For example, in The Sault Tribe News, titles ranged from "Social Security answers to your online questions" to "University of Arizona launches website for American Indians." The Apache Scout featured "Prepare and file your taxes online for free." In the Pequot Times, Information Provision was seen in such stories as "Records management website launched" and "Colonial records online." In the How-Ni-Kan, Information Provision mostly centered on their own website development for tribal media. In the news of the Prairie Band Potawatomi, Information Provision was largely related to health and medicine through websites. The Seminole in Florida used Information Provision framing to offer tips related to ICT products and services.

Another emergent frame, Safety and Security, the second-most identified frame (10%), related primarily to computer viruses, safe cell phone practice at gas pumps, navigating the web safely, and even how not to catch a cold from your computer. The pre-identified frame of Infrastructure Development accounted for 9% of the news on ICT. Those news stories talked about new MIS systems, partnerships with ICT companies, and acquiring media technologies and equipment, in particular large installations of networks, TV stations, and towers for cell phone and radio broadcasting.

Workforce Development (8%) and Technology Provision (7%) frames occurred with similar frequency. In these instances, stories communicated news about donations of ICT equipment, especially to schools and youth programs, and IT courses and technology workshops for the general community.

The third set of frames in terms of frequency were Amusement (8.4%), Heritage (5.6%), and Community Engagement (5%), which were related largely to development of movies, documentaries, and advertisements broadcasted through TV stations and electronically through websites. Instances of the Community Engagement frame were often directed to tribal youths in an effort to maintain cultural identity and heritage through IT projects, services, and applications, such as electronic magazines and video production. Instances of the Amusement frame included movie premieres and productions and TV and multimedia programming -- all related to Native American issues and culture. Heritage included such stories as online oral history collections, multimedia projects, and a tribal heritage website.

All other frames had frequencies of less than 4%. The Wealth Creation frame was seen in stories such as "S&K Technologies' piece of the pie results in million dollar dividends," which was published in the Char-Koosta News. The Honoring frame in relation to ICT often occurred in instances in which the news highlighted award-winning ICT employees, companies, multimedia projects or broadcast stations. New Market Access frame could be seen in stories about TV networks and programming as well as tribal ICT companies opening up new market opportunities for tribes and tribal members. Administrative Efficiencies frame included consolidation of media programs, software upgrades for media departments, and databases for record keeping -- all of which enabled tribal businesses and departments to increase efficiencies. Business Development (1.9%) entailed the training and support of small business growth using ICTs, such as databases and websites.

Collective Identity (2.3%), Activism (1.4%), and Community Development (less than 1%) related to the use of ICTs in order to bring about improvements in the lives of tribal members. For example, multimedia and web-based language programs, or debunking myths by using multimedia projects. Multimedia projects entailed the use of TV, radio, and websites to communicate issues and mobilizing dispersed tribal members to participate in discussions. These results suggest that while the perception of the use of ICTs varies among tribes, there are underlying similarities that could potentially enable the digital divides to be addressed.

The analysis in the following section addresses these similarities between frames by developing concepts and illustrating how they relate to one other. While the frames do not show causality, they do allow us to induce patterns and arrive at tentative assertions about how the frames relate to each other.

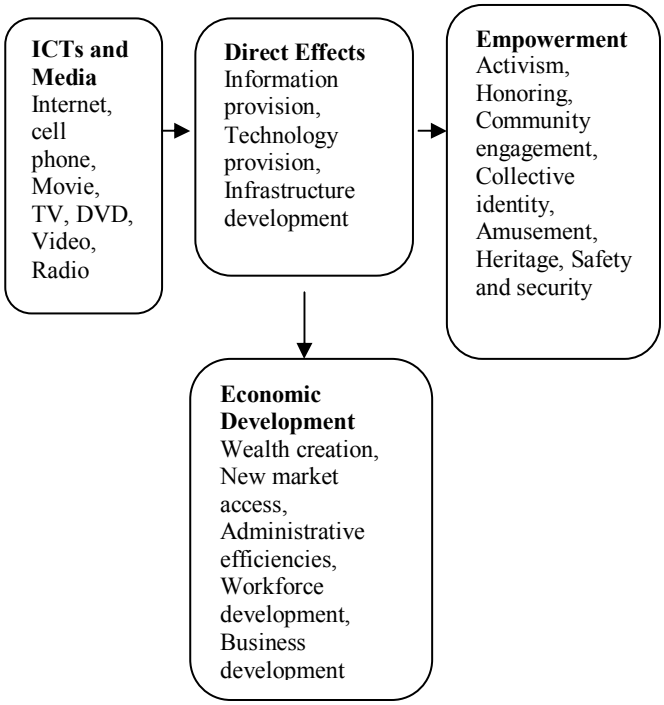
5. Analysis

In this section the results are analyzed using inductive reasoning to arrive at tentative patterns between the frames. The process of inductive reasoning uses the specific observations to detect patterns that are identified in the frames. The frames are bundled together into concepts that better describe the phenomena being observed. This process enables us to develop tentative hypotheses that we explore in a model. From the preliminary results of this research the following tentative hypotheses are arrived at:

1) ICTs and media have a direct effect on development.
2) ICTs and media have a direct effect on empowerment.
3) The direct effects take place through information provision, technology provision and infrastructure development.

The model depicts the effects of ICTs and media on empowerment and economic development. When the use of ICTs and media are aligned to the needs of the tribes, economic development takes place. See in Figure 1 below:

Figure 1: Model of the effects of ICTs and Media on the Digital Divide



If the media are not aligned to the needs of the tribes, the digital divide only increases. In order to bring about measurable results in the lives of Native Americans, the direct effects need to be aligned to the needs of the tribes. This model is illustrates these pathways to development that enable the digital divide to be transcended. The frames categorized under empowerment were activism, honoring, community engagement, collective identity, amusement, heritage, safety and security. The concept of empowerment has been used to describe power and control in organizations [14], [6]. Though popular in the psychology and management literature, this construct has been defined mainly in terms of self-efficacy and organizational communication and management practices [1], [14], [6]. It appears from the above frames that empowerment is far the most dominant outcome of the direct effects of ICTs and Media. This suggest that the use of ICTs and new media in Native American communities relates to the communication of value to create shared understanding among tribal members.

The use of ICTs and new media has implications for the development of human freedoms. Sen [40] suggests that human well-being should be at the heart of any development effort. He emphasizes the need for human freedoms especially in the face of market mechanisms and proposes three distinct facets of freedom: opportunity to achieve, autonomy of decisions and immunity from encroachment. Sen argues that without freedom and the capability to carry out an activity, a person cannot be responsible for doing what they do. This is Sen's contribution to development and adds that in achieving development there has to be a "momentous engagement with freedom's possibilities" ([39], p284). This research suggests that empowerment took place in the tribes through ICTs and New Media. Tribes have become empowered through ICT to take their destiny in their own hands. Tribes are taking control of their ICTs.

The frames categorized under economic development were those of wealth creation, new market access, administrative efficiencies, workforce development and business development. Schumpeter's [38] theory of economic development argues that economies go through cycles which can be aided through factors such as education and innovations that make factors of production cheaper or more efficient. He suggests that through technical and organizational progress, development takes place as knowledge progresses. New technical innovations can bring about development if they offer opportunities for new enterprises. Economic development thus assumes that the behavior of people and production processes is predictable and only adjusts to constant changes in the environment in a purely passive manner. Development is taking place in some tribes at they use ICTs to promote business development and even fuel growth through IT service provision.

The key driver for growth is that the tribes are connecting to the outside world's infrastructure to create the opportunity of information provision for their own communities. Although contrasts are now seen in its use and importance, the hope for sustainable development rests on communication, whether via the mass media, community media, or a combination of both. Communication development specialists call for the media to be the vanguards. In developing societies, mass media have been inseparable from the concepts of politics and modernization [24].

6. Lessons Learned and Future Research Directions

The lessons learned from examining and analyzing the content of ICT news in tribally-owned newspapers suggest that certain measurable improvements in the lives of Native American communities can take place through the use of ICTs and new media. However bridging the digital divides will have to focus on the use of ICTs for human development. These lessons can be summarized as follows:

1. Tribes have become empowered through ICT to take their destiny in their own hands.
2. Tribes are using ICTs and media to create and foster shared meanings and understandings but also to perpetuate those so that their ways and values can continue to grow.
3. Infrastructure is being put in place and the communities are using it despite lack of resources to access these cellphone and radio signals.
4. There is a convergence of technologies to support in particular amusement, heritage, and community engagement activities.
5. IT products and services have a very different meaning in tribal communities in terms of communication and communicating to the broader audience.
6. ICT is a very strong mass media communication tool but directed to each tribe, and each tribe has its own unique perception on ICT and a different way of relaying information.

In general the stories revealed an underlying culture that perpetuates itself through the communication media. Tribes and nations are appropriating ICTs to strengthen their values and traditions -- even down to the way they think of themselves. The following quote exemplifies the lessons learned from this research:

"Today, tribes are at a pivotal point in history. Self-determination policies have begun to yield measurable results in Native communities, from the

development of diversified tribal economies to the revitalization of Indian languages and culture. Throughout the country, the number of tribal and Indian-owned enterprises has grown dramatically, and many tribes have become active participants in economic and political arenas, on both local and national levels. However, the impressive growth we see in these areas will continue to be limited as long as the opportunities afforded by access to the digital economy of the nation exist beyond the boundaries of infrastructure, funding and regulations." [9].

Future research should consider the use of ICTs and media per tribe and attempt to uncover the dominant frames per tribe. Further research projects could focus on designing and developing ICT implementations and measure their effects on human and economic development in underserved and underdeveloped regions. This analysis has shown new ways in which economic development can be achieved by empowering Native American communities to use and access ICTs to take control of their own destinies.

7. Summary and Conclusions

This research has investigated how ICTs and Media are communicated in Native American communities through the tribal newspaper. Following a framing analysis of a selection of 214 stories, a set of themes and frames were coded. The frames discovered as a result of this analysis can expand our understanding of the perceptions of ICT use in Indian Country and underserved communities in general. An analysis of the frames gave rise to a model of the effects of ICTs and Media on the Digital Divide. This model suggests that in order to address the digital divides separating Native American Communities from the rest of the US, the effects of ICTs and new media should be focused on empowering tribal members to develop their shared norms and values. A frequency analysis suggests that while economic development is seen to be important, it is the frames within empowerment of tribal members that predominate.

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