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The Use of Social Media for Citizen Engagement: The Case of SAPAS in La Paz, Mexico

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ABSTRACT

In this paper, we explore a local government water department's adoption of social media to engage with citizens. Specifically, we describe the use of a Facebook page, created by the Organismo Operador Municipal del Sistema de Agua Potable, Alcantarillado, y Saneamiento (SAPAS) in La Paz, B.C. Mexico, during its initial eighteen months of operation. Based on an analysis of the page posts, we note an increase in total posts over the study period. The dominant type of post (SAPAS and citizens combined) was announcement and this type of post was unevenly distributed with peaks at the beginning and end of the study period. We also observed a notable increase in the number of complaints submitted by citizens towards the end of the study period with the highest number of complaints falling in August and October 2012. We conclude with some observations about our initial results and an update on the current status of SAPAS Facebook page.

Categories and Subject Descriptors

K.4.1 [Computers and Society]: Public Policy Issues

General Terms

Documentation, Performance, Design, Experimentation, Human Factors,

Keywords

Social media, local government, citizen communication, Mexico

1. INTRODUCTION

Social media has been adopted widely in many countries to enhance the capabilities of traditional e-government. Specifically,

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social media has been touted as a valuable resource for governments and their residents to achieve a range of civic goals such as information exchange, citizen participation, and public service response. One social media tool, Facebook, with worldwide estimates of over 1.15 billion users monthly, makes it the most popular of the social media with potential to significantly enhance relationships between government and citizens [1, 2].

In this era of rapid e-government expansion, developing countries have increasingly embraced the use of local government portals and social media. In Mexico, two conditions suggest that social media could have a substantial impact on local government-citizen relationships. First, the federal government adopted a transparency (*transparencia*) policy over ten years ago that was followed by related state and local policies. The use of e-government has been encouraged, directly and indirectly, by these policies [3]. Second, Mexico has relatively high Facebook use with approximately 47 million active monthly users, the second largest Facebook base of the Latin American countries [4].

Knowledge about the use and effectiveness of social media by local governments is limited at this time. It is especially limited for Mexico and other developing countries, particularly at a detailed level and over time. In this study, we focused on the Facebook page for the Municipal Operating Organization for Drinking Water, Drainage and (Water) Treatment, (*Organismo Operador Municipal del Sistema de Agua Potable, Alcantarillado, y Saneamiento* or SAPAS) of the city (*municipio*) of La Paz, Mexico. The research asks the following questions: 1) What types of posts are made to the Facebook page? 2) What are the frequencies of different kinds of posts? 3) Do different post types vary in frequency and as a proportion of posts over time? And, 4) To what extent has the Facebook page accomplished its purpose and any broader civic goals? To answer these questions, we translated and conducted a content analysis of all posts to the Facebook page over an 18-month period beginning with the initiation of the page. In this paper, we report initial results responding to our first three questions. The fourth question concerns the effectiveness of the Facebook page and we currently are analyzing related sets of posts or "exchanges" to answer this question. Although we do not provide results from our ongoing exchange analysis, in the concluding section, we reveal one event in the life of the Facebook page that perhaps foreshadows our ultimate assessment of its effectiveness.

2. STUDY BACKGROUND

Research on government websites and the use of web 2.0 tools such as Facebook continues to develop as more governments adopt e-government approaches. Moreover, as e-government continues to mature and evolve, there is a burgeoning literature on lessons learned from existing government websites. This literature reveals that the tasks of these sites include a range of activities such as displaying information including multi-media content, service provision, multiple-party interaction, citizen participation, and collaboration [1,5]. It also indicates that there is substantial variation in uses and types of uses across governments and countries, as well as in achieving democratic goals. For example, in a study of local government electronic portals in Mexico, the researchers concluded that efforts to engage citizens are relatively weak [5].

Much of the existing literature examines countries, states, or local governments cross-sectionally. In some cases, researchers survey government staff to determine the ways e-government is used in their jurisdictions. While these approaches are important to our understanding of e-government, the body of research can be enhanced through detailed, longitudinal research on the content of the site. Our research focuses on posts over time to the Facebook page of SAPAS, a municipal water agency in La Paz, Mexico. To fully understand the work of SAPAS, it is important to briefly discuss La Paz and the administrative context in general.

La Paz is located in the state of Baja California Sur in Mexico. La Paz has an arid or desert climate with an average annual rainfall of 17.018 cm. (6.7 in.) and relatively high temperatures with an average temperature of over 32.2°C (90°F) five months out of the year [6,7]. The sunny weather and the city's location on the Sea of Cortez attract tourists and retirees relocated from abroad. In addition, the economy has been stronger than many cities in Mexico and thus has drawn immigrants from other parts of Mexico in search of work [6]. As a result, the city has experienced significant growth over the last few decades including a 28% increase from 2000 to 2010; in 2010, the *municipio* population was reported at 251,871 persons [8].

Potable water for business and household use is critical to the sustainability of La Paz. The growth of the city and the economy depend on the availability of water for its citizens. Today, water is delivered via pipes to most neighborhoods several times a week and delivered by truck to some outlying neighborhoods less frequently. While residents are getting some level of water service, with little rainfall and saltwater intrusion of the La Paz aquifer, the provision of potable water is a current and future challenge [6,9,10].

Mexico has a strong federal policy on water with administrative and other responsibilities housed in the National Water Commission (*Comisión Nacional del Agua* or CONAGUA). CONAGUA's mission includes recognition of a "joint responsibility of the three tiers of government (federal, state, and municipal)" [11]. In La Paz, SAPAS is the municipal agency tasked with water provision. SAPAS, among other responsibilities, "is in charge of the operation of water extraction pumps to supply citizens of La Paz with drinking water" and "is also in charge of the treatment of drinking water" [12]. In other words, SAPAS is responsible for the delivery of potable water to the area's residents.

SAPAS has a website and it is linked from the city of La Paz's home page. While this site provides some information, SAPAS moved to web 2.0 by creating a Facebook page in June 2011.

According to SAPAS staff, the purpose of the page was to "be a link between the citizens and the services and activities that SAPAS La Paz conducts...we can inform citizens of our actions first-hand and at the same time, have citizens give us feedback" [13]. While the purpose is stated here very generally, it seems clear that SAPAS intended to enhance its e-government efforts and improve communication with citizens.

This research aimed to better understand SAPAS's foray into social media. To do so, we did a content analysis of posts to SAPAS's Facebook page over time.

3. METHODS

SAPAS's original Facebook page was created June 20, 2011. We collected all posts and replies during the eighteen months that followed and translated them from Spanish to English. In total, we collected 545 posts. As part of the collection process, each post was assigned a number and all the responses/comments attached to that post were assigned a decimal number within the main post. The author of the post was also documented; any time the Facebook page administrator made a post, it was labeled as SAPAS, while other Facebook users were labeled as citizens. Finally, we recorded the date, photos, and links attached to each post.

Once the data were gathered, a team of coders established potential classification categories for the posts. The categories emerged from the data using open coding (through an iterative process) and then reviewed to ensure the categories were mutually exclusive and exhaustive. The final set of eleven categories are as follows: announcement, comment, complaint, denunciation, Facebook action, question about service, question (general), report about service, report (general), resolved issue, and response. Once categories were finalized, we created a data-coding manual that defined each category. The coding manual and associated rules follow methodology developed for textual content analysis [14].

Coders performed several iterations of independent coding with sessions to compare and discuss results and then completed the coding of all posts. Finally, to assess inter-coder reliability, an independent code of 27 posts (5%) was conducted. Krippendorff's alpha, an inter-coder reliability statistic, was calculated to measure the consistency between coders. The Krippendorff's alpha coefficient was .85 ($p=.05$) which is considered a high level of agreement among coders [15].

4. INITIAL RESULTS

The SAPAS Facebook page had about 30 posts a month, on average, during the 18-month study period. As shown in Figure 1, of the 545 total posts, the largest percentage of posts (23.3%) were responses and involved a reply to another post such as a SAPAS administrator answering a question and the subsequent back and forth posts concerning this question. This result is not surprising as any particular post could generate numerous responses. Comments were the second largest percentage of posts (20.6%). These entries tended to be general remarks by SAPAS or citizens including sharing information about SAPAS activities and other events in La Paz. Announcements were the third most common post (19.4%). Announcements included administrator posts to inform citizens of projects underway, upcoming changes to the existing water service, or some other issue related to water service.

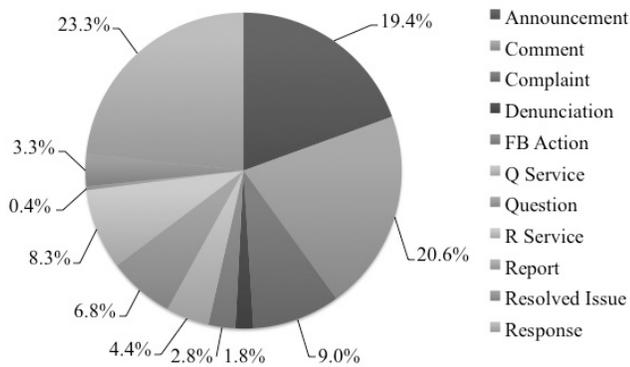


Figure 1. Posts by Category

The gap in the proportion of posts between announcements and complaints, the third and fourth most common type of post, is significant. Complaints represented about 9% of the total posts.

Table 1 displays the total number of posts made for each category over the seasons. Autumn of 2012 (the last season we collected data) had the highest proportion of posts with 31% of the total posts.

Table 1. Posts by Category Over Time

| | SeasonYr | | | | | | TOTAL |
|-------------------------|------------|-----------|-----------|----------|-----------|------------|-------|
| | Su11 | A11 | W12 | Sp12 | Su12 | A12 | |
| Announcement | 36 34% | 2 2% | 2 2% | 0 0% | 18 17% | 48 45% | 106 |
| Comment | 17 15% | 23 21% | 20 18% | 5 4% | 15 13% | 32 29% | 112 |
| Complaint | 5 10% | 7 14% | 7 14% | 1 2% | 12 24% | 17 35% | 49 |
| Denuncia-tion | 2 20% | 2 20% | 4 40% | 0 0% | 1 10% | 1 10% | 10 |
| FB Action | 1 7% | 0 0% | 0 0% | 2 13% | 2 13% | 10 67% | 15 |
| Question Service | 6 25% | 4 17% | 2 8% | 2 8% | 7 29% | 3 13% | 24 |
| Question | 4 11% | 5 14% | 7 19% | 9 24% | 5 14% | 7 19% | 37 |
| Report Service | 5 11% | 7 16% | 10 22% | 6 13% | 4 9% | 13 29% | 45 |
| Report | 0 0% | 0 0% | 2 100% | 0 0% | 0 0% | 0 0% | 2 |
| Resolved Issue | 2 11% | 3 17% | 2 11% | 0 0% | 3 17% | 8 44% | 18 |
| Response | 22 17% | 20 16% | 21 17% | 11 9% | 21 17% | 32 25% | 127 |
| TOTAL | 100 18% | 73 13% | 77 14% | 36 7% | 88 16% | 171 31% | 545 |

The increase in posts over time most likely reflects a growing awareness of citizens about the page, as well as the willingness of both citizens and SAPAS to use this platform to communicate with each other and take advantage of this regarding matters related to water service in La Paz. For many of the categories, posts were not equally distributed across time periods. For example, announcements occurred more frequently in the first (Summer 2011) and the last (Autumn 2012) seasons of our study period. On the other hand, question posts were more evenly distributed across the seasons with a slight peak in Spring 2012. Interestingly, complaints seemed to increase in Summer and Autumn 2012. We examined these complaints by month and found they primarily occurred in August and October of 2012 (see Figure 2).

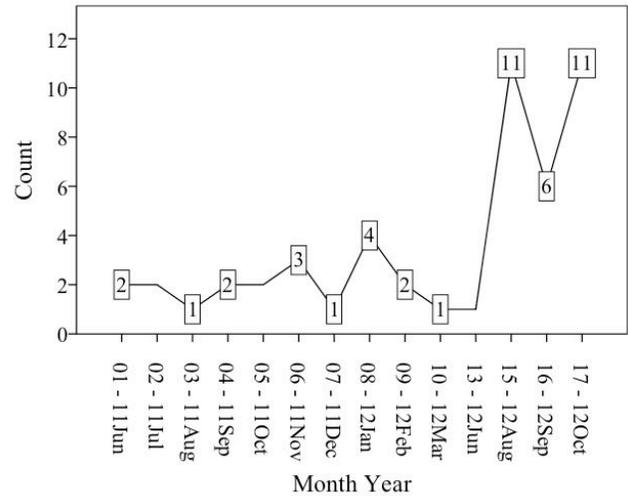


Figure 2. Complaints by Month

5. CONCLUDING COMMENTS

The Facebook page allowed SAPAS to make announcements about its activities to the citizens of La Paz and for citizens to communicate directly with SAPAS. It is unclear how many citizens actually routinely viewed the page for announcements; however, the number of overall posts across categories suggests that the page was used by residents for specific types of posts and with relatively low frequency considering the size of the population served by SAPAS. Although citizen complaints represent less than 10% of total posts during the study period, this type of post was higher near the end of the study period, suggesting either a growing awareness of the page by residents or increasing dissatisfaction with SAPAS service, or both. Analysis of the posts for our 18-month study period continues and is expected to yield additional findings about the use of the page for posting and the overall effectiveness of the page.

There have been some significant changes to the SAPAS Facebook page over time and since the end of our data collection period. The current prompt for participation at the beginning of the SAPAS page is: "Good day...we are at your service at the number 122-1703." This change occurred after September 26, 2013 when SAPAS linked their Facebook page (which contained the data coded and presented in this paper) and their profile page. The result of this merger was two-fold. First, all posts made by SAPAS and citizens prior to the merger date were lost. Second, the page no longer allows citizens to post directly to SAPAS's timeline; the only way for citizens to submit a post is via a private message function. Therefore, it is no longer possible to know

when, if, or how SAPAS responds to these messages, unless one submitted the message. Some citizens have started to post their messages, questions, and requests as responses to posts by SAPAS. In these cases, SAPAS responds with a standard message such as the following: “Good day, please send us your address, user name, and phone number via a private message so we can forward your report to the operations department.” This new process handles all requests privately and makes it impossible to know the exchanges SAPAS has with the citizens of La Paz.

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