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Using Social Media to Inform Latino Construction Workers about Fall Protection

Philadelphia Area Project on
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Final Report for CPWR Small Studies Grant

“Using Social Media to Inform Latino Construction Workers about Fall Protection”

Abstract: Latino construction workers face higher than average fatalities on construction sites than other workers. At the same time, these same workers are difficult to reach with health and safety messages because of documentation status, the nature of their employment and language use. This study aims to explore the possibility of using different social media to reach Latino construction workers with safety messages particularly around the Falls Prevention Campaign. This quantitative and qualitative study looked specifically at email, text messaging and Facebook as mediums to reach Latino workers with messages. The study was conducted between January and August of 2014.

Key Findings:

1. SMS messages may be a promising tool to reach Latino construction workers with messaging but further research over a longer period of time is needed to confirm whether this is true. In both the overall response rates and in interviews workers seemed to prefer to receive SMS messages about safety and health which are shorter because of character limits.
2. SMS messages that were sent during work hours were the most effective.¹
3. Email does not appear to be an effective tool for reaching Latino construction workers. The open rate of emails was low and dropped during the course of the research.
4. Facebook appears to be the most promising tool but like SMS messages we need further research over a longer period of time. The Facebook Page developed for this research, “Alto a las Caidas en Construcion,” cultivated a modest but steady impact in terms of its social media outreach. During the study period 60 different posts were created on the “Page.” The content of the Page reached over 24,000 Facebook users, over 650 different Facebook users directly engaged with the content of the page, and the page garnered just under 200 “likes” from Facebook users.
5. Traditional media was also effective. Specifically workers used their smart phones to web stream both online and traditional radio programming. Many workers in the Philadelphia region reported listening to the web-streaming radio show *Philatinos* that hosted an interview about our outreach to Latino construction workers and our Facebook page about fall prevention. Additionally a local Spanish language newspaper *El Sol* was an effective initial outreach tool to Latino workers.
6. Social media messaging is strongest when it is augmented with face-to-face work. A social media campaign would be most effective when there is a simultaneous field operation that is building relationships, doing interviews and offering training and information, augmented with an on-going collaboration with safety experts.
7. Worker responses to SMS and Facebook messages were critical sources of information. Through the interview process we learned that many workers wanted information that enabled them to have safer jobs. They also wanted messages that gave them information on how to report hazardous worksites without jeopardizing their own jobs. They wanted

¹ For a list of SMS messages see Appendix B

information on safe tools and equipment, as well as rights and responsibilities on workers' compensation.

INTRODUCTION:

Falls from elevations continue to be the primary cause of fatal injuries in construction work, especially in residential construction where they account for 48.7 percent of all fatalities.² The high rate of fatalities on construction sites due to falls is compounded in the Philadelphia region as residential construction has been booming because of a residential tax abatement program for new housing starts and major renovations of existing housing, which began in 2000. Even during the recent recession from 2009-2011, residential construction in Philadelphia increased 64 percent.³

Latino workers suffer high rates of fatal occupational injuries. The fatal injury rate for Latino workers was six points higher per 100,000 FTE workers (3.8) than the national average of 3.2.⁴ According to the most recent report by the Bureau of Labor Statistics, in 2013 fatal work injuries among Latino workers recently rose 7 percent. Of the 797 fatal work injuries incurred by Latino workers, 66 percent involved foreign-born workers. From 1992-2000, there were higher rates of fatal injuries for Hispanic and Latino construction workers and in 2000 they were almost twice as likely to suffer a work related death as non-Latino construction workers.⁵ From 2002-2006, the total number of all Latino workers who suffered a fatal occupational injury increased annually before the number of deaths decreased in 2007.⁶ Between 2001-2008, 80% of Latino workers who died as a result of a construction fall were foreign born.⁷ The 2011 number of work related deaths for Hispanics is the first increase since 2006 and 69% of these workers were foreign born with 41% born in Mexico.⁸

Foreign-born Hispanic and Latino construction workers in Philadelphia face cultural, legal, and language barriers to decreasing these high injury rates. Some workers come from countries where workplace safety is not addressed. Others fear that either their legal status or their job prospects will be questioned if they complain about workplace hazards⁹ and most are not part of unionized workforces. And, still others have limited literacy or knowledge of English and/or Spanish, which make it difficult to receive information about their rights.

Due to the occupational patterns of Latino workers, often working on short-term construction jobs, it is difficult to reach them with health and safety issues on the job. At the same time, in 2013, a study conducted by the Pew Research Center found that 76 percent of Hispanics use cell phones to access the Internet – possibly connecting with social networking sites such as

² CPWR, Construction Chart Book, 5th Edition

http://www.cpwr.com/pdfs/chart_book_5th/chart_book_fifth_edition.pdf

³ Kevin C. Gillen, "Philadelphia's Ten Year Property Tax Abatement," April 2013

⁴ "Census of Fatal Occupational Injuries Summary, 2013", Economics News Release, BLS, September 11, 2014

⁵ Dong, and Platner, Am. J. Ind. Med. 45:45-54, 2004

⁶ Xiuwen Sue Dong, DrPH, Xuanwen Wang, PhD, Christina Daw, PhD, "Fatal and Nonfatal Injuries among Hispanic Construction Workers, 1992-2008" CPWR Data Brief 2, no. 2 (December 2010): 3, <http://stopconstructionfalls.com/wp-content/uploads/2012/03/Fatal-and-Nonfatal-Injuries-from-Falls-among-Hispanic-Construction-Workers-1992-2008.pdf>

⁷ Dong and Wang: 12

⁸ "National Census of Fatal Occupational Injuries in 2011 (Preliminary Data)," Bureau of Labor Statistics, accessed August 5, 2013, <http://www.bls.gov/news.release/pdf/cfoi.pdf>

⁹ <http://www.bls.gov/opub/mlr/2013/02/art2full.pdf>

Facebook and Twitter.¹⁰ Another study indicated that Hispanics use cell phones more than African Americans and whites to take photos, text, access the Internet, and send emails.¹¹ The use of social media presents possible inroads to communicating relevant and often lifesaving health and safety information to Latino construction workers. Some aspects of social media that make it particularly useful are: 1) The ability for social media based information to follow people regardless of change in living address or workplace, 2) The accessible language and information sharing that social media lends to, and 3) Social media tools can allow for easy “re-sharing” of safety and health information beyond initial recipients of information from PhilaPOSH.

OBJECTIVES

The objective of this proposed study was to explore the role of social media as a new medium for effectively reaching large numbers of Latino construction workers about fall protection and safe work practices. We looked at three distinct channels of social media – email, text messaging (SMS) and Facebook – to understand which mediums could best be used to engage and impact Latino workers with these messages. Specifically the objectives we identified for this study were:

- a) To develop messaging for social media as an innovative way to reach marginalized construction workers;
- b) To develop a database of hard to reach vulnerable workers not typically engaged by prevention campaigns who will be the primary target group to whom fall prevention messages will be disseminated;
- c) To transmit messages, images, and information to the list and through social media at regular intervals;
- d) To analyze responses via individual interviews and social media response rates.

METHODS:

This study was conducted using a case study design in order to highlight the experiences of Latino construction workers and their interactions with social media platforms. This project utilized a mixed method approach, collecting both quantitative and qualitative data. This mixed method approach allowed the research team to reach out to a broad audience. The quantitative data allowed us to track the patterns in responses and learn which media platforms produced the highest and most meaningful response rates, while the qualitative data allowed for in-depth individual responses to the different platforms used in the study, while also probing broader contextual questions.

In order to undertake this research, we submitted a proposal for expedited review to the Rutgers IRB in the Fall of 2013. We received approval from Rutgers IRB in late January of 2014. The study then went through second IRB process with CPWR in February 2014, and thereafter the research project went into the field.

Phase One--Building Media Platforms: The primary goal of Phase One was to create list serves for the communication platforms and to build and populate the communication platforms critical to this study. In Phase One we created the following Social Media and Email platforms:

1. An email listserv of 168 Latino construction workers from the region.

¹⁰ <http://www.pewhispanic.org/2013/03/07/closing-the-digital-divide-latinos-and-technology-adoption/>

¹¹ http://www.pewinternet.org/~media/Files/Reports/2012/PIP_CellActivities_11.25.pdf

2. A text message listserv of 500 Latino regional construction workers that will be used with Media Mobilizing Project's text messaging program, Switchboard.
3. A Spanish language Facebook page, "Alto a las Caidas en Construcion," that focused on fall prevention and safe construction work practices.

A total of 530 workers were on the combined list serves. Approximately 60 percent of them had received some training from PhilaPOSH on construction fall prevention, which is how we collected either their cell phone or email contact information. Additional names and contact information for workers who had not been trained was collected through community interactions with Latino workers and their organizations.

Phase Two--Social Media Messaging and Data Collection: In Phase Two we began distributing diverse messages about fall prevention and safe construction work practices to the different list serves. Through all three platforms we collected passive data, monitoring which users opened which messages on which platforms and how often they opened different messages. The initial SMS, Facebook and email messages all introduced the "Stop Falls" campaign and then offered participants directions on how to unsubscribe from the mailing list and how to stop receiving text messages. The first Facebook message read: "Stop Falls is a campaign to prevent the death of construction workers as a result of falls from ladders, roofs and scaffolds." Accordingly, the first SMS explains "Each year, 50 people die from falls in the workplace. Get connected to get more information from Philaposh on how to prevent them."

Phase Three--Interviews: Phase Three was coterminous with the latter half of Phase Two. We collected 9 different interviews with Latino construction workers that had been participants in the study. Building on the passive data collection we undertook during the Social Media Messaging phase, in these interviews we focused on getting more in-depth data from participants about which media platforms were most useful and which messages were most effective. Four of the nine interviewees had participated in fall prevention training classes by PhilaPOSH. One interviewee had participated in two training classes, one at the PhilaPOSH office and one at a community-based church.

The interviews were conducted as semi-structured interviews with an interviewer, interviewee and an interpreter present. Dr. Wolfson and his research associate, Camille Reyes developed a list of initial questions to ask interviewees.¹² These questions emerged based on the goals of the study. That said, the interviews were semi-structured and therefore meant to follow the cues of the interviewee. It is important to note that interviewees were given a \$10 gift card stipend to take part in the study. Once the interviews were conducted they were transcribed in English.

Phase Four--Analysis and Write-up: In the final phase we did our data analysis of the research in order to write a final report on our research findings. Our analysis began by coding the interviews based on core themes around different forms of technology access and use as well as workplace health and safety. We then looked at the coded interviews in relationship to the passive data discussed above and developed the initial findings of this research.

¹² See Appendix A

RESULTS/ACCOMPLISHMENTS:

General Finding

The central conclusion of this study is that social media can be a critical new tool for reaching Latino construction workers with safety messages. The research, which was undertaken from January to August 2014, illustrates that text messaging and Facebook may indeed be useful tools for reaching Latino construction workers, while email was not an effective tool (as we discuss below). Moreover, through this research we also began to understand that these tools are strengthened both when there is a considerable face-to-face component to augment social media tools, and when traditional media such as local radio or local newspapers are also employed.

1) Facebook

Over the course of nearly three months, the “Alto a las Caidas en Construcion” Facebook Page cultivated a modest but steady impact in terms of its social media outreach. During the study period, approximately 60 different Facebook posts were created as part of the Page, the content of the Page reached over 24,000 Facebook users, over 650 different Facebook users directly engaged with the content of the Page, and the Page garnered just below 200 “likes” from Facebook users. The reach of the Page was bolstered by two “sponsored” or “boosted” ads, both of which were targeted at young male Latinos living in the Philadelphia area. This young male Latino demographic in the Philadelphia region – those who are the focus of the broader project – proved to be the group that was reached by and engaged with the Facebook Page in the highest numbers. This suggests that Facebook, particularly when supported by “boosted” posts, can indeed serve as a tool to connect with Latino residential construction workers. With that said, our research, combined with a knowledge of the communication technology practices of the demographic group under study and an understanding of the medium of Facebook itself, suggests that future outreach efforts might consider an alternative – or at least parallel – strategy of engagement. Notably, despite the fact that the “Alto a las Caidas en Construcion” was primarily aimed at Spanish-speaking young males, the Page seemed to prove effective at engaging other demographic groups – notably, females with both English and Spanish-language proficiencies. With this in mind, the project might consider targeting its outreach on Facebook not only to the male Latino construction workers themselves, but also to the women and other important people in the social networks of the Latino construction workers who may influence the workers’ attitudes and behaviors. Indeed, it is a distinct possibility that targeted SMS messages – primarily a one-to-one or one-to-many communication medium – might prove an ideal way to disseminate information about safety and occupational rights to Latino construction workers directly. Facebook, by contrast, is an inherently social medium, one that includes an interactive process of one-to-many and many-to-many communication dynamics. This leads us to the assessment that Facebook outreach should not only target construction workers but also their families and the broader Latino community. In reorienting the target of Facebook outreach, the project may find that members of this alternate demographic are heavier users of Facebook, those who are more apt to spend time engaging, sharing and interacting on that platform than are the workers themselves. Ultimately, by using the intersecting power of “real world” interpersonal social networks and the Facebook online social network, future efforts could facilitate a process in which people close to Latino construction workers would help to create a social norm around occupational safety – this could indirectly improve the knowledge, practices and behaviors of Philadelphia-area workers regarding fall protection and their rights on construction sites. Combined with SMS and other

more directed outreach tools, this multi-modal strategy could prove most effective at achieving the goals of the project.

i. Key Facebook Page Metric/Number of Users.

There are three main ways that content on Facebook pops up in a person’s newsfeed. First, if the user already “likes” a Facebook Page, when that Page posts something, the post can appear in the user’s newsfeed. However given the algorithm of Facebook, it is not a guarantee that every post will in fact appear. Second, if a Facebook Page opts to “sponsor” or “boost” a specific post, that post can appear in the newsfeed of users who already “like” the Page as well as others who have not. Facebook puts a major emphasis on boosting the reach of these sponsored posts, as the results on Table 1 indicate. Third, if a Facebook user “likes” a Facebook Page or one of its posts, friends of that user who do not already like the Page may have one of its posts or the Page itself appear in their newsfeed. This is the “viral reach”, above. From a strategic perspective, this means that the owners of a Page should try to use all three of these ways to garner more attention. Accumulating “likes” helps the viral spread of Page content, so the project should look for both online and offline avenues to make this happen. Figuring out the elements of the most successful Page posts – including aspects of the content itself, like links or photos, as well as other often overlooked dynamics like the time of day or the day of the week something is posted – can help this spread as well. Finally, it should come as no surprise that Facebook will help spread the word if a sponsored ad is used, so budgeting for this expense is also an important part of any long-term Facebook outreach. It was important that workers were first informed about the page before the purchase of any ads.

Table 1: Number of Users for the “Alto a las Caidas en Construcion” Facebook Page

Facebook Page Metric	Number of Facebook Users
Lifetime Total Reach – <i>the number of unique users who have seen any content associated with the Page.</i>	24,168
Lifetime Organic Reach - <i>the number of unique users who visited the Page, saw the Page or one of its posts in News Feed or Ticker.</i>	1,471
Lifetime Paid Reach – <i>the number of unique users who saw a “Boosted Post” pointing to the Page.</i>	21,048
Lifetime Viral Reach – <i>the number of unique users who saw the Page or one of its posts because a friend engaged with the Page.</i>	1,860
Lifetime Engaged Users – <i>the number of unique users who engaged with the Page. Engagement means a user clicked anywhere in the Page or on a Page post.</i>	654
Lifetime Users “Talking About This” – <i>the number of unique people who created a story by interacting with the Page. Stories include liking, commenting, sharing, etc.</i>	338
Lifetime Total Likes – <i>the number of unique users who “like” the Page.</i>	191

ii. Types of Engagement.

While it is easy to get caught up in the statistics for Facebook “reach” – that is, how many users had the content appear on their newsfeed – it is data related to Page “engagement” that is actually a much better indicator of the success of Facebook content. At this stage of the analysis, it is very difficult to make any real determination about what posts worked best for engagement – the early stages of the Page, in particular, skew the data because there were very few Page “likes” to work from. With that said, this data shows that posts with photos proved to be more engaging than posts that included only links in this setting. As for the “other clicks that create a story”, this includes any liking, commenting, sharing, etc. of Page content and is a strong example of the type of engagement the Page is looking to encourage. When compared to the more than 24,000 total users who were “reached” by Page content, the 649 total engagements seems small, but given these early stages, should not be discouraging. If anything, it should simply suggest that “reach” alone is not enough and that future work should continue to figure out ways to encourage engagement among the target groups.

iii. Post-Level Data.

Out of the 60+ total Facebook posts made by the Page, this chart includes data on the two posts that were “boosted” by a sponsored ad, as well as the top 10 posts in terms of reach that were not sponsored. Again, it suggests that sponsored posts can go a long way in increasing the total reach of content. However, in terms of increasing engagement – through actions that include “likes”, “shares” and “comments” – it seems that the Page gets a stronger response from organic reach among people who are already familiar with the Page and its message. So, while sponsorship can be a useful tool in certain ways, in future work, the Page could continue to build momentum by engaging with those users who are more naturally apt to be connected to the issues.

Table 2: Post-Level Data for “Alto a las Caidas en Construction”

Time Range	Number of Facebook Users	
	<i>Top 10 Non-Boosted Posts</i>	<i>Two Boosted Posts</i>
Total Reach of Post	1,160	12,276
Total Likes of Post	23	37
Total Shares of Post	7	2
Total Comments on Post	2	0

iv. Demographics of Facebook Page Connection.

***Number of “Page Likes” by Default Language Setting of Facebook User:
Spanish – 126 “likes”; English – 64 “likes”***

The entire content of the “Alto a las Caidas en Construcion” Facebook Page was written in Spanish. Yet, even after the “boosting” of a sponsored post in Spanish, more than half of all Page “likes” came from users whose default language settings were based in English. This is a key point that suggests that Facebook might offer an opportunity to spread the message of fall prevention to construction workers through *indirect* as much as *direct* means. The Facebook Page is likely connecting with a number of Facebook users who are bi-lingual, perhaps some who have a longer residential tenure in the United States than the workers who are the target of the intervention, perhaps some with higher levels of education as well. This should not be seen as a problem of failing to connect with the target group, but rather as a chance to connect with a potentially influential group of social connections with an interest in the well being of Latino construction workers in the region. These are the friends, sisters, cousins, nieces, nephews, activists and others with a stake in promoting safety for a group of construction workers who might be hard-to-reach on a regular basis through Facebook. Considering ways to appeal to these reference groups directly as part of a strategy to influence behavior and attitudes through awareness raising and norm building could prove a valuable way forward.

v. Gender of Facebook Page User.

Number of “Page Likes”: Male – 153; Female 33

vi. Total Page Reach for Sampled Weeks by Gender:

Two sampled weeks were selected in the early stages of the Page, two sampled weeks were selected during the time of the “Boosted” posts, and one sample week was selected after the time of the boosted post.

Table 3: Total Page Reach by Gender

Sampled Week in 2014	Total Page Reach	
	<i>Male</i>	<i>Female</i>
Week of 5/24 – 5/30	63	130
Week of 6/19 – 6/25	54	156
Week of 6/26 – 7/2 (Boosted by Sponsored Ad)	3,810	135
Week of 7/3 – 7/9 (Boosted by Sponsored Ad)	9,038	69

vii. Table 4: Number of People “Talking About This” by Gender

(Note: “Talking about this” entails the number of unique people who created a story by interacting with the Page. Stories include liking, commenting, and sharing.)

Time Range	Number of People “Talking About This”	
	Male	Female
5/18 – 6/26 (Pre-Boosted Sponsored Ad)	0	0
6/27 – 7/24 (Post-Boosted Sponsored Ad)	170	14

These data points are evidence of the Page’s ability to connect directly with young Spanish-speaking males. The research also points to the opportunity of a strategic reorientation to connect with Facebook users – particularly women – who are in the interpersonal social networks of those workers.

2. FINDINGS ON SWITCHBOARD SMS PLATFORM.

The following research results draw from quantitative and qualitative data to assess the scope and effectiveness of the text messages distributed through the Switchboard SMS system. The analysis is based on data that was gathered between May 13, 2014 and August 8, 2014, a time in which 15 messages were distributed in Spanish to a previously compiled database of more than 500 Latino residential construction workers’ phone numbers in the Greater Philadelphia area. The analysis briefly provides an overall evaluation of the outreach efforts, and then moves to a discussion of ways to refine the use of SMS as a tool for engagement in the future.

Key Findings: The 15 distributed messages generated a total of 126 replies via SMS, while links included in the distributed messages successfully directed a combined total of approximately 70 users to the “Alto a las Caidas en Construcion” Facebook Page and other websites related to PhilaPOSH and the national Falls Campaign. There were multiple instances of SMS replies in which users explicitly thanked the sender for the provided information, answered a direct query from the sender, or asked follow-up questions related to the sender’s query. A significant proportion of the SMS replies were actually users who requested to be removed from the SMS distribution, as well as numerous others who were unsure who the sender of the message was and why they were receiving the information. As the weeks progressed, the total number of individuals who actively interacted with the Switchboard system through replies diminished sharply to the point of little interaction at all. At this point we do not have the data necessary to determine the cause of this dropoff. During interviews, participants consistently mentioned SMS as the most effective tool for information about the falls campaign. We have several hypotheses about what may have led to the dropoff, including messages extending into the height of the construction season and a decreased field presence, but this would be an issue to focus on in further research.

An evaluation of the results of this small study can lead to several potential conclusions. First, one might surmise that a Switchboard-style system of mass-SMS does not represent a useful way to connect with the Latino workers who are the target of this intervention project. Given the

prevalence of mobile phones and SMS in the communication practices of the young male Latino demographic group with whom the project aims to connect, it would be unwise to view this test as evidence of the platform’s inability to serve as a useful tool. The fact that there were users who responded to the distributed messages with productive questions and comments suggests that there is indeed a place for this strategy in the project’s toolbox. Further, replies alone do not indicate the success of the outreach – there could be other participants who were glad to receive the information but chose not to respond, but the available data cannot provide a textured understanding of whether this was the case or not.

Second, one might make a determination that the strategy remains a valuable one, but the content of the messages could be more skillfully crafted to promote productive engagement over time. Third, one might decide that the strategy remains a valuable one, but that there must be an expansion of off-line interactions and outreach led by individuals and organizations that are trusted by the target population, as well as integrated with other social media outreach tools like the Facebook page. A larger future study could improve its strategic engagement through a combination of goal-oriented message refinement and a process of building trust with the user community through an intersecting set of online and offline activities.

i. Table 5: Responses to Switchboard SMS messages

Switchboard Metric	Number of Messages
Total Distributed Messages Via Switchboard	15
Total Respondent Replies	120
Total Requests for More Information	40
Total Request to Cancel Messages	49
Other Replies	40

ii. Table 6: Selected Examples of Respondent Replies

Distributed Message (English Translation)	Text of Selected Replies (Original in Spanish unless noted)
<i>May 13: Almost every week in the United States a worker falls from a roof and dies in residential construction. Latino workers constitute the majority of those deaths. We have families who depend on us, but there are more things to work for than a check. Learn to take precautions and prevent falls in construction.</i>	<ol style="list-style-type: none"> 1. When is your next class? 2. Thank you for the information 3. Who is this?
<i>May 22: If you work on ladders, scaffolds or roofs, your employer should provide safety equipment according to law. To stop receiving messages, text ‘cancel’.</i>	<ol style="list-style-type: none"> 1. How can I obtain OSHA certification for my workers? 2. Cancel 3. Thank you.

<p>May 27: Is it difficult to request safety equipment from your contractor? Are you afraid to speak up and lose your job? PhilaPOSH is here to protect you. Get informed http://bit.ly/1tk9Msv.</p>	<p>1. OK. And how? 2. Sometimes afraid, and you? 3. Please respond, man.</p>
<p>June 3: Are there fall risks in your workplace? Take photos and send them to philaposh@aol.org so that your workplace may be inspected. Protect your life!</p>	<p>1. Ok and yes I'll get in trouble if I send a photo. 2. Stop. (English in original) 3. Can you speak in English (English in original)</p>

These selected responses demonstrate the varied exchanges that occurred throughout the distribution process. There were instances in which the SMS proved effective as an information provider and method of engagement, as evidenced by several of the comments above. The largest response of the entire process came through the fourth message, dated 5/27/2014, and it received 41 total responses. Unfortunately, a majority of these replies were requests to stop receiving messages or questions about whom the message was coming from – including several with explicit language employed. Following that message, the number of responses dropped.

3) Social Media Outreach Analysis: Mail Chimp Email – “Alto a las Caidas en Construcion”

The following research results draws from quantitative and qualitative data to assess the scope and effectiveness of the email messages through the Mail Chimp system. The analysis is based on data that was gathered between June 3, 2014 and July 1, 2014, a time in which four messages were distributed in Spanish to a previously compiled database of 137 Latino residential construction workers’ email addresses in the Greater Philadelphia area. The analysis briefly provides an overall evaluation of the outreach efforts, and then moves to a discussion of ways to refine the use of SMS as a tool for engagement in the future.

Email messages were the least effective means for reaching workers and this was evidenced both by the open and click rate of the email messages as well as the interviews with participants. The open rate for the email messages fluctuated between 15-20 percent and the click rate of links within the emails was less than one percent. Through the research we found that this was not an effective means for reaching Latino workers with health and safety messages.

i. Table 7: Email Open and Click Rate

Send Date	Subject Line	Delivered	Open Rate	Click Rate
7/1/14 12:57	Falls in construction can be prevented, exercise your rights!	133	15.04%	0.75%
6/24/14 11:13	Falls are the leading cause of death in residential construction.	133	15.04%	0.75%

6/9/14 18:00	PhilaPOSH is here to help you.	128	21.09%	0.78%
6/3/14 18:07	Do you feel safe when working construction on a ladder?	126	19.05%	0.00%

The team sent a total of four emails over the course of a month to an initial list of 171 Latino construction workers in the Philadelphia area. After message-send failures, the list was edited to 137 accounts. The table above shows the total number of email accounts delivered to for each message. The low rate of email recipients who actually opened the emails, coupled with the even lower click rate of those recipients who followed links in the body of the email, demonstrates that email is not an effective way to reach Latino construction workers with messages about workplace safety. The data align with interview data suggesting that email is not a preferred way to receive this kind of information.

DISCUSSION:

Future Considerations.

Through analysis of the passive data and the interviews it is clear that SMS messages and Facebook both potentially have an important, yet different and specific, roles to play in augmenting outreach targeted towards Latino construction workers and other workers situated at the margins of society. While this research is provisional, it helps us to understand the ways organizations can better utilize SMS and Facebook while also recognizing that tools like email are not an effective social media tool. We think further research is critical, in order to better understand how each of these tools can be best utilized to reach workers. To this end we would propose an exhaustive multi-year study that is both quantitative and qualitative, and that is conducted not only in the Philadelphia region but also in selected regions with a high density of Latino construction workers and Latino organizations that focus on workers’ rights and/or health and safety. Recruitment of an organizational partner for the study that has national reach and field operations would be necessary.

Some questions and issues we believe merit further research: 1. What role does face-to-face outreach play in augmenting a social media campaign targeted towards Latino construction workers? 2. What role can traditional forms of media (TV, radio, print) play in augmenting or building the legitimacy of a social media campaign targeted towards Latino construction workers? 3. Given the social and connective role of Facebook, what role can family members and close associates play in building a Facebook campaign around workplace safety for Latino construction workers? 4. What role do images as well as consistent branding play in building the strength of a social media campaign?

While we believe that additional research on the role of social media in reaching Latino construction workers is critical, there is enough data to establish both SMS and Facebook as promising tools to reach Latino construction workers. If these tools are to be deployed, we have developed a list of strategies that emerge out of the research that we believe can strengthen the practice in the near term. The following list, while hardly exhaustive, includes intersecting considerations related to both **message content** and **trust-building** that could help put a larger

future study in a better position to get more definite results. We want to be clear that significant aspects of several of these points were present in many of the distributed messages, but consistent incorporation of these concerns over a longer period of time could improve future outreach efforts.

Message Content

- *Identify Yourself!* –A brief identification of the project and origin of the message, at the start of every message would lead to trust amongst users. This however, is in tension with the limited number of characters allowed in an SMS.
 - *Stay Goal-Oriented* – It is important to make sure each message has a clear goal. Be deliberate regarding what the goal of each message is, going as far, perhaps, to label different messages with the exact theme – for instance, Safety Information, Event Announcement, How to Get Help, etc.
 - *Emphasize Benefits and Minimize Barriers* – Communication campaigns that aim to alter attitudes or behaviors should always consider ways to emphasize what participants will potentially get out of taking part in the action as a way to encourage engagement. Recognizing barriers that participants face in this process, and pointing out ways that a campaign has reduced those barriers to participation, can further encourage this engagement. So, for users who are concerned that taking pictures of their worksite might get them in trouble, emphasize what the project can do to ensure anonymity while also expressing the benefits that would come from sharing that information.
- Utilize More Imagery*—Messages on both Facebook and SMS (where possible) are more effective, and in the study received a substantially higher rate of engagement, when there were images or photos of other workers, trusted participants or other symbols which effectively conveyed the work and life experiences of audiences.

Trust Building

- *Work Through Trusted Sources* – Building partnerships with organizations that are trusted by Latino construction workers is critical to a successful social media campaign. Following that, creating consistency in the messaging that includes the names and stories of trusted organizations and individuals as part of the messages themselves will strengthen the campaign. Having multiple trusted sources deliver messages – either directly or indirectly – will help build long-term connections.
- *Integrate Interpersonal and Mediated Connections* – A social media campaign should consider ways to connect offline practices with both the SMS outreach and Facebook Page. The campaign should also integrate different social media. Promoting Facebook through SMS can be a useful strategy that helps build the Facebook site and vice versa.
- *Continue to Refine the Database* – *Through the campaign there should be a continuous effort to build and refine the database.* This is necessary as many workers regularly change their cell phone numbers etc. Also, Latino workers born in the U.S. may not read or even speak Spanish fluently. This was verified by some of the comments from participants. To reach the largest number of Latino construction workers, it makes sense to keep it as a Spanish-language medium, but the database must be carefully crafted to ensure that only Spanish readers are on the list.

CHANGES:

The principle delays in this research came from the process of receiving IRB approval. The process for IRB approval from Rutgers University took longer than we expected and the research team did not fully anticipate that the protocol would then have to go through a second IRB process with CPWR. Together these delays, along with some changes in staffing structure, led to a two-month delay in the start of Phase 2 of the study. We compensated for this delay by extending Phase 2 for two months into August.

FUTURE FUNDING PLANS:

It is the intent of the parties that carried out this study (PhilaPOSH, MMP, and Dr. Wolfson/Rutgers) to seek funding for a longer study to explore further some of the preliminary findings from this study. We envision adding a national partner who could enable us to expand the study to other targeted demographic areas in the U.S. We are certain that SMS messaging and interactive Facebook have much broader potential than we were able to explore in this study, and that such a study will contribute greatly to the CPWR goals of “Research to Practice.”

LIST OF PRESENTATIONS/PUBLICATIONS

We see many opportunities after further study for both publication and presentations of this research. Some potential publication outlets include the journals *New Media and Society* and the *Journal of Applied Communication Research*, the *Journal of Applied Communication*, and the *Journal of Occupational Medicine*. We also believe that this initial research can be fruitfully presented at the National Communication Association (NCA) meetings and conferences, at the International Communications Association (ICA) meetings and conferences, and at the American Public Health Association (APHA) conference at its Occupational Health and Safety Section meetings.

We will be researching other opportunities for presentations at national meetings and conferences of Latino and Hispanic workers organizations, and at the National COSH Health and Safety Conference next June 2015.

DISSEMINATION PLAN:

We will distribute information about the initial key findings of this study to organizations in the greater Philadelphia region that work with members of the Latino communities, or that are engaged with safety and health issues for construction workers. This includes building trades locals that increasingly are looking for ways to reach Latino workers.

APPENDIX A

Initial Interview Questions

Meeting Latino workers where they are: *Using interactive social media to promote the Campaign to Prevent Falls in Construction in Philadelphia*

Principal Investigator: Todd Wolfson, Rutgers University

Sponsor of Study: The Center for Construction Research and Training

1. What type of construction work do you do for a living?
2. What part of Philadelphia do you live in?
3. Do you have Internet at home? If not why?
4. If not how do you access the Internet?
5. How many times a week do you use the Internet?
6. Do you use the Internet on a smartphone?
7. What sorts of things do you do when you are on the Internet?
 - a. Email?
 - b. Web surfing?
 - c. Facebook?
 - d. YouTube?
 - e. Twitter?
 - f. Other
8. Is your work environment a safe place?
9. How do you receive messages about health and safety on the job?
10. Are you more likely to receive messages from Facebook, email or text messaging?

APPENDIX B

List of Switchboard SMS Messages

Tuesday 5/13: Each year, 50 people die from falls in the workplace. Get connected to get more information from Philaposh on how to prevent them.

Thursday 5/22: If you work on ladders, scaffolds or roofs, your employer should provide safety equipment according to law. To stop receiving messages, text 'cancel'.

Friday 5/23: Connect with Alto a las Caidas en Construccion on Facebook! bit.ly/altocaidasfb

Tuesday 5/27: Is it difficult to request safety equipment from your contractor? Are you afraid to speak up and lose your job? PhilaPOSH is here to protect you. Get informed <http://bit.ly/1tk9Msv>

Thursday 5/29: If your friend is interested in being part of this effort to stop falls, have him text 'connect' to 267-415-8777

Tuesday 6/3: Are there fall risks in your workplace? Take photos and send them to philaposh@aol.org so that your workplace may be inspected. Protect your life!

Thursday 6/5: 28 workers die each year of falls from scaffolds. Visit [bitly/altocaidas](http://bit.ly/altocaidas) to learn safety measures when using one.

Wednesday 6/11: Do you encounter risky situations working in construction? PHilaposh provides free safety trainings! Visit bit.ly/altocaidas

Thursday 6/19: Imminent dangers, situations that put you at risk of falling, should be reported to OSHA for an inspection according to the law. You are not alone.

Tuesday 6/24: Did you know that OSHA protect your identity and immigration status? Don't be afraid! Report risky working conditions at 1-800-321-6742

Wednesday 7/9: Did you know that you can get free trainings to care for your safety at work? Visit <http://on.fb.me/1tqDjAT> or call PhilaPOSH at 2153863258

Friday 7/18: Latino workers are the most affected by falls in construction. Does your employer provide the necessary tools and protective measures?

Friday 7/25: Do you know what to do if a coworkers falls from significant heights? Get a free training with PHILAPOSH and learn! Call 215-386-7000

Thursday 7/31: Construction workers are at greatest risk of falls and lesions in the summer. Don't put your safe at risk if you're on a hurry. Hydrate and take precaution!

