

Making Sense of Latinos and the “Digital Divide”

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Introduction

When reading about the digital divide, it struck me how much certain tenets of the debate seemed to be taken for granted. I soon found that background literature on Latinos and Digital Divide seemed to be contradictory and left me with many unanswered questions. Because of this, I changed my original project from combining data analysis with a literature review to doing more of a meta review to make more sense of this debate and how studies were approaching it. I next identify areas which I think have not been adequately addressed in these studies. I talk about several potential solutions based in my own field of Human-Computer Interaction and conclude with some commentary on the data from the Rivas study and implications for future studies.

Part One: The Studies

Probably the most cited reference with reference to the digital divide is the “Falling Through the Net” series put out by the National Telecommunications and Information Administration (NTIA 1999, 2000). Its 1999 report, based on Dec 1998 Census Bureau Data) claimed that gaps between White and Hispanic households were increasing and that Hispanics were 2/5 as likely as whites to have home internet access. Its 2000 report was more optimistic, showing impressive gains in Internet access for Blacks and Hispanics. However for use of internet at home it said : “Differences in income and education do not fully account for this facet of the digital divide. Estimates of what Internet access rates for Blacks and Hispanic households would have been if they had incomes and education levels as high as the nation as a whole show that these two factors account for about one-half of the differences”.

Figure II-7
Internet Use by Gender and Race/Ethnicity

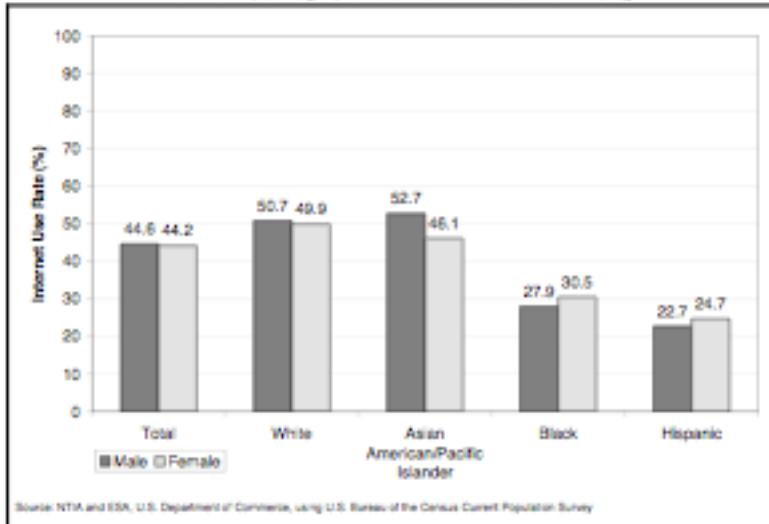


Illustration from 2000 Falling Through the Net Report

A very different picture appeared in “The Truth About the Digital Divide” (Walsh et al 2001) which concluded that Asian and Hispanic Americans led in online access and were actually more likely than Caucasian households to be online. Income was found to be strongest predictor of online access and Walsh claimed “Once statistical analyses takes into account the impact of income, age, education and technology optimism, ethnic background does not materially influence online adoption”. Her study was based on a January 2000 mail survey of 80,000 households carried out by Forrester Researcher, a prestigious private research firm. This piece was excerpted from a presumably larger report (Walsh 1999) where it is hoped that there is more information about the study including the ambiguous variable “technology adoption” and other important methodology information such as geographic areas covered by the survey and whether the survey included non-English speaking households. Unfortunately this longer report is not readily available since most of Forrester’s complete reports are expensive, costing almost \$1000.

Discussion about the implications of the Walsh study seemed to play out only in the volume in which she is cited (Compaine 2001) and in sound bites in the press. In “Falling for the Gap” (originally published by Reason magazine in 1999), Adam Powell of the Freedom Forum quoted Walsh and ridiculed the media for being misled by stereotypes and a 1998 Commerce Department study directed by Larry Irving which Powell claimed was outdated and misguided in that it did not take into consideration that most Americans got their online access at work and in the home (Powell 2001).

Larry Irving later had harsh criticism for Walsh in his speech at the 2000 National Freedom of Information Day Conference. Irving referred to Walsh as the “Jeane Dixon of the digital divide” saying “This year Walsh has a new thing — Hispanics have access outside the home. ... But this is not equality of access. It just doesn't wash, it doesn't fly — it's offensive to anyone who cares about a democratic society. These are the things that keep me up at night.” Walsh later defended herself, saying "I've never, ever said that the digital divide was gone. It depends on how you define the digital divide...There is a digital divide, but it's not because of race — it's because of differences in income and education levels." With respect to Forrester’s perspective, she stated "We are not taking any political stance. These definitions (of the digital divide) come from political agendas" of those involved in various arenas of electronic communications access" (Jerving 2000). Ironically, based on the articles written by her on Forrester.com’s pages, Walsh seems to have moved on from studying the digital divide to focusing on millionaires and how to cater technology and products to their needs.

In “The Digital Divide for Hispanic Americans”,Hacker & Steiner (2002) acknowledged divergences in empirical studies, particularly those between NTIA and various academic studies, some of which claimed the gaps were narrowing, while some claimed they were getting worse. They attributed the differences to diversity in sampling techniques, questions asked and how the data is summarized. For example the Pew Internet Project measured internet users as those who had used the internet rather than asking the frequency of use and

using that as a variable. They also opined that the controversy was based on isolated findings versus rigorous hypothesis testing, which justified how they developed their own hypotheses. They ended up conducting a random sample telephone survey in the Southwest with bilingual interviewers and though they noted age, gender, education and income, they did not indicate how many interviews ended up being conducted in Spanish. They did note that internet adoption differed from past new technologies such as TV and radio since it required more active skills with different levels of access and knowledge.

DiMaggio and Hargittai (2001) also went out of their way to differentiate Internet adoption from other technology adoption, specifically the telephone binary access of haves and have-nots. They identified five critical dimensions of inequality:

- 1-Variation in technical means (hardware and connections) by which people access the Web
- 2-Variation in extent to which people exercise Autonomy in use of Internet—for example whether they access it from work or from home, whether use is monitored or unmonitored, or whether they must compete with other users for time on-line.
- 3-Skill that people bring to use of Web
- 4-Social support on which Internet users can draw
- 5- Variation in purposes for which people use the technology.

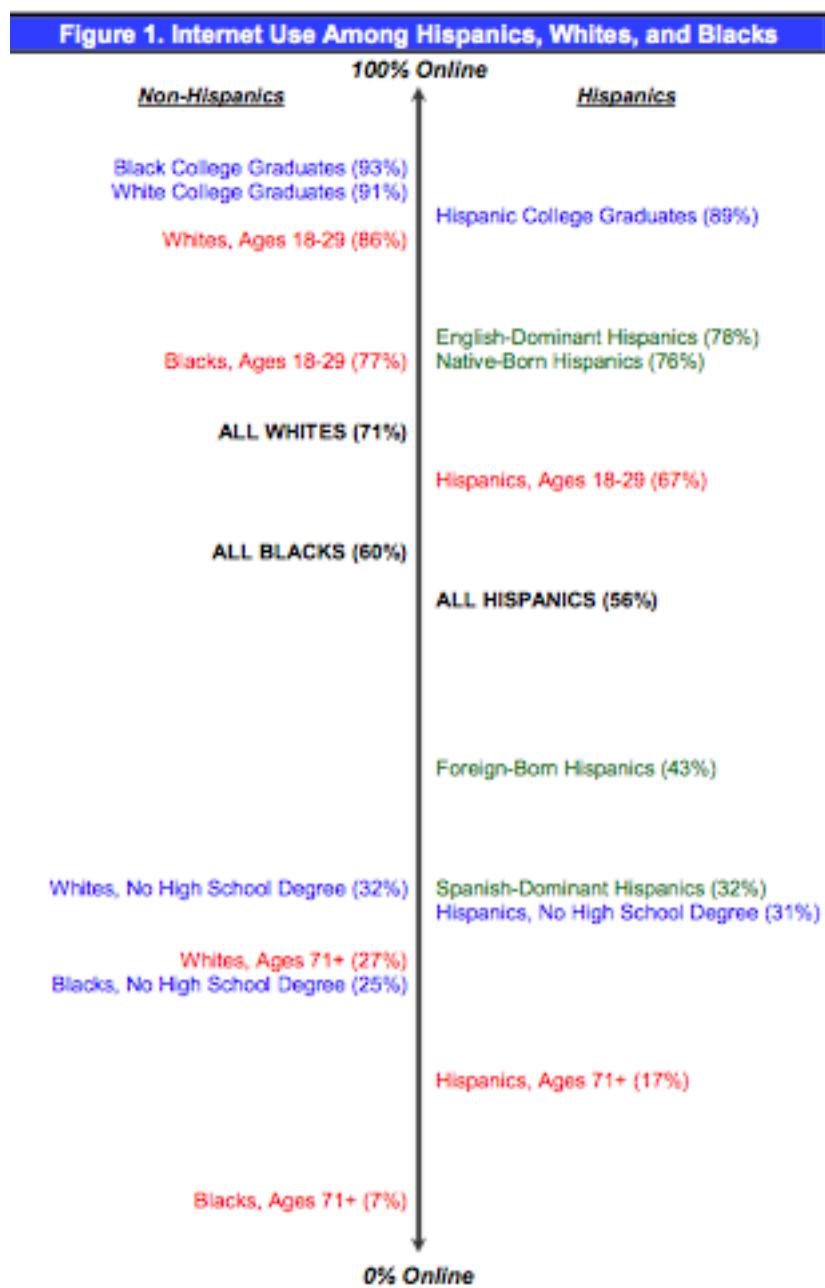
Galvez & Youngblood (2007) drew on the diffusion of innovation approach (Rogers, 1962) with patterns of adoption of new technology divided into innovators/early adopters, early majority and laggards. Their intercept survey of 287 adults in West Texas used a wider variety of technologies than is typical of digital divide studies. They found that whites more likely to adopt Internet and high speed internet, home computers, and premium cable TV than Hispanics, not case with cable TV and mobile phones. They found that income key factor in adoption but were surprised to find that in the adoption of technologies where cost was not a barrier, Hispanics just as likely (self-checkout counters) or more likely (ATMs and pay at pump) to use these devices.

Paul Leonardi (2003) used his study to caution why it is problematic to group “new media” together since cell phone use is perceived very differently than computer and internet use. He drew upon social constructivist theory to talk about how communication norms and cultural values play a central role in the use and structure of technology. Leonardi gave an extensive explanation of Latino culture, especially its collectivist, rather than individualistic orientation. He was also very specific in who his study included—78 first-generation working class Latinos who had been in the US for an average of 13 years. His focus groups found that these people viewed computer and internet use similarly, as tools for information retrieval which were potentially damaging to social relations while cell phone use was considered a positive and necessary technology which was easier to use.

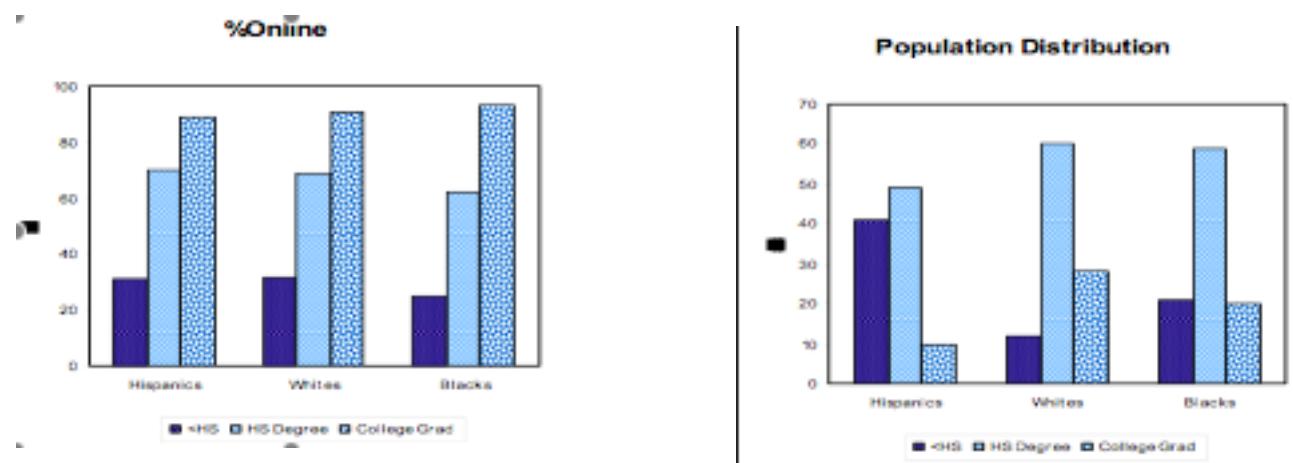
In another analysis of the same study (Leonardi 2002), the concept of machismo to talk about gender differences. Females tended to grant technology qualities

saying that computer “did” something or “was” certain way, scapegoating technology and noting the dangers of technology. Males more often viewed computers as things to be controlled by users and were more likely to have used computers or internet. Even if they had computers at home, many females in the study didn’t know how to operate them, saying that their husbands had made the decision to purchase and knew how to use them.

The Pew Hispanic Center Latinos Online Report (Fox & Livingston 2007) may not have included as many respondents as the NTIA or Forrester studies, but it definitely seemed to be the most comprehensive in terms of factors considered and general context given to numerical data.

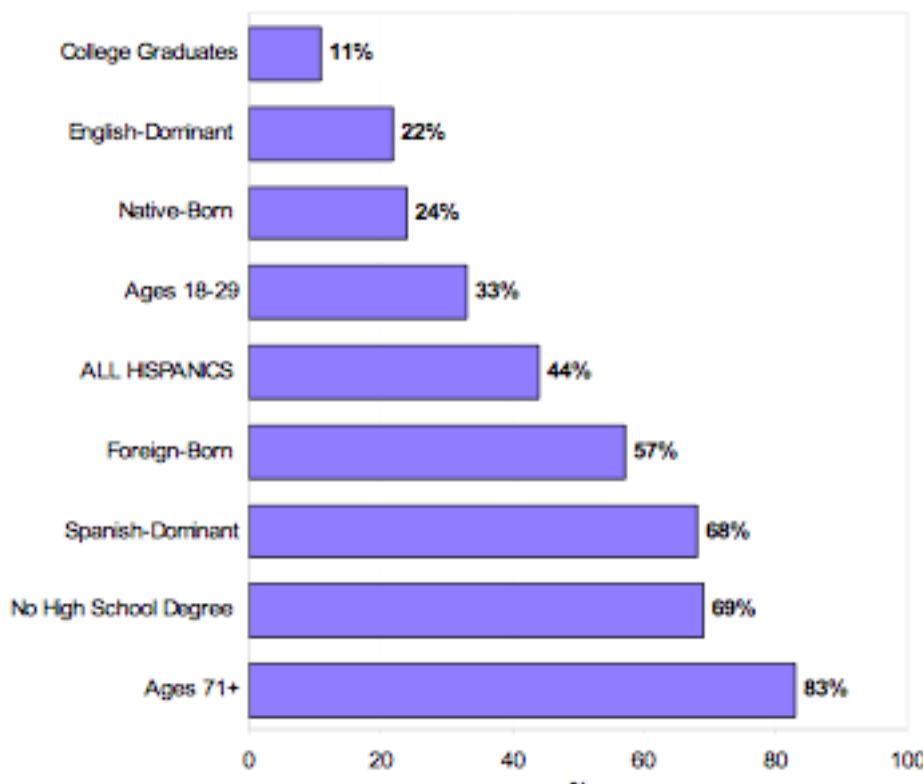


In Figure 1 above as well as the below graphs we are able to see that while Hispanics as a whole still have less access than Whites and Blacks as a whole, there are very important caveats which lead Fox and Livingston to conclude that differences in levels of education and English proficiency explain much of the difference in internet usage between Hispanics and non-Hispanics. We see that for college graduates there is very little difference between the three racial groups. The same is true for people who have not finished high school. However, the report notes that 41% of Latino adults have not finished high school, compared with about 10% of non-Hispanic whites and 20 % of blacks which is why as a group Hispanics still appear to lag behind in access.



Hispanics Divided Up Into Offline Groups

Figure 9. %Offline, by Key Characteristics



The Pew report is also the only one to differentiate between different types of Hispanics, with its samples including Latinos of Mexican, Cuban, Puerto Rican, Dominican, Central and South American origins. Mexicans, the largest national origin group among US Latinos are among the least likely to go online.

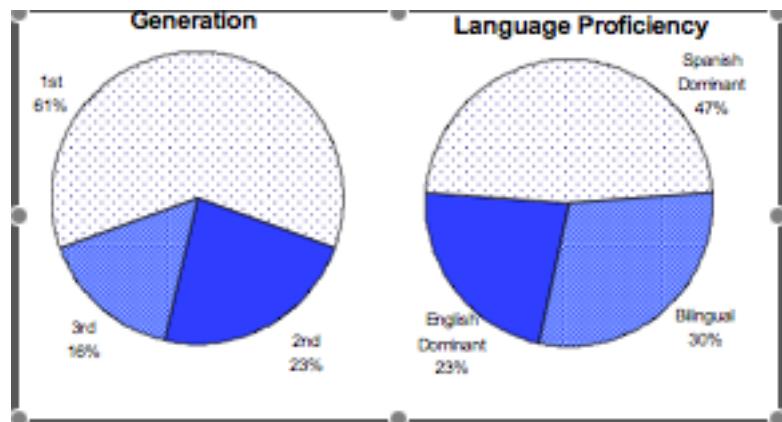
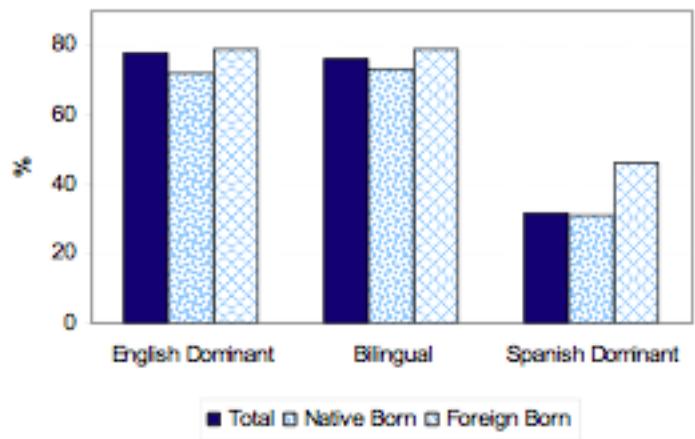


Figure 6. %Online, by Language Proficiency and Nativity



Part 2 : What's Missing?

What's going on with education?

Based on the implications of the Pew Study my first response was shock at the low high school graduation rate for Latinos and how this played into the digital divide debate. While access in educational institutions is definitely a part of the digital divide, the educational community discussions seem to be held separately

than the more general digital divide discussions. One exception is a study by the Tomas Rivera Policy Institute (Tornatzky, Macias & Jones 2002) commissioned by the IBM Hispanic Digital Divide Task Force. This paper discusses the digital divide in terms of the IT pipeline, with too many Latinos “leaking” from the higher-paying IT jobs pipeline because they lack the necessary skills and education. The high dropout rate for Latinos is again addressed in addition to inadequate teacher/staff training in technology. Hispanic Serving Institutions (HSIs) and community colleges play a part in their solutions, though strangely they avoid any mention of ESL or bilingual education programs. They conclude with some strong action items to be addressed by different levels of education as well as federal agencies and corporations.

However, it took another Pew Hispanic Report (Fry 2003) for me to realize the inaccuracies in the Hispanic dropout rate being reported. Rather than figures from schools stating how many students have dropped out from their institution, figures are based on an age cohort which indicates how many people are not enrolled in school and have not received the degree. This means that the Hispanic dropout rate is overstated, since it includes youth who have never stepped foot in American classroom. Fry stresses the need to examine three subgroups separately dividing into: Native-born, foreign born who attend US schools, foreign born who emigrate mainly for employment and don't enroll in US schools. Overall Latino dropouts are not proficient English speakers. However, immigrant Latino dropouts have high rates of employment, earning more money than white and US-born dropouts

Measurement Issues: Who is “Hispanic”?

As we have seen above, it can be problematic to automatically lump all Latinos into the same category. This relates to the fundamental question of how to measure “Hispanics” which is a tremendous challenge. The NTIA “Falling Through the Net” series is based on Census data, which would seem to carry more weight as authoritative. However, the Census Bureau has struggled for years with the issue of measuring “Hispanics” and has been criticized for severely undercounting because of the way they apply labels. In 1980 they added a question about Hispanic origin rather than a Hispanic option under race. Since many Hispanics didn't identify with any of the racial categories given, many ended up selecting “some other race”. In 2000 40 % of Latinos chose “other” while of the 15 million + who chose “some other race”, 97% were Latinos. The 2000 census also made modifications which undercounted certain Latino subgroups such as Salvadoreans, Nicaraguans and Dominicans by as much as 20-30% (Chavez 2003). Much attention has also been paid to how the “undocumented” are undercounted and the efforts that the Census has been making to reach out to them. While this issue is probably being covered more extensively in other venues such as demography or sociology, it is not acknowledged in the digital divide literature. One ends up wondering how accurate the numbers are and if current studies are also guilty of undercounting.

What's going on in Latin America?

Given the strong correlations to language ability and country of origin shown in data, one would think there would be more connections made between U.S. Latinos and what is going on in Latin America. Unfortunately it would seem that in the current studies, immigrants are not connected to their past or explained in the context of the situations which shaped them. There is research being conducted about ICT use in Latin America but it seems to be presented in separate venues from research done on US Latinos, and is often not translated from the original Spanish. The Journal of Community Informatics made an effort to correct this with a special issue on Latin America in Fall 2007 in which papers appeared in the original Spanish or Portuguese but were supposed to be translated into English by Spring 2008. However, as of the end of 2008, the majority of papers have still not been translated.

One of the translated papers which stands out is by Victor González and Luis Castro (2007), two Mexican researchers who are based out of the Informatics Department at the University of Manchester in the United Kingdom. Their work talks extensively about transnational social networks, how Mexican families and communities are separated when members go to the US to find work and how they are able to stay in touch via the web. In related studies González (2008) and his collaborators develop and test tools to facilitate this communication. They customized the tools to facilitate their use by the older generation left behind in Mexico but mention the financial limitations since Internet and computers in Mexico is more expensive than in U.S. and hence much more of luxury.

What's going on in the marketplace?

One factor that is seldom mentioned in the academic literature is the role of the marketplace in the digital divide. The NTIA study acknowledged the role of falling prices and more user-friendly software (NTIA 2000, p. 21) in the adoption of new technology. In this sense, the rhetoric that early adopters are automatically privileged falls apart since waiting may yield cheaper and more powerful technology that is easier to use. However, given the speed at which technology becomes obsolete, the feeling of victory is soon taken away and a new "digital divide" seems to appear. Now, studies concerning the digital divide are more likely to address broadband access, which is more expensive and typically requires year-long commitments.

Claims from the 1990s that high-tech sector was going to bridge the digital divide clearly had mixed results. Chaney (2000) describes many corporate initiatives, many of which failed. Such examples include "free" computers given in exchange for signing a three year Internet service contract (paying \$20-30/month for dial-up service soon made these offers seem like less of a bargain), cheaper internet appliances such as WebTV which lack the full functionality of PCs (still in existence but not as successful as was projected) and free internet services such as Altavista Free Access and netZero which turned out not to be sustainable through an advertising-supported model.

Corporate philanthropy has remained with companies Microsoft and IBM making donations to schools and giving out scholarships. In terms of marketing and research efforts, it would seem that their emerging markets divisions are more focused on the billions of potential consumers in India and China rather than Latin America or poorer populations in the US.

The issue of culturally-oriented and multilingual content on the internet is clearly one that can be addressed more readily by the marketplace than by government or academia. During the late 90's there were many prominent attempts at Latino portals and e-commerce sites. For example Star Media, a portal considered by the New York Times to be "the premier gateway to Internet material in Spanish and Portuguese" , raised almost half a billion dollars in total during the dot-com boom and had a strong presence throughout Latin America (Rich 2000). LatinLink was a hub of many interesting culturally relevant articles . After the dot-com bubble burst, both disappeared and it is unclear whether there have been comparable attempts to fill this gap or whether in the age of "Web 2.0" consumers themselves will create the content.

Do mobile phones offer hope?

As was mentioned by both Leonardi (2002) and the Pew Hispanic Center report, Hispanics are more likely to consider cell phones a necessity rather than a luxury. AMIPCI annual statistics for Mexico (Peña 2007) also show considerable more adoption of mobile phones (63.2 million) than computers with access to the internet (8.7 million). Given that more people will be able to access the internet from their phones, this offers more possibilities for closing the "digital divide".

The concept of "leapfrogging" in the ICT4D (information and communication technology for development) literature has generally referred to when developing countries don't have the infrastructure for wired phone lines but can skip that stage altogether to go directly to mobile phone use. This approach is being used extensively in mobile learning applications. One such project is MILLEE (Mobile and Immersive Learning for Literacy in Emerging Economies), a UC-Berkeley project focused on English literacy in rural India though the developers note "we expect our lessons to be applicable to other languages and to other developing regions throughout the world...English is widely seen as a key to socioeconomic success in India... A recent article states that mastery of English is the "single most influential factor that determines access to elite educational institutions, and hence to important avenues of economic and social advancement...Language competency is also the biggest barrier to technology empowerment, e.g. 90% of the indigenous web content in India is in English". Given the similarities in language learning issues, it is possible to conceive of this leading to similar applications for Latino immigrants in the US.

A related project geared towards Appalachian illiterate populations is using the mobile phone as scaffolding technology. Kavanagh et al (2006) aided by colleagues in anthropology and education as well as literacy volunteers , are

studying how metaphors from mobile phones can aid in adapting to learning how to use desktop computers and testing if for instance, modifying a desktop's interface to make it seem more like their mobile phone would make it easier to use.

As with Castro and González's research, these two approaches remind us that as researchers we don't have to settle for measuring or critiquing the use of technology but can use this knowledge to develop better technology that fits the need of communities. It is clearly beyond the scope of this report to suggest a comprehensive solution to addressing the "digital divide" which has at its basis issues that need to be addressed in public policy and education at an international level. However, I did want to at least go beyond some of the solutions such as computer clubhouses that we've mentioned in class to look at how technology interventions targeting other populations might be leveraged in the future to Latino and Latin American populations.

Commentary on Rivas and Williams Study

At the outset of this project, I planned to analyze the dataset from the Latino community in Toledo provided by Rivas and Williams and compare it with other studies being done on the digital divide. Unfortunately the data set provided was incomplete and lacked key demographic variables which would allow a more direct comparison to the majority of digital divide studies. Given that so much time has passed since the study was done and the fact that the researchers have since moved from the area, it may not be possible to fill in these gaps. It would have been especially interesting if Rivas had been able to re-interview these people now to see how their attitudes and practices have changed. Unfortunately, current IRB practices of anonymizing data and contact information make it hard to carry out longitudinal tracking of this nature.

Based on the review of the literature, it seems that Rivas' driving assumption that income and education do not completely account for the digital divide is not a given. With the speed at which the rates and nature of technology use is changing, he might need to change the way he frames this study because of the number of other studies (including his own) that have been done he first conceptualized this project. Also, his hypotheses and model of social networks contributing to poor people's use of technology have already been mentioned by other papers including Kavanaugh (2006) and Williams (2005).

However, the data collected is still valuable and hopefully still worthy of publication given the lack of qualitative and contextual data in studies addressing Latinos in technology. This is especially true because of the fact that it is linked to a specific geographic area where several well known digital divide studies have been done (Alkalimat & Williams 2000, Williams & Alkalimat, 2004). Ohio is definitely not an area that is identified with the Latino community and the few studies that actually specify where the samples were taken from the Southwest.

But clearly migration patterns have changed in the past decade or so to disperse Latinos into areas of the country where they had not been present and it is hopeful that this data can add to the geographical understanding of Latinos throughout the US as well.

Conclusion

This meta-review ended up leaving me with more questions than answers and it is clear that there is much more work that can be done. Measurement is definitely a challenging problem that must be dealt with. While it is impossible for any one study to be comprehensive, it is more important than ever that researchers are clear about their methodology, definitions, assumptions and sampling methods so that studies can be compared. While it is standard to compare Latinos to other racial groups, other factors such as language and immigration status must be taken into account. There are an abundance of statistics, but very little qualitative studies that put these numbers into context.

As technology use changes so quickly, care must be given to make sure citations are not outdated. Given that literature is being published across a variety of different fields as well as by commercial marketing research firms such as Forrester and Cheskin, it would be helpful to have a digest of relevant research so that for instance researchers in sociology could have more access to the relevant research in the ICT4D or communications fields. There are plenty of blogs out there that serve this purpose, though probably more for the marketing world than for academics. Newer interdisciplinary journals such as the Journal for Community Informatics and Information Technologies and International Development are definitely a step in this direction as well and hopefully JCI's special issue can start a trend towards more access of scholars based in the US to their counterparts in Latin America.

The role of corporate involvement, the educational system and government policy, not just in the United States but also in Latin America must be acknowledged so that the knowledge gained can be put to good use in developing better public efforts and creating new technology. But we also need to examine the values in the digital divide rhetoric to make sure these contributions are more than simply making sure people have more "stuff" and to make sure solutions are rooted in the larger context.

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