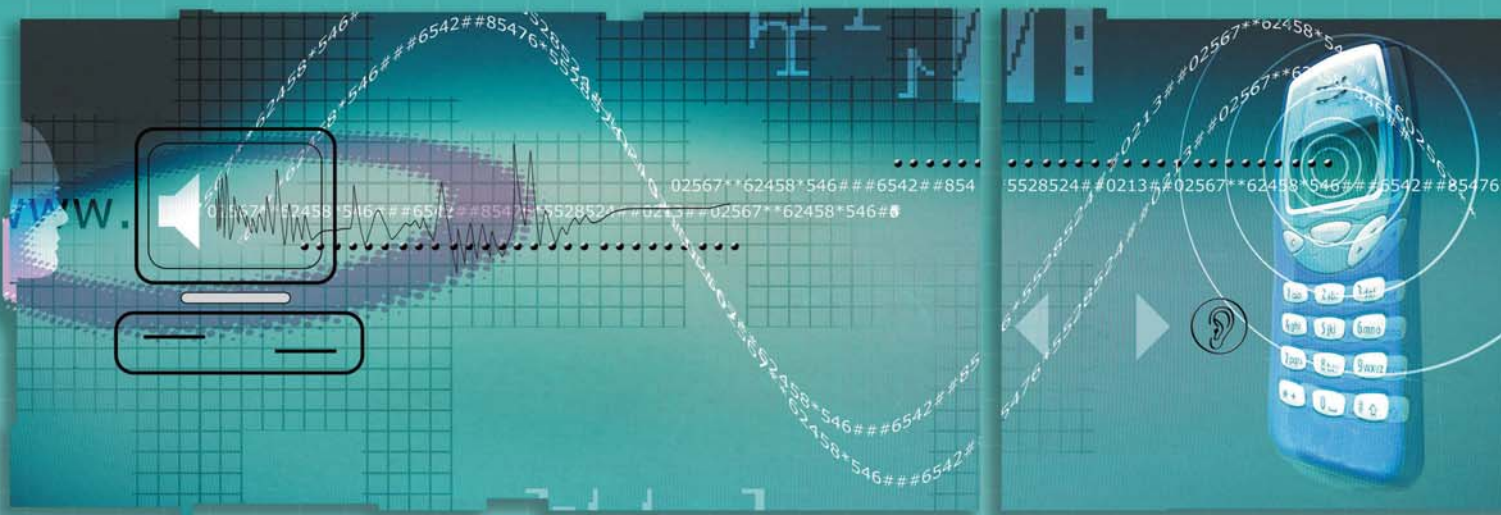
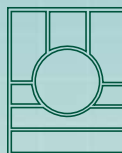


The Social Impact of Voice over Internet Protocol Technology on Latinos



*Exploring ways to bridge the digital divide
by investigating how Internet based telephony
is transforming communication behaviors*

Matthew D. Matsaganis, Ph.D.



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Executive Summary

This Tomás Rivera Policy Institute (TRPI) report analyzes the level of familiarity Latinos¹ have with Voice-over-Internet Protocol (VoIP), and also how Latinos can grow to benefit from technologies and services that transmit voice signals over the Internet. Increasing Internet penetration into the Latino community calls for a better understanding of what might improve computer and technological literacy. To that end, this report also explores how VoIP can help bridge the digital divide and mitigate unequal access to digital and information technologies in the United States.

Our findings show that many Latinos, regardless of Internet use, recognize the brand names of some VoIP service providers and positively associate VoIP with a lower cost to telephone. However, most do not take steps to adopt the technology mainly because they do not know enough about how it works or how to gain the savings. Those who do take steps to use VoIP rely less on their home landline and enjoy lower cell phone bills, according to our study. Most also have stopped using calling cards. Our study shows that VoIP adopters spend on communication services an average of 13 percent less each month than Internet connectors who do not use VoIP.

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TRPI intends for this study to spark further research into access, social uses, and benefits of VoIP in developed countries such as the United States. Indeed, a review of existing literature suggests an increasing interest in VoIP regulation, as well as an exploration of how to deploy VoIP in developing countries such as Africa and South America in order to promote digital inclusion. However, it is the hope of TRPI that with this study, the present dearth of research on VoIP in developed countries will be replaced with studies into VoIP's utility as a tool to help close the digital divide in the United States.

This report is designed to inform efforts to increase Internet penetration and to improve computer and technological literacy across the socio-demographic spectrum. Ensuing success largely will depend on the joint efforts of government groups (federal, state, and local), private funding agencies, and third sector entities such as community organizations to all work together to invest capital and ingenuity in three directions:

- Improve technology education
- Create opportunities for Latinos to learn cutting edge communication technologies
- Encourage research into the benefits and usage of VoIP

The report unfolds in four sections. Section one starts with a review of extant literature on VoIP, followed by a discussion of the benefits of VoIP technology and how the VoIP market is shaping up as established telecommunication companies are confronted by new and usually smaller and more agile competitors. Subsequently, the report addresses the issue of VoIP usage among Latinos and raises the main questions TRPI sought to address through this study. A description of the methodology employed comes next (in section two), followed by a discussion of key findings (section three). Findings are presented in three parts under three headings: (a) Latinos perceptions of VoIP and Internet phone services; (b) communication services: uses and attitudes; and (c) Latinos and the price of communication services. The report concludes with a discussion of this study's implications and a set of policy recommendations.

¹ TRPI uses the terms Hispanic and Latino interchangeably to refer to individuals who trace their origin or ancestry to the Spanish-speaking parts of Latin America and the Caribbean.

Background & Main Objectives

This Tomás Rivera Policy Institute (TRPI) report examines Latino usage of Voice-over-Internet Protocol (VoIP) in an effort to help close the digital divide that particularly excludes Latinos and persists in the United States.

The persistence of the digital divide and the dearth of research on the social uses and impact of Voice-over-Internet Protocol (VoIP) technology and services in the U.S. created the impetus for this study. The lack of research on the social impact of VoIP use in the U.S. and other developed countries is curious, however, because the literature that addresses the role of VoIP in developing countries has grown significantly in recent years (e.g., Conradie, Morris, & Jacobs, 2003; Olorunda & Olorunda, 2006). It also is curious because there have been considerable studies and interest in regulation and policies of mushrooming VoIP service providers worldwide (e.g., Boyer & Mercier, 2005; OECD, 2006b; Rendón, García-Murillo, Villegas, & Kuhlmann, 2007).

A key objective of this study is to uncover ways VoIP technology may help increase Latino access to the information superhighway.

The rate of Internet connectedness for Latinos is lower than for all other ethnic groups in the United States, and there is much to be done to equalize Internet access. According to research of the Pew Internet & American Life Project, the percentage of Latinos online in March 2007 was 56% (Livingstone, 2007).² In contrast, 71% of whites and 60% of African Americans were connected to the Internet. A key objective of this study is to uncover ways VoIP technology may help increase Latino access to the information superhighway.

What is VoIP?

VoIP is the conveyance of telephone traffic over Internet Protocol-based networks, and includes voice and fax services, according to the Organization for Economic Co-operation and Development (OECD, 2006b, p. 7). Internet Protocol denotes the format of data packages and delivery over the Internet. Calls can be made to other VoIP devices or to “normal” telephones.

IP works by breaking voice calls into digital “packets,” as Dudman (2006) explains. Separate packets travel over an IP network and are reassembled at the far end. Transmitting voice calls, which are much more sensitive to time delays or network problems, in the same smooth way as data, was a breakthrough (p. 3). High-speed (broadband) Internet connections are constantly working and rapidly transmit considerable quantities of digital packets over the Internet; a speed rapid enough, in the case of a phone call, for voice packets to be reassembled without the message sounding distorted.

VoIP calling rates, especially for long-distance and international service, are often a fraction of the fees charged by conventional phone service providers

Calls on a conventional telephone network (i.e. a public switched telephone network (PSTN)) are metered, of course, but Internet usage is not. So transmitting voice over an IP-based network costs nothing, and providers of VoIP-based telephone services are able to offer much lower rates. VoIP calling rates, especially for long-distance and international service, are often a fraction of the fees charged by conventional phone service providers (for more general details on VoIP see Babbage, Moffat, O’Neill, & Sivaraj, 1997; Dudman, 2006; Gardenas, Dhillon, George, & Jain, n.d.; Jones, 2005; OECD, 2006; Weiss & Kim, 2001; see also the Federal Communications Commission’s Web site at www.fcc.gov/voip).

² This is the percentage of Latinos overall (i.e., English-dominant, bilingual, and Spanish-dominant Latinos) that are connected to the Internet. Internet connectedness among Latinos depends on income, age, country of origin, nativity, and language spoken. Mexican-origin Latinos have the lowest rates. Less than one-third of Latino adults have a broadband Internet connection at home.

The VoIP market and the advantages of the technology

Our study investigated what Latinos know about VoIP and VoIP services. We also examined how VoIP has changed Latino use of home phones and other communication methods, and whether it has affected their monthly expenses. We also needed to determine the overall cost savings of VoIP compared with the cost of an Internet connection; in effect, it was important to get a sense of the level of savings consumers achieve by using VoIP services.

In 2001, VoIP began to seep into mainstream consumer consciousness when VoIP pioneer Vonage launched its service. Since then, the growth of the VoIP market in the United States has been astounding. The number of VoIP subscribers grew 189% between 2005 and 2006; that is, from 1.9 million to 5.5 million in just 12 months (TeleGeography, 2006). By the end of 2010, the number of subscribers is expected to climb to approximately 24 million. Revenues from VoIP also are projected to top \$8.1 billion in 2010. That would be an increase of 310% compared to 2006. VoIP has grown from “a niche service aimed at price-conscious technophiles into a mainstream challenge to incumbent carriers,” say TeleGeography (2006) researchers (p. 11).

In recent years, the number of companies rolling out VoIP plans has increased significantly and competition among various VoIP platforms is getting more vigorous. The pioneer Vonage has faced serious competition in recent years. Cable service providers, such as Time Warner Cable, Cablevision, and Comcast, were its biggest challengers in recent years. These operators, as well as telecommunication companies including AT&T and Verizon, were eager to enter the market, in part because they saw an opportunity to compensate for the decline in revenues from traditional telephone network service.³ Cable service operators accounted for 47% of VoIP subscriptions in the first quarter of 2005; a year later their share of subscriptions jumped to 57% (TeleGeography, 2006).⁴ Their success is largely due to the ability to offer subscribers service bundles, which include cable television, Internet, and VoIP phone service, but also on-site installation. Companies such as Vonage do not offer on-site installation. Customer service might afford cable providers and traditional telecommunication companies some advantage in attracting new customers, but available data suggest that their VoIP services are more expensive than those offered by VoIP-only providers, such as Vonage or 8x8 (TeleGeography, 2006; see also FIGURE 1 in this report).

Making a phone call through a VoIP service such as the one provided by Cablevision, Time Warner Cable, AT&T or Vonage is not that different from a traditional public switched telephone network (PSTN). It involves picking up and talking through a handset, except a VoIP handset is plugged into a broadband modem — not the wall. In addition, companies including Skype, Peer Me, and Gizmo make it possible to place a call from a computer to virtually anyone in the world with an Internet-connected computer, a VoIP-based handset, or a traditional PSTN phone or cell phone. Free downloadable software, a microphone, and speakers or headphones are all that is required.

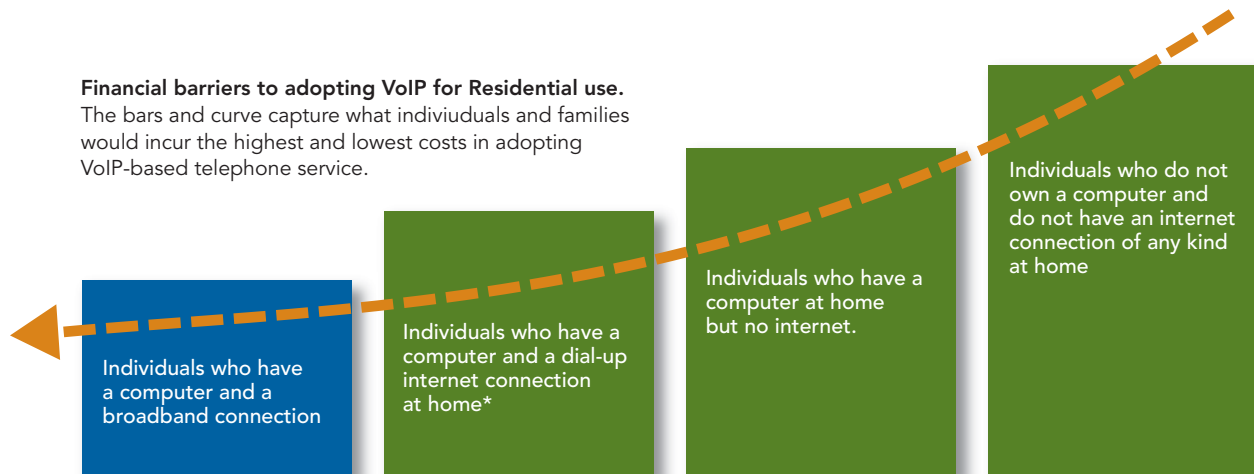
Computer-based VoIP phone services pose an even greater threat to traditional telecommunication companies. For those with a computer online, installation and set-up costs are virtually nothing, there are no charges for calls made between computers, and charges are significantly lower for calls made from computers to PSTN landlines, VoIP handset-type lines, and cell phones — lower than they are when using a traditional phone or even a VoIP-based handset.

However, for people who do not own a computer or have an Internet connection, adopting VoIP could mean considerable start-up costs for hardware, Internet service, and a VoIP service subscription (if they prefer a handset-based VoIP option). FIGURE 1 indicates what costs become barriers for individuals and families who might otherwise benefit from using VoIP-based phone services. The same figure also illustrates the relationship between the costs associated with the three available types of VoIP services: computer-based, the handheld alternative provided by a VoIP-only provider, and the handheld-type services offered by cable and traditional telecommunication firms.

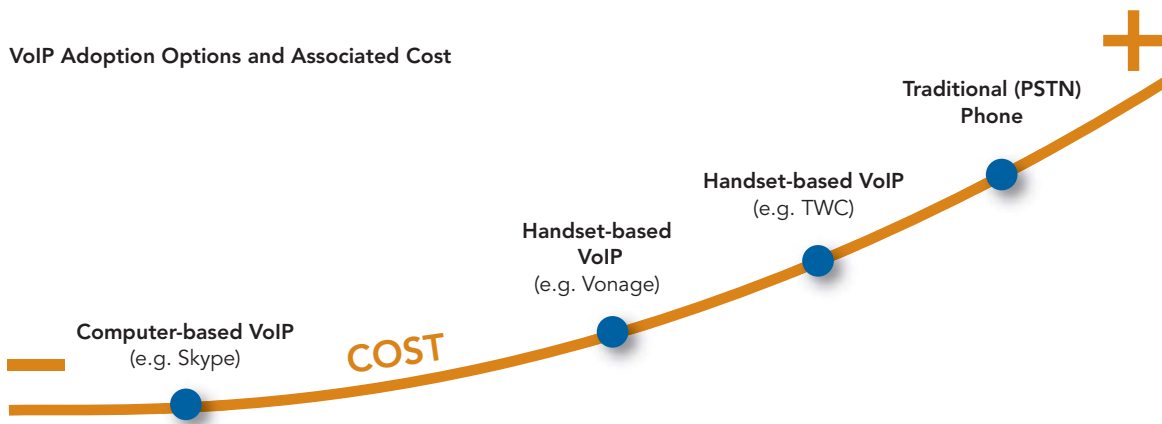
³ This decline is not due just to VoIP, but also to the continued increase in the number of individuals replacing their landline phone service with cell phones.

⁴ Based on TeleGeography Research data, Cha (2006) reports that at the end of 2005 Vonage was still the company with the most subscribers (i.e., 1,205,586), but that Time Warner Cable was a close second with 1,100,000, Cablevision was third with 731,341, and AT&T was fourth with 147,037.

FIGURE 1. Barriers to adopting VoIP at home



VoIP Adoption Options and Associated Cost



The following prices are indicative of flat monthly fees charged for unlimited calls in the U.S./Canada by type of VoIP provider:

Computer-based VoIP

Skype: \$0 for voice and video calls from computer to computer; \$2.95/month for calls to landlines and cell phones

Handset-based, VoIP providers

Vonage: \$24.99 flat rate; 8x8: \$19.85

VoIP by traditional telecommunication companies

AT&T: \$29.95; Verizon: \$30.00

VoIP by cable service operators

Cablevision: \$34.96; Time Warner Cable (TWC): \$39.95

* VoIP requires broadband internet service for a phone conversation to flow without interruptions

Sources: Bernstein Research (2006), Cha (2006), TeleGeography Research (2006), and TRPI.

Placing them at even greater competitive advantage, VoIP providers also offer a wider variety of features, including number portability — the ability for customers to keep an existing phone number when they move. In addition, computer-based VoIP services offer the option of using a Web camera to see friends, family, and colleagues live. Many new computers come with built-in cameras and microphones, easing the use of voice and video features (i.e., no additional equipment needs to be plugged in and configured). Moreover, computer-based VoIP users can integrate calling with instant messaging as well as gaming consoles such as Nintendo or Xbox (Melody & Kelly, 2007).

VoIP market challenges

VoIP may one day “wipe out traditional telephony⁵” as *The Economist* (2005) predicted, but it still faces challenges for consumers to be aware of. First, VoIP phones may be unusable in a power outage (as are, of course, many cordless phones connected to a traditional phone network), or when an Internet connection fails or gets overloaded. Second, there have been a number of instances in which VoIP operators have failed to direct callers to the nearest emergency call center when they dial 9-1-1. That is because contrary to traditional phone lines, VoIP phone numbers are not always linked to a specific geographic location, and 9-1-1 centers may not be able to determine the actual address of a person in need of help (FCC, 2008; OECD, 2006a).⁶ This problem is more acute in cases where an individual is using a computer-based VoIP service. Finally, as the VoIP market grows, consumers are also more vulnerable to a series of security threats, such as computer viruses, spam over Internet telephony (SPIT), and eavesdropping (Global Crossing Limited, 2005; OECD, 2006a). In search of solutions, all these problems continue to be discussed at a global level by regulators and policy-makers, service providers and engineers.

Latino usage of VoIP

Research into the social uses and impact of VoIP is generally scarce, but there have been several attempts to investigate it. The Pew Internet and American Life Project and the Millennium Research Council, for instance, worked together to develop a battery of questions on awareness and use of VoIP in a 2004 survey.⁷ In addition, one basic question pertaining to VoIP use in the U.S. — whether an individual has ever made a call over the Internet — has appeared in surveys conducted by Pew-affiliated researchers since 2000. TABLE 1 shows the ethnic breakdown of the responses provided by Internet users in eight surveys, from 2000 to 2007.

TABLE 1. Pew Internet and American Life Project survey findings with respect to VoIP penetration

	Percent (%) of respondents who have made a phone call over the Internet							
	Apr-00	Aug/Sep-01	Sep-01	Oct-02	Jun-03	Feb-04	Dec-05	Feb/Mar-07
OVERALL	10%	12%	12%	8%	7%	11%	13%	8%
African Americans	10%	13%	19%	13%	3%	16%	16%	6%
Hispanics (Latinos)*	10%	15%	7%	13%	10%	7%	18%	11%
Whites	10%	11%	13%	6%	8%	11%	11%	7%

Overall (Margin of error: +/- 3%)

*English-dominant Latinos.

Data source: Pew Internet and American Life Project (www.pewinternet.org)

5 Telephony is the transmission of sound between distant stations, especially by radio or telephone.

6 To limit the number of such incidences, the FCC has imposed a series of requirements on VoIP providers, such as obtaining from the customer “the physical location at which the service will first be used, so that emergency services personnel will be able to locate any customer dialing 911.” VoIP providers “must also provide one or more easy ways for their customers to update the physical location they have registered with the provider, if it changes” (FCC, 2008).

7 Respondents, of which 392 self-identified as Hispanic (English-dominant), were asked whether (a) they had heard of a new kind of telephone service known as Voice-over-Internet Protocol, and if (b) they had ever made a telephone call over the Internet. In addition, Internet users (i.e., 102 Latinos) were asked if they were using a VoIP service for their home telephone and, if so, whether it had replaced or complemented their conventional landline. In addition they were asked about the type of calls they made over VoIP, and how much they paid for their VoIP service (excluding the fees they paid for their Internet connection). Of the Latino respondents, 7% said they had made a call over the Internet and 27% of them had heard of VoIP (margin of error +/- 3%).

It is hard to be sure whether or not there are significant differences among Latino, African American, and white Internet users with respect to VoIP use, based on the results of the eight surveys mentioned in TABLE 1. The margin of error for all these surveys is around +/- 3%. In five of the eight surveys, it appears that more Latinos than whites have made a call over the Internet, but only in one of those is the difference larger than the margin of error (18% of Latinos versus 11% of white respondents). In two surveys more white Internet users had made an online call, but in both those cases the difference was within the margin of error.⁸

The possibility that Latino Internet users may in fact be slightly more likely to adopt a VoIP service raises the following questions: What are their motivations for adopting the technology or a particular platform? How do they use their service? How is VoIP incorporated into the array of media channels they use in their daily lives — i.e., their communication ecology (Ball-Rokeach, 1985; Wilkin, Ball-Rokeach, Matsaganis, & Cheong, 2007)? Does VoIP adoption impact use of home phones, cell phones, or telephone cards? In this study, we set out to address questions related to Latino use of VoIP — questions unanswered by earlier research — with a focus on both English- and Spanish-speaking dominant individuals.

⁸ We are using Whites as the main reference group, as the Internet penetration rate among Whites in the U.S. is higher than it is for other ethnic groups.

Methodology

The exploratory nature of this study produced focus groups as an appropriate method for data collection. Our overarching goal was to improve our understanding of how Latino VoIP users employ the technology and why they select certain VoIP services and providers. In addition, we wanted to learn about Latinos not connected to the Internet — what they know about VoIP and why they are not online. Moreover, we sought to learn whether the lower cost of telephone calls associated with VoIP are enough of an incentive for non-Internet users to get online, and, if so, under what conditions.

Four focus groups of 9 to 12 participants were held in Los Angeles in August 2008 (total sample size, N = 43). Two of the focus groups consisted of Latinos who are Internet users and have either heard of or used some form of VoIP technology and service. The other two groups consisted of Latinos who reported that they do not use the Internet.

The study participants were residents of Glendale, Cudahy, Huntington Park, and South Gate, cities that are part of Los Angeles County, a large metropolitan area with a significant and diverse Latino population.

Glendale is the third largest city in Los Angeles County and it is the most ethnically diverse area of the four in this study. Twenty percent (20%) of the population is Latino, 21% is Armenian, 35% is White (non-Armenian, non-Hispanic), and 16% is Asian from different countries of origin. Approximately 40% of the residents are homeowners. The median household income is \$41,800 (U.S. Census, 2000). In Glendale, 70% of Latinos are connected to the Internet. This is one of the highest connectedness rates across Latino communities in Los Angeles County (Wilkin et al., 2007).

The contiguous cities of Huntington Park, South Gate, and Cudahy are in Southeast Los Angeles. Over 90% of the population is Latino, and most residents are of Mexican origin. The median household income is about \$32,000, and only 24% of the population is connected to the Internet.

TABLE 2 provides a profile of Latino residents in these two areas of Los Angeles.

TABLE 2. Demographics for the Latino population in the areas of Southeast Los Angeles and Glendale

STUDY AREA	Southeast L.A.	Glendale
1st & 2nd Generation	91.8%	84.9%
Median Age	35	34
Female	52.5%	59.6%
Household Income		
Median	\$27,500	\$40,000
<=\$35,000	73.7%	38.4%
>=\$75,000	3.6%	17.9%
Education		
<=High School	75%	43%
>=College	8%	27%

Source: Wilkin, Ball-Rokeach, Matsaganis, & Cheong (2007).

Because of the significant difference in Internet penetration rates and the relatively low penetration rates of VoIP,⁹ the two focus groups of Internet and VoIP users were comprised of Glendale residents. The two groups of non-users consisted of Latino residents of the three Southeast Los Angeles cities. Two of the focus groups, one with residents of Glendale and one with residents of Southeast Los Angeles, were conducted in Spanish, and the other two were held in English. Participants were recruited via telephone after having been randomly selected from lists of individuals with Latino surnames residing in Glendale and Southeast L.A. TABLE 3 provides the profile of the study's participants.

TABLE 3. Sample demographics

DEMOGRAPHICS	Sample, N=43
Gender	
Women	21
Men	22
Age (Mean)	
	31
Language	
a. English-dominant	21
b. Spanish-dominant	22
Income	
Under \$19,999	13
\$20,000–\$29,999	10
\$30,000–\$59,999	13
\$60,000+	7
Internet Users	21
VoIP Users	8

At the conclusion of every focus group discussion, we asked participants to complete a short survey with questions about the communication services they consume and how much they pay for each on a monthly basis. Following a route similar to that proposed by Galperin and Mariscal (2004) and Milne (2006) to assess the affordability of communication services in developing countries, we used these survey data to create purchasing profiles for the consumers who participated in our study. We think of the total amount of money paid by a consumer as the price tag on that consumer's communication service "market basket." We subsequently used this profile information to suggest ways consumers might explore saving money, particularly through the adoption of VoIP technology and services.

⁹ While VoIP penetration rates have been on the rise for several years (TeleGeography, 2006), based on survey data from a variety of sources, including the Pew Internet and American Life Project and the Metamorphosis Project, which is based at the Annenberg School for Communication at the University of Southern California, the number of Latinos who use VoIP overall is still relatively low. Among Latino Internet users across the U.S., VoIP adopters are estimated to be between 8% and 14%, while among Latino Internet users in Los Angeles County the rate is approximately 14%.

Key Findings

Part I: Latino Perceptions of VoIP and Internet Phone Services

I. Awareness rising across the board

Two prior studies conducted by the Pew Internet & American Life Project indicate that awareness of Internet phone services among Americans online increased by as much as 86% between early 2004 and the end of 2005. In February 2004, 27% or 33 million Americans indicated they had heard of VoIP, and a December 2005 survey showed that that number had jumped to 61 million (i.e., 45%). These two studies point to a significant trend but do not provide a breakdown by ethnic background. In addition, they do not tell us whether people who are not using the Internet are aware of VoIP. This is of interest, as John Horrigan (2006) argues, when “trying to assess the impact of an emerging technology such as VoIP, it is important to start with measures of basic awareness in the general public” (p. 15).

In recruiting participants for the two TRPI focus groups of Internet and VoIP users (we will refer to them as high digitals), we wanted to ensure that a minimum of half had at least heard of VoIP and related services and service providers. Potential participants were asked the series of questions that appear below, in TABLE 4. The number next to each question indicates the percentage of the high digitals who answered “yes” to each question. Their responses show that the majority of the participants in both high-digital focus groups were aware of VoIP or VoIP services and service providers.

TABLE 4. Awareness of VoIP, services and providers, among “high digital” Latino participant

QUESTION ASKED:	% of Participants who answered “Yes”**
A new kind of telephone service, known as “Voive over Internet protocol service” or V-O-I-P is being marketed by companies like Vonage and SunRocket. It allows you ro make phone calls using your high-speed internet connection. Have you ever heard of this kind of online phone service?*	83%
Have you ever heard of services like Skype or Gizmo through which someone can also make a phone call while using the internet?	83%
Have you ever made a phone call over the internet some other way?	29%
Have you used this new kind of service? (actual VoIP users)	42%

* This is the same question that the Pew Internet and American Life Project asked respondents in its 2005 survey for a study on broadband adoption in the United States.

** This is the % of participants recruited for the two focus groups of “high-digitals.” The total number of high-digitals in the study was N=24.

Perhaps surprisingly, even Latinos who do not use the Internet are aware of certain VoIP services and providers. Many of the participants in the focus groups of non Internet users (or low digitals) indicated they knew of Vonage, and a few also recognized the Skype brand name. Across all four focus groups, Vonage and Skype were the only services mentioned by participants. Vonage was consistently referred to most frequently by participants.

Vonage and Skype: VoIP Service Providers Referenced by TRPI Focus Group Participants

What is Vonage?

Vonage is a VoIP service provider that charges subscribers a flat fee per month, even though the calling rates are usually substantially lower than for conventional PSTN service users. Once installed, it is hard to see a difference from a conventional PSTN telephone.

Vonage subscribers can make and receive calls using a telephone device that does not look different from a traditional telephone. Also, recipients of a call via Vonage do not notice any difference from a call made over a conventional telephone network.

There is a difference, however, in how voice is transmitted. Vonage uses VoIP technology rather than digital switching. To be able to use Vonage, a customer must have a high-speed (broadband) Internet connection.

A broadband Internet connection comes with a high-speed modem. The Vonage device hooks up not to a phone jack in the wall, but to the high-speed modem, enabling Internet access.

What is Skype?

Skype is also a VoIP service provider. However, the activities of making and receiving phone calls over Skype differ from Vonage. The service requires an Internet connection (preferably a high-speed one) and a computer.

Though a computer's microphone and speakers might suffice, many users purchase a headset and an external microphone.

Skype users can call any other user of Skype in the world for free.

They also can use Skype to call and receive calls from people who have a conventional phone line or a cell phone; these calls are not free, but rates are significantly lower than a conventional PSTN telephone. In addition, Skype offers users the opportunity via real-time video to see their conversation partner(s) as they are talking.

Skype is not the only service provider of its kind, but it is the one recognized by most of our study participants.

II. Word of mouth and mass media fuel awareness about VoIP services

Most of the focus group participants indicated television commercials made them aware of Vonage. "I've heard of Vonage," many said. "I like their commercials." A couple of participants had received fliers in the mail advertising Vonage services.

People knew of Skype, on the other hand, thanks to friends, family members, and colleagues from work or school. "I've heard of Skype...at school," a young male participant in one of the low-digital focus groups said. "I was talking to so and so on Skype." Another person from a high-digital focus group said she had heard of Skype through friends and family: "My brother was overseas a lot...(and) used it to communicate with us." Relatives or friends abroad often were cited as the main way to hear about VoIP telephony. "I had a friend that was living overseas, and that is how she would communicate" a participant said. "Apparently they don't charge you to use it, or they do, but it's like really cheap. That was the only reason she got a computer and got the Internet. You can talk to people. I guess they have like headsets and you talk to them and you can hear what they're saying."

III. Knowledge grows about VoIP technology and services

We asked focus group participants who indicated they had used some form of VoIP to describe the service in a way that they believed would help someone who had never heard of it gain a basic understanding of what VoIP is all about. These are some of the descriptions offered:

“It is a new communications company. I think you are able to speak on the phone and be on the Internet at the same time.”

“They say it’s cheap and good service and you’ll save \$10 for three months.”

“Basically it’s a phone service that goes through your DSL line.”¹⁰

“It’s the same quality as a regular land line.”

“There are not so many fees [as there are with a conventional landline]”

Internet users who have not used any form of VoIP telephony indicated they found these explanations helpful, but their responses also suggested that the most important aspect was the lower price. As one person said, “I was going to say yes [that the information is helpful] because of the price. I haven’t looked into it.”

IV. Lower prices are most powerful incentive for VoIP adoption

Price was the most commonly cited incentive for VoIP users. In fact, the promise of a lower phone bill was enough to encourage a newcomer to take a leap of faith and try it out.

“I actually looked into Vonage because of my phone bill,” one woman said. “It was just getting out of hand. Because I didn’t know how reliable it is, I didn’t go for it [earlier]. So it was actually kind of good to know that it does work.” A second participant said: “I was checking prices between VoIP and Vonage, and for my country, it’s the cheapest one. I just didn’t know how it really works. I didn’t have so much time to research. I see it’s very competitive in price.”

Cheaper calling rates on VoIP are particularly enticing for Latinos with family members and friends in other countries. As to why he opted for VoIP telephony, one man said: “It was the international [rates]. I have relatives in Canada and the calls to Canada are free. It seemed cheaper per month also.”

A better price also seems to be enough to make some Latino users of VoIP willing to tolerate the occasional technical difficulty. “From my perspective,” said one VoIP user, “a lot of Latinos are going to be looking for a socio-economic [reason], reasonable [prices]...It sounds like Vonage provides the dollar sign where they’re saying \$24.99. Okay, so I am going to get a little bit of static or I am going to get my call lost, but I think that’s where people are aiming because of...just look at our economy.”

Despite the appeal of lower rates, many did not seem to know what kind of savings they actually enjoyed using VoIP. “I am really not sure,” one VoIP users told us, while another was quick to add: “When I look at my phone bill and I compare, it’s quite a bit.”

For users of Skype, the ability to watch and send video is also a draw. As for the draw of the price, one participant said: “I can’t give you a price range, but it says a tenth of whatever [you would pay with a conventional phone connection]...it’s a significant reduction in what you’d have to pay. And also you can have it hooked up where you can actually see the person. It’s very good.”

Others agreed. “My cousin uses it all the time for the video,” one participant said. Another added: “We have a cousin who lives in San Francisco and she has a little baby. That way [we] and the baby can see each other.”

VoIP telephone services such as Vonage offer users a variety of features, some available with conventional landline service and others not. We asked participants if there were particular features of VoIP services with which they were

¹⁰ DSL is a type of broadband Internet connection.

particularly satisfied. Participants mentioned caller ID and call-waiting. They also mentioned a feature Vonage offers to email a message. "They have this feature where they can e-mail the voicemail. It's pretty nifty," one participant said.

Asked about what they would like to see improved in their service, users of VoIP returned to the issue of price — it already may be cost-friendly, but many would like to see it even cheaper.

V. VoIP is changing home telephone use

VoIP users that participated in the study generally agreed that IP-telephony has changed the way they use their home phone, though few were to pinpoint just how. One young man had this to say about how Skype has altered the way he used his telephone: "I use the Skype service because almost all friends and family are far from here. I really have no one here. The telephone is used mostly for work purposes. It has changed the way I communicate with people in my homeland."

VI. Promoting VoIP: commercials do not help consumers make the switch

The majority of focus group participants recognized the Vonage brand and associated the company with lower calling rates. The fact that even Latinos who are not online are aware of Vonage from television advertisements suggests the company has been running a successful advertising campaign. However, the advertisements do not appear to provide non-VoIP users with information to help them make the switch to VoIP. Following is what participants not connected to the Internet said when we asked them to describe the VoIP service provided by Vonage.

"It's like another type of phone service, with more options and choices. And cheaper."

"Cool."

"The service sounds good."

"If I had a computer, or if I needed service, I would get that one."

"The one that sticks in my head is customer service. They're promoting customer service versus the phone company, calling back the next day. That really sticks out for me."

"I remember the commercial being funny. That's what I think of that."

Still, several participants remained confused. The ads do not answer pertinent questions, it seems, such as:

"And how does it work exactly? Because we don't know! What is Vonage anyway?"

"Is it cheaper than a regular phone?"

"Does it matter how many calls you make?"

"How much cheaper is it?"

"What does it include?"

Our study suggests that if VoIP providers want to gain more customers, they should improve their advertising to better inform people about what VoIP is and how it works. Advertising appeals based on price alone are not enough to help the market grow.

Our study suggests that if VoIP providers want to gain more customers, they should improve their advertising to better inform people about what VoIP is and how it works. Advertising appeals based on price alone are not enough to help the market grow.

Part II: Communication Services: Uses and Attitudes

This study's focus group discussions included the opportunity to uncover how Latino Internet and VoIP users as well as Latino non-Internet users both use and feel about their telephone service, cell phones, calling cards, computers, and the Internet. Our goal was to understand (a) how the Internet and VoIP has changed, if at all, the way people approach available communication options, but also (b) how non-users of the Internet feel about the Internet and computers. The latter was important to better understand the range of possible barriers to getting online, and also to help determine possible ways for VoIP applications to increase Internet penetration among Latinos. Following are descriptions of the major themes uncovered about uses and attitudes related to communication services in our survey groups.

I. More and more people are dropping their landlines¹¹

A quarter (26%) of all focus group participants indicated they no longer have a landline (see FIGURE 2), and a little more than a quarter of participants (28%) pay for their landline connection as part of a bundle of services (see FIGURE 3), which can include cable television and/or an Internet connection. Most of our respondents also indicated they are either "somewhat satisfied" or "completely satisfied" with their landline service (see FIGURE 4). FIGURE 5 presents the type of features those individuals with a landline pay for in addition to their basic telephone service.

FIGURE 2. Do you have a conventional landline?
(N=42)

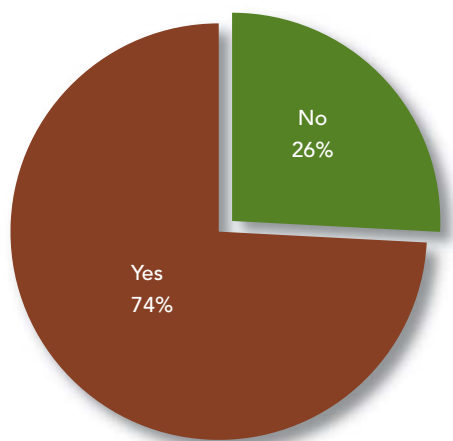
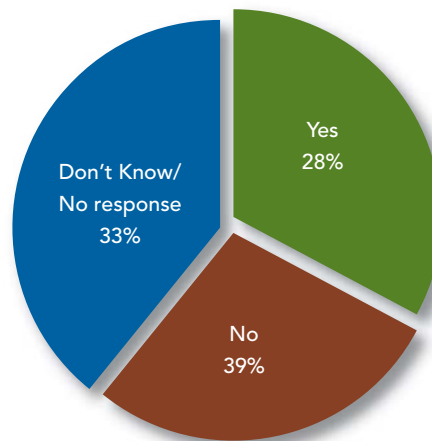
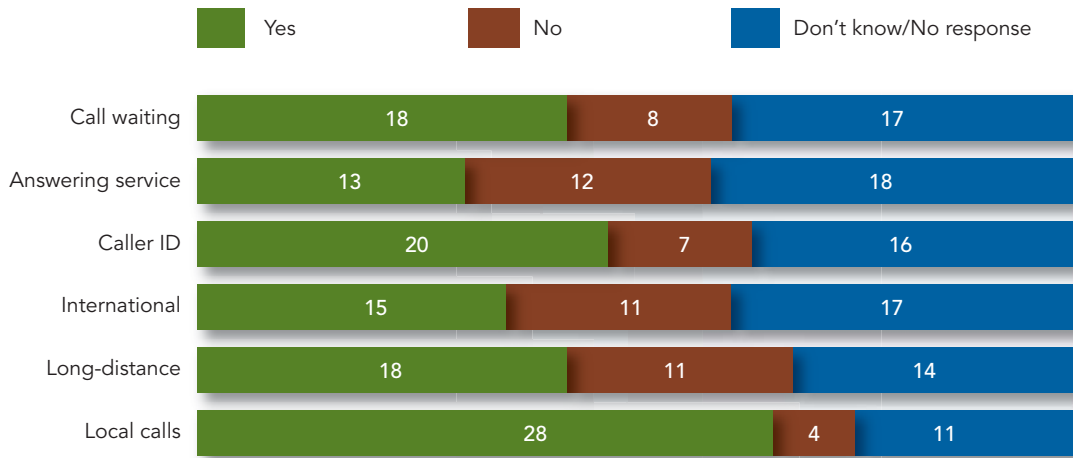


FIGURE 3. Do you pay for your landline as part of a bundle of services?
(N=43)



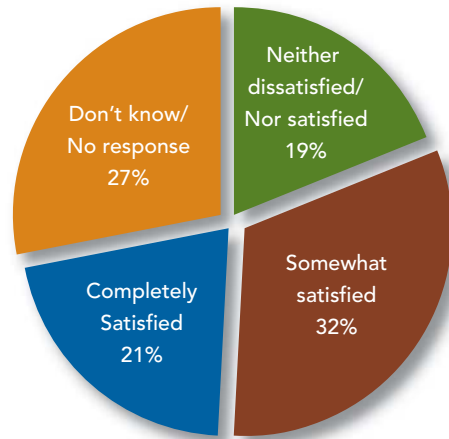
¹¹ A landline is any non-wireless phone.

FIGURE 4. What services do you pay your landline telephone provider for?
(N=43)



Barchart figures only include study participants who indicated specific answers

FIGURE 5. How satisfied are you with your landline service?
(N=43)



II. Cell phones replace landlines and carry Internet access

Thirty-seven out of 43 focus groups participants (86%) said they own and use a cell phone.¹² It is “the first thing we acquire,” said a male participant, “even before our ‘regular’ phone lines.” “I can’t live without [my cell phone]” said a female participant.

Although obtaining a cell phone may hold a higher priority than a landline for many, the cell phone also has supplanted some landlines entirely. “I don’t need (a landline),” said one person. “I have a cell phone, and I basically use my cell phone.”

¹² In 2007, Livingstone reported findings of a survey according to which six out of 10 Latinos have a cell phone.

Study participants were asked who in their households has a cell phone. “Everyone,” one person said. Many agreed. For the majority of participants, the number of cell phones per household ranges from 2 to 4. Even for those with a more limited budget, having a cell phone is seen as a necessity. “Well,” one woman said, “I just have one. And when I leave the house, I take the cell phone. And I can call [my husband] at home, or he’ll take it, if he goes out, and we share it.”

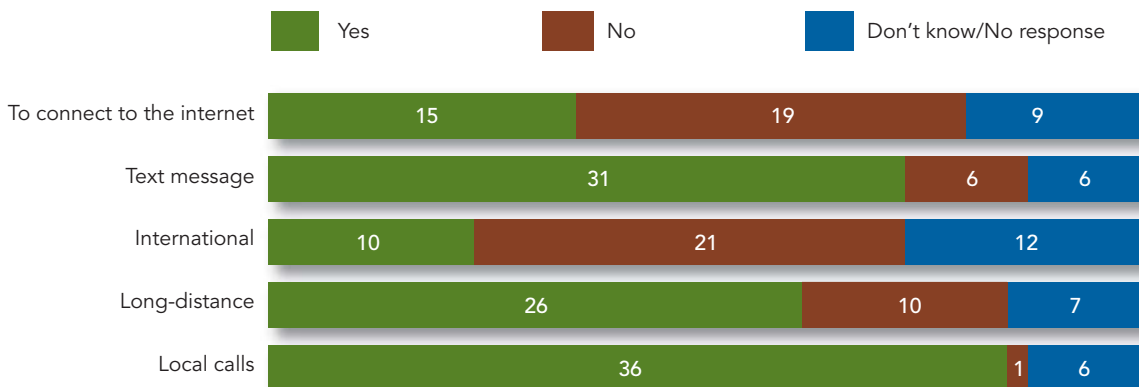
The majority of participants also indicated they have a contractual agreement with a cell phone service provider. Only six (14%) indicated that they have a pre-paid plan (see FIGURE 6). Local calls and text messages (SMS) are the two most popular services among the focus group participants. In addition, 26 (74%) indicated they also pay their provider for long-distance calling, and 10 said they use their mobile phone to make international calls (see FIGURE 7). However, the majority of VoIP users said that they use some VoIP service for international calls because it is cheaper than using a cell phone. Finally, with respect to cell phone use, 15 of the participants (35%) indicated they use their cell phones to access the Internet.

Overall, the majority of cell phone users indicated they are either ‘somewhat satisfied’ or ‘completely satisfied’ with the quality of their provider’s service (see FIGURE 8).

FIGURE 6. Type of relationship with cell phone provider (N=43)

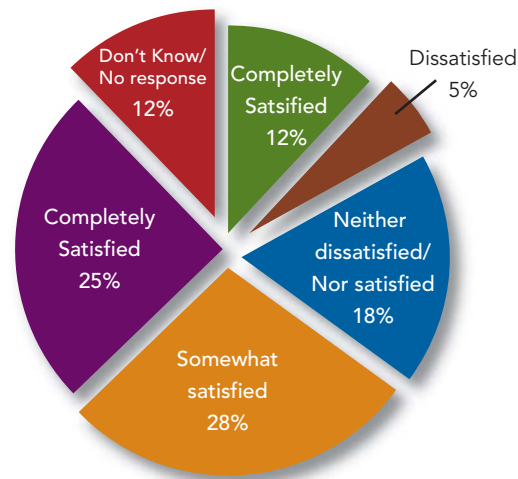


FIGURE 7. What services do you pay your cell phone provider for? (N=43)



Bar chart figures only include study participants who indicated specific answers

FIGURE 8. How satisfied are you with cell phone?
(N=43)



III. Calling cards are being replaced by cell phones and VoIP applications

A total of 11 participants (26%) indicated they use calling cards to make long-distance and international calls to South and Central American countries (e.g., Mexico, Paraguay, and Colombia). Others from both the high-digital and the low-digital focus groups indicated they no longer buy calling cards in favor of their cell phones. "My cell phone has long-distance included," said one participant. "So, I don't have to use cards." Another said: "It's about the same [price]. [I] just don't have to go to the store to pick [calling cards] up."

Cell phones also are used at times for international calls in response to calling card companies charging additional fees beyond what is written on the card. "Sometimes they steal from you," said one woman.

VoIP users suggested they have little use for calling cards. "I used to [use calling cards]," said one man. "That was before Skype." Another said: "VoIP has pretty much changed how much I use phone cards."

IV. Computer use and Internet access

High digitals (Internet users)

By design, our focus groups consisted of Internet users and non-connectors in approximately equal numbers. Among the users (or high-digitals), 48% paid for their Internet connection as part of a bundle of services (see FIGURE 9), and the vast majority used a broadband/high-speed connection (see FIGURE 10). However, participants with a broadband connection were not sure of their connection speed. The following response is indicative of the trend: "I have the fastest [connection]," one person said. "I just asked for the fastest one and [they] gave me the \$30 modem, but I don't know what [the speed] is." Our findings reflect those of earlier work done by the Pew Internet and American Life Project on the adoption of broadband in the United States.

Overall, the majority of Internet users in our study (43%) indicated they are "somewhat satisfied" with the quality of Internet service they received (see FIGURE 11).

FIGURE 9. Do you pay for your internet service as part of a bundle?
(N=21)

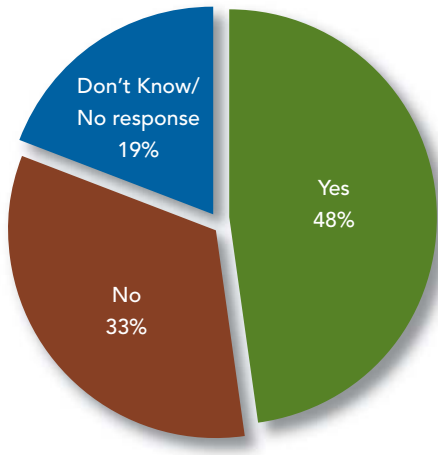


FIGURE 10. Do you have a broadband or a dial-up connection?
(N=21)

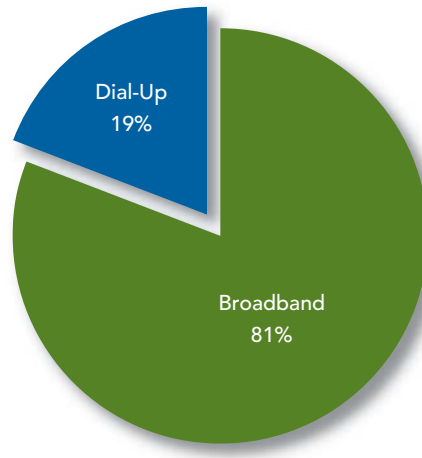
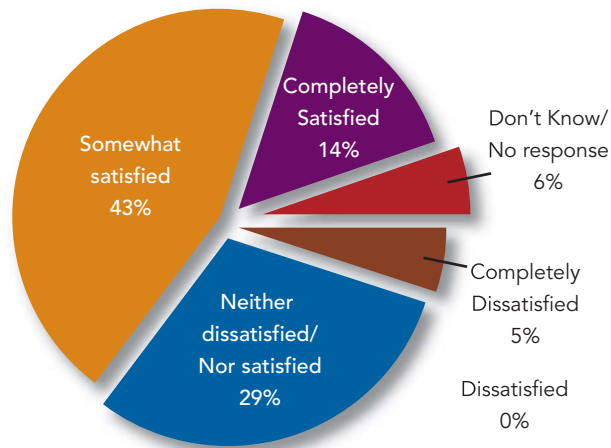


FIGURE 11. How satisfied are you with your internet service?
(N=21)



We also asked Internet users to tell more about time spent online on average, how they use the Internet, and whether the Internet has changed the way they use other media and communication services.

Internet connectors indicated they spend anywhere from 30 minutes to six hours per day online, with the majority of high-digitals saying they spend about two to three hours per day on the Internet. Interestingly, one person said: "Well, if you count Internet radio, then it could be all the time." A number of others nodded in agreement.

Doing research for homework assignments or to find people and services are two of the most common reasons individuals cited using the Internet. Connecting with friends and family, shopping, and reading the newspaper are also activities Internet users engage in online. TABLE 5 provides a list of the participants' answers.

TABLE 5. Goals when connecting to the Internet

WHY DO YOU GO ONLINE?
"To get addresses"
"To get Yellow Pages information"
"To get directions, driving information"
"For research"
"To do homework"
"I use e-mail to get in touch with family and friends, but almost everything from music to jokes to YouTube, to [helping a] cousin looking for a job, to everything"
"To be able to communicate on the Internet with other countries, other cultures, friends. To be able to get information"
"To stay current with all the information and at least in my field of work, we use it to get catalogues, for example"
"To pay my bills"
"For shopping"
"I also read the newspaper there; I don't get newspapers anymore"

We also asked individuals in the high-digital groups whether they thought the Internet had changed the way they consume other media and the way they communicate with friends and family. Most of them stressed how the Internet has changed the way they (a) read the newspaper and watch television, but also (b) how much less they rely on the telephone anymore to stay in touch with the people they care about.

"People don't talk on the phone that much," one person said. "Even with messaging already. You don't hear voices as much; [we] mostly use text." Another participant said: "You can contact a lot of people with just one e-mail and I don't have to make all these phone calls." Someone else nodded and added: "It's free." One man said: "In my case, if you have people that are far away, it's cheaper to contact [them] through e-mail."

The majority of Internet users said they have been online for several years with many close to 10 years. Although some got a computer the same time they first went online, many participants indicated that they got a computer after they had already begun using the Internet. Many of these individuals first accessed the Internet from schools and/or cybercafés. One participant said: "I started to use the Internet at an Internet café because it was difficult to own a computer. It was really expensive to own a computer, and also at the university we had access to the Internet. I first started to use the Internet and then bought a computer, years later."

Low digitals (not online)

For most Latinos in our study who aren't connected to the Internet, computers and Internet access are considered a luxury. "It's an additional expense," one person said. "And you can barely make the bills to buy food." A number of participants said they did not see why the Internet is necessary. Some said they find it a waste of time. "You go in and...I don't know what to use. I don't know what to do," one person said. "I don't know," another said. "I am just sitting there. An hour or two [online], doesn't really appeal to me." "It hurts my eyes," another participant said. "The Internet is to do, like, research. Okay, I just don't need to make the extra expense for that."

We asked low-digital participants with children to tell us if their children use the Internet. Many said that their children do in fact go online, especially at school. "My son, who's in pre-school came to me and said: 'Mommy, I used the Internet,'" one woman said. They use it for "educational purposes," another mother replied. "Because I asked the teacher...And she says educational things, like PBS, so that they can do math. And I went and asked to see...find out, and I said, oh, it's okay." Most of the participants who are parents indicated the Internet could help their children with homework and other school-related tasks, but they had trouble coming up with specific examples, perhaps due to their lack of experience with the Internet.

Finally, we asked participants what might convince them to start using the Internet. “Make it cheaper,” said one person. “[L]ike a little package with your phone calls. It’s already kind of there. You have to get the phone, you have to get the carrier for the Internet and whatever else comes...”

Part III: Latinos and the Price of Communication Services

Most study participants would prefer it if their communication services cost less. Specific to the Internet, however, many non-users considered it simply an unaffordable luxury, but some indicated they would connect to the information superhighway if they were offered a cheaper route. In some cases, participants expressed interest in connecting to the Internet for the sake of their children, many of whom had connected to the Internet at school.

VoIP services offer users significant calling savings, particularly for those who frequently call long-distance or internationally. VoIP users in our study indicated they used a conventional landline less often than before opting for VoIP. Our study also suggests that individuals stopped buying calling cards after adopting VoIP. Given these facts, we wondered whether VoIP users were saving money over Internet users without VoIP or Latinos who are not online. Unfortunately, this question was difficult to answer based on discussions in the focus groups. None of the VoIP users in our study was able to specify how much they were saving on phone bills. It was a challenge to pinpoint whether VoIP users had an overall lower cost or cut back on communication services considering that using some form of VoIP service does not preclude or make unnecessary a landline connection.

I. VoIP-users spend less on communication services than high-digital non-users of VoIP

To begin to answer the question of VoIP affordability as defined by an overall cost savings, we analyzed a short survey completed by focus group participants at the end of the discussions. The survey asked about types of communication services, features, and monthly cost. TABLES 6a-6b show the median cost of the market basket of communication services that VoIP users and Internet users who do not use VoIP, respectively, incur on a monthly basis.

The figures in TABLES 6a-6b indicate that while VoIP users spend more money on average for their cable and cell phone service and slightly more for their Internet connection, they pay quite a bit less for their landline telephone connection. Here, a landline connection could either be a conventional circuit-switched network line or a VoIP-based line (e.g., a Vonage connection).

TABLES 6a–6b. Price (in \$) of the communication services market basket of VoIP and Internet-only users

TABLE 6a		TABLE 6b	
VoIP Users	Cost/month	Non-VoIP users, Online	Cost/month
Landline Telephone Connection*	14.0	Conventional Phone Connection	84.0
Cell/Mobile Phone	75.0	Cell/Mobile Phone	55.5
Calling Cards	0.0	Calling Cards	0.0
Cable Television	70.0	Cable Television	55.0
Internet Connection**	50.0	Internet Connection**	45.0
Median total cost (\$)	209.0	Median total cost (\$)	239.5

* This may be a conventional or VoIP-based landline connection

**Broadband or dial-up

These VoIP consumers could be saving money in three different ways: (a) by having traded their PSTN phone line in for a VoIP-type of landline; (b) by using a combination of a VoIP landline connection and a service like Skype; or, (c) by continuing to use a PSTN landline and adding a Skype-type option, as a complementary service for long-distance and international calls.

II. Low-digital Latinos pay more than VoIP-users for landlines and calling cards

Participants with no Internet access spend less than VoIP users on communication services overall, albeit, as TABLES 7a-7b suggest, they spend more per month on their conventional phone connection and on calling cards.

TABLES 7a-7b. Price (in \$) of the communication services market basket of VoIP users & non-Internet users

TABLE 7a		TABLE 7b	
VoIP USERS	Cost/month	NON-VoIP USERS, OFFLINE	Cost/month
Landline Telephone Connection*	14.0	Conventional Landline	32.5
Cell/Mobile Phone	75.0	Cell/Mobile Phone	72.0
Calling Cards	0.0	Calling Cards	19.0
Cable Television	70.0	Cable Television	49.0
Internet Connection**	50.0	Internet Connection	0.0
Median total cost (\$)	209.0	Median total cost (\$)	172.5

* This may be a conventional or VoIP-based landline connection

** Broadband or dial-up

The data collected from our participants suggest low-digital Latinos spend about \$18.50 more on a landline connection per month and \$19.00 on calling cards, which VoIP users do not purchase, for a total of \$37.50. This money could be re-allocated in several ways, depending on an individual's needs and the infrastructure or equipment they have at hand. Below, we briefly discuss two examples.¹³

EXAMPLE 1

GOAL: Get Internet access and still make desired phone calls

Consumers who have a computer or can afford to purchase one may consider:

- Discontinue conventional landline service, stop buying calling cards, and re-allocate money saved on a broadband Internet connection (for about the same cost)
- Use a broadband Internet connection to take advantage of nomadic VoIP services¹⁴ such as Skype to call friends, family, and colleagues across the world for a fraction of the cost of a conventional landline. This type of VoIP service allows consumers to dial anyone they want, regardless of whether the person they are trying to reach has an Internet connection or a regular, PSTN phone line. If the person does happen to be online, the caller can use Skype to call them for free. To use a VoIP provider such as Skype to call a person who does not have an Internet connection, however, would cost about 3 cents a minute to a country such as Mexico. Still, that same call would cost about 35 cents a minute¹⁵ with a PSTN landline service provider.

¹³ The calling plans and prices quoted are for illustration purposes only and are subject to change at the providers' discretion.

¹⁴ Nomadic VoIP service providers allow you to take your phone number with you anywhere you go.

EXAMPLE 2

GOAL: Lower your monthly phone bill

Consumers with access to an online computer via a friend, community center, library, or school may consider:

- Save money on landline and calling cards by making phone calls — particularly long-distance and international phone calls — through a nomadic VoIP service (e.g., Skype).
- Alternatively, consumers might opt to subscribe to a VoIP service such as Vonage with a friend or family member who already has a broadband Internet connection and benefit from the cheaper calling rates. At the time of this report, Vonage rates were between 10¢ and 15¢/minute for Colombia, El Salvador, Guatemala, and Mexico. Depending on the package a customer opts for, AT&T charges from 9¢¹⁶ to 49¢¹⁷ /minute for Mexico, 17¢ to \$2.19 for Colombia, and 24¢ to \$2.19 for El Salvador and Guatemala. Another PSTN landline provider, Verizon, charges from 16¢ to 25¢¹⁸ /minute for Mexico, 33¢ for Colombia, 36¢ for El Salvador, and 36 ¢/minute for Guatemala.
- Services such as Vonage require a broadband Internet connection and charge a flat fee per month (ranging from \$15 to about \$25). While this option may be out of the question for many lower income Latinos without an Internet connection, it is an appealing option for households that already subscribe to a high-speed Internet connection provider and wish to lower their monthly phone bills. VoIP users that participated in this study seem to have achieved this.

¹⁵ This is the advertised price for a call to Mexico for subscribers to the AT&T USADirect® Savings Plan.

¹⁶ AT&T® World Connect® plan

¹⁷ AT&T® international dial standard rates

¹⁸ These are the rates listed under Verizon's Latin America and the Caribbean Calling Plan.

Implications & Policy Recommendations

TRPI intended with this study to illustrate and emphasize the need for more research on the social uses and impact of the evolution of VoIP technology and services, particularly related to Latinos in the United States. To date, much of the discussion around VoIP has centered on technical issues and regulation. With rare exception, research aimed at how VoIP may bring social change and bridge digital divides has focused primarily on the developing countries of Africa and South America. Little work has been done (a) on how various populations in the United States (and other developed nations) are incorporating VoIP technology and services into their communication ecologies and (b) on the opportunities VoIP may afford to increase digital inclusion.

Much research remains to be done, especially as VoIP penetration rates continue to increase and the variety of telecommunication services continues to grow exponentially.

Our study suggests that incorporating some form of VoIP into the array of communication options Latino consumers use on a regular basis can effectively reduce the cost per month to stay in touch with family, friends, business associates, and others.

1. **Consumers who already have an Internet connection** can begin saving because having Internet access is essential for VoIP. These consumers can reallocate money from a conventional landline and calling cards to a VoIP service. Using VoIP can also lower customers' monthly cell phone bill.
2. **Individuals and households without an Internet connection but with a computer** also can lessen the financial burden for telecommunications by redirecting money for a conventional landline and calling cards to obtaining Internet access. With an Internet connection, they can begin using VoIP services such as Skype to make many of their phone calls for a fraction of the cost they had been paying.
3. **For Latinos who are not online and do not own a computer**, accessing VoIP to save money is more challenging. One can, however, benefit from the technology by accessing an Internet-connected computer at a library, community technology center, cybercafé, or school.

The latter two cases illustrate how VoIP offers an economic incentive for people to consider obtaining Internet access. This is appealing as it demonstrates how **VoIP could effectively be a tool to help bridge the digital divide on a larger scale.**

While a number of our low-digital participants indicated they did not consider Internet access important or beneficial, some also said they would consider it if it was more affordable. Others said that they thought their children could benefit from the Internet as an educational tool. **Promoting VoIP and educating individuals about using VoIP technology and its benefits could:**

- Help individuals and families who cannot afford the Internet but would like to reap its benefits get online
- Encourage consumers who are skeptical about the benefits of the Internet to at least explore it. In some cases, skepticism may be the result of low technological literacy and a lack of confidence to deal with new technology.

Ideally, the process of learning to use VoIP — and its quick and tangible rewards such as cost savings and video capabilities — will help aforementioned skeptics **build computer and technological literacy that can be applied broadly.** This type of literacy is necessary in combating the persistent digital divide.

For the introduction of VoIP to work and be sustainable in building a more fairly technologically literate society, **policy-makers at all levels, as well as government and private funding agencies and communities need to work together on three fronts: education, access, and research.**

Education

Consumers need to have accurate, complete, and user-friendly information about the technology they encounter to feel confident enough to master it.

To achieve this, it is critical to fund **school-based and community-based programs aimed at improving computer and technological literacy, especially in disadvantaged neighborhoods**. The fact that a number of study participants had become aware of or adopted VoIP because of friends and family suggests that leveraging the power of interpersonal networks in schools and communities is crucial to boosting technological literacy.

In addition, federal, state, and local governments as well as private funding organizations should provide **funding for technological literacy initiatives that involve parents and children working and learning together**. Such initiatives could help bridge the existing generational divide with respect to computer and Internet literacy.

Access

Along with education, policy-makers and funding agencies should **provide financial support for local community initiatives designed to create and expand a network of community technology centers**. Here, individuals who cannot afford a computer or Internet access at home can become familiar with new equipment and services, including VoIP.

Cities, states, federal agencies, and various other funding agencies should **encourage libraries to play a more central role as hubs of information pertaining to new communication technologies**. To accomplish this funding is necessary to **train librarians** and ensure that libraries have the necessary **technological infrastructure**.

Research

Finally, more funding should be allocated by government and private sector agencies to **support research into the social uses and impact of new communication technologies and services**. There is still much unknown as far as how Latinos appropriate technologies such as VoIP as well as the opportunities VoIP services may afford to help bridge the digital divide, both in developing countries and closer to home.

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