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CITIZEN ENGAGEMENT 2.0: AN ANALYSIS OF OFFICIAL CITY FACEBOOK PAGES TO DETERMINE ANTECEDENTS TO DIGITAL CIVIC ENGAGEMENT

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ABSTRACT

Social media usage has substantially increased in the public sector over the past five years. As governments move to this new medium of communication and engagement, little attention has been paid to its impact on citizen engagement. This study highlights the importance of active participation by the government, leveraging the two-way communication features of Facebook, to increase citizen participation and engagement in online government channels. The study demonstrates that two-way, responsive engagement by the government leads to greater levels of citizen participation, measured as fan comments and likes, on the government's Facebook site, as well as increases the fan base of the site.

Keywords: social media, public administration, citizen engagement, Facebook

INTRODUCTION

Social media has become a phenomenon of epic proportions. Every day, new social media sites emerge to offer end users a vehicle for technology-based engagement. Facebook boasts the largest online community in the social media world, with 910 million members as of April 2012 [1]. In 2007, Facebook opened its Fan Pages option to private and public organizations, and governments across the United States have joined to capitalize on the power of mass collaborative communication with relatively low costs. This paper explores how the seventy-five largest US cities use Facebook to increase citizen engagement and offers empirical evidence of the antecedents of this type of digital civic engagement.

In the majority of popular press, the use of social media for organizations of all kinds is being promoted and greatly lauded. The benefits to citizen participation, transparency, accountability, and customer service are pushing governments to adopt the use of social media, making it a part of the work expectation for some em-

ployees [2]. Many of these perceived benefits are derived from success found with e-government efforts to utilize technology in order to improve efficiency and effectiveness and facilitate service delivery [3]. However, governments are lacking clear guidance on how to use Facebook to truly affect citizen engagement and produce positive outcomes for their citizens and the organization, while managing yet another layer of complexity to the traditional e-government literature by adding two-way interactions in an unregulated, emergent environment.

The remainder of this paper is structured as follows: the next section presents a literature review of social media and citizen engagement literature. The section after that describes the research methodology, research proposition, and the sample selection. Results are presented in the next section, followed by a discussion of possible implications. The final section is the conclusion and highlights areas of future research.

LITERATURE REVIEW

As governments have progressed into the digital age, much of the focus has been on citizen engagement and service. An emerging part of the e-government movement includes social media and its role in meeting citizen needs for transparency, accountability, accessibility, and participation [4]. Social media has been defined as “a group of Internet-based applications that build on the ideological and technological foundations of Web 2.0, and that allow the creation and exchange of user-generated content” [5]. The hallmark applications found in the social media landscape include Facebook, Twitter, LinkedIn, Flickr, MySpace, Yammer, Pinterest, and hundreds of others. The proliferation of social media forms and use has been unprecedented [6].

Facebook is consistently viewed as the leader among social media tools and recent metrics solidify its utility and importance in the lives of individual and organizational users. Current estimates place the number of Facebook users over 910 million people, with over 51% percent of all Internet-using people 12 and older in the United States having a Facebook account [1]. With over half of the American population participating on Facebook, the platform offers governments a unique opportunity to efficiently engage and inform citizens in lean economic times [7]. Governments have been capitalizing on the opportunity for citizen communication and connection offered by the social media outlets. In fact, a recent study conducted by Stateline.org indicates that 47 of the 50 US Governors have a social media presence for official governmental communications, with Facebook pages and Twitter accounts being the most frequently used tool [8]. Due to the massive proliferation of social media, its use by both individuals and organizations for personal and professional reasons has come to the forefront as an issue highlighting the intersection of this new form of media and citizen participation and engagement.

Currently, there is limited literature examining the effects of this new form of communication and engagement and there are many unanswered questions for government organizations around how to effectively leverage social media and produce an impact on engagement. This paper seeks to add to the IT knowledge base by offering a quantitative analysis of US cities’ Facebook usage and strategies to highlight trends and promising practices, as well as highlight precursory conditions impacting digital civic engagement.

The preponderance of social media literature focuses on both its promotion and risk of use in government [4]. Beyond broadening the knowledge base surrounding governmental social media engagement strategies, this paper also speaks specifically to the issues related to other

measures of civic engagement, as presented by Mossberger and Wu [9].

RESEARCH METHODOLOGY

Facebook changes constantly, rapidly growing its member population and adapting the site’s features to serve different interests. Prior to being opened to the public in 2006, Facebook was limited to college students and alumni, high school students, and large employee groups. Facebook actively disallowed organizations from creating Profile pages, like those of individual Facebook members. And in 2007, Facebook added a Fan Page model to allow organizations to create a Fan Page with a similar look and feel to a Profile page, with associated content generation and aggregation features to feed information to those “fans” of a given page. Fan Pages provide organizations an opportunity to interact with Facebook members in the following ways:

1. Liking: Prompts members to join a Fan Page by choosing to click “like”, noting their affinity for an organization by becoming a member, or “Fan,” of a specific Fan Page.
2. Organizational Posting: Allows the organization (i.e. Fan Page owners) to share information, updates, announcements, event information, links, photos and videos with their respective Fans by posting on the Fan Page wall.
3. Post Liking: Allowing Fans to give a virtual “thumbs up” to a post on a Fan Page by choosing to click “like” on each post.
4. Commenting: Allowing Fans to comment or ask a question responding to a post on a Fan Page.
5. Sharing: Encourages fans to share information such as news stories, updates, meetings, announcements, event invitations, website links, photos and videos posted by the Fan Page owners.
6. Fan-based Content Integration: Fans can to post content, a comment or ask a question of the entire organization and its Fans.

The private sector quickly seized the opportunity to interact directly with their customer base through Fan Pages, prompting formulas valuating Fan Pages as marketing tools into the multi-million dollar range [10]. However, governments do not have a similar set of metrics to follow. This research project examines the elements of Fan Pages to develop a composite score for Social Media Engagement Index, modeled closely after the Mossberger and Wu Civic Engagement Index [9] but focused specifically on governmental Facebook interactions with fans. Then common engagement strategies for in-

creasing fan participation are tested as antecedents to citizen engagement.

Research Proposition

Drawing on the common measures of digital civic engagement via Facebook, including Fan base, Fan likes, Fan comments, and Fan shares, the following initial model is offered with an aggregate Social Media Engagement Index score comprised of the common impact measures of Facebook Fan Pages as the dependent variable and independent variables related to Facebook fan engagement strategies. The composite variable, Social Media Engagement Index, was formulated as:

$$\text{(Number of Fan Likes of City Posts + Number of Fan Comments + Number of Fan Shares) / Total Fan Base}$$

Sampling and Data Collection

Leveraging the work of Mossberger and Wu [9], the sample for this research effort included the seventy-five largest cities in the United States based on population. Cities' Facebook Fan Pages were located through both a search on Facebook and a search on the jurisdictions' websites. Of the 75 cities included in the initial sample, nine (9) jurisdictions were excluded due to lack

of an official City Facebook Fan Page. The use of a non-probability convenience sample is warranted in this study as it allows for comparison between the Civic Engagement Index constructed by Mossberger and Wu [9].

The majority of data for this project come directly from the Fan Pages of the largest seventy-five (75) cities (by population) in the United States. Facebook activity for each jurisdiction was evaluated during the thirty-one day timeframe of December 1-December 31, 2012. By evaluating the same period for each jurisdiction, the project controlled for external events such as holidays. Additional sources of data include each City's website, US Census data, and the work of Mossberger and Wu [9].

Cities' Facebook Fan Pages were located through both a search on Facebook and a search on the jurisdictions' websites. Of the 75 cities included in the initial sample, nine (9) jurisdictions were excluded due to lack of an official City Facebook Fan Page. Every jurisdictional post during the 31-day timeframe was recorded, in addition to recording the number of Fan interactions and jurisdictions' responses to Fan interactions. Table 1 includes a listing of all collected variables and their data sources.

Table 1: Variables and Data Source

Independent Variables	Data Source
City population	US Census
Civic Engagement Index	Mossberger and Wu, 2012
Presence of official city Facebook Fan Page	City Facebook Fan Page
Links on the jurisdiction's homepage (proxy for marketing of Facebook Fan Page)	City Website
Total days of official Facebook Fan Page presence	City Facebook Fan Page
Total number of City posted pictures on official Fan Page	City Facebook Fan Page
Total number of City posted videos on official Fan Page	City Facebook Fan Page
Number of city posts (December 1-31, 2012)	City Facebook Fan Page
Number of City responses to Fan comments (December 1-31, 2012)	City Facebook Fan Page
Ability of Fans to post directly to City Fan Page	City Facebook Fan Page
Number of Fan direct postings to City Fan Page (December 1-31, 2012)	City Facebook Fan Page
Number of Fan tagged photos of City (December 1-31, 2012)	City Facebook Fan Page
Number of Fan tagged videos of City (December 1-31, 2012)	City Facebook Fan Page
Dependent Variables	Data Sources
Number of Facebook Fans	City Facebook Fan Page
Number of Facebook Fan likes on City postings (December 1-31, 2012)	City Facebook Fan Page
Number of Facebook Fan comments on City postings (December 1-31, 2012)	City Facebook Fan Page
Number of Facebook Fan shares of City postings	City Facebook Fan Page

FINDINGS AND DISCUSSION

Seventy-five cities were included in the original study population. Of those cities, nine (9) were excluded due to lack of presence of an official City Facebook Fan Page. For sixty-six (66) cities, the mean population size was 710,991 and had a mean Civic Engagement Score of 75.73. Interestingly, the cities excluded from the study due to no official Facebook presence had a slightly larger mean population (864,864) and an almost identical mean Civic Engagement Score (75.724).

Fifty-nine (59) of the cities have links to their Facebook Fan Page on their City website homepage. The

mean number of days on Facebook for the included cities is 842 days, roughly 2.5 years. The mean number of Facebook Fans for the sample is 15,110. Finally, approximately fifty-five (54.5) percent of the included cities allow Fans to post content, photos, and/or videos directly to the City's Fan Page.

Correlation analysis was used to assess the presence of statistically significant relationships, as noted by both the parametric measure, Pearson's correlation, for the interval-level data, and the nonparametric measure, Kendall's tau b, for non-interval level data. Several statistically significant relationships were noted in the correlations, as noted in Table 2.

Table 2: Correlations of Dependent Variables (Civic Engagement Index and Social Media Engagement Index) and Independent Variables

		Civic Engagement Index	Social Media Engagement Index
Population	Correlation Coefficient	.346**	Not significant
	Sig. (2-tailed)	.004	
	N	66	
Facebook link on city website homepage	Correlation Coefficient	.270*	.323**
	Sig. (2-tailed)	.009	.002
	N	66	66
Total number of Facebook Fans	Correlation Coefficient	.258*	NA (part of index)
	Sig. (2-tailed)	.036	
	N	66	
Total number of Fan likes (December 1-31, 2012)	Correlation Coefficient	.248*	NA (part of index)
	Sig. (2-tailed)	.045	
	N	66	
Total number of Fan shares (December 1-31, 2012)	Correlation Coefficient	.311*	NA (part of index)
	Sig. (2-tailed)	.012	
	N	66	
Total number of City's Facebook responses to Fan comments (December 1-31, 2012)	Correlation Coefficient	Not significant	.272*
	Sig. (2-tailed)		.029
	N		66
Total number of City Facebook postings (December 1-31, 2012)	Correlation Coefficient	Not significant	.510**
	Sig. (2-tailed)		.000
	N		66
Total number of days on Facebook	Correlation Coefficient	Not significant *	-.320*
	Sig. (2-tailed)		.010
	N		66

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

The main purpose of this study is to examine the antecedents to digital civic engagement, as previously defined. However, inclusion of the traditional Civic Engagement Index as a dependent variable is offered to demonstrate the relevance of the Social Media Engage-

ment Index as a separate measure, which could also be incorporated into the Civic Engagement Index. It is interesting to note that there is no statistically significant correlation between the Civic Engagement Index and the Social Media Engagement Index. However, there are

significant relationships between many of the individual dependent variables included in the composite index and the Civic Engagement Index.

As Table 2 indicates, there are statistically significant relationships between the Civic Engagement Index and population (.346**), Facebook link on City website homepage (.270*), total number of Facebook fans (.258*), as well as total number of Fan likes (.248*) and Fan shares (.311*) during December. None of these relationships are surprising, as it was expected to find a correlation between measures of traditional civic engagement and Facebook fan participation measures.

Table 2 also displays the statistically significant relationships between the Social Media Engagement Index (calculated as described in Section 3.1) and commonly accepted social media engagement strategies. Clearly, the presence of a Facebook link on the City's website homepage is important for this index, as it demonstrates a moderately strong relationship. The most notable finding is the strong positive correlation between the Social Media Engagement Index and the total number of City Facebook postings during the month of December (.510**). There is also a moderate positive relationship between the Social Media Engagement Index and the total number of the City's Facebook responses to fan comments (.272*). Finally, there is a negative correlation between the length

of time a City has had a Facebook presence and the Social Media Engagement Index (-.320*).

Among the more interesting findings from the correlations is the lack of statistically significant relationships between traditionally associated variables. For example, there is no statistically significant relationship between population size and the total number of a City's Facebook fans. Furthermore the policy of allowing fans to post content, questions, photos, and/or videos directly to a City's Fan page does not demonstrate a statistically significant relationship with the Civic Engagement Index or the Social Media Engagement Index. In fact, the commonly accepted construct that allowing fans to post and share content does not demonstrate statistically significant relationships with any measures of fan participation.

Linear Regression

Multivariate analysis was the final statistical technique employed. Linear regression was employed as a method to determine the relative importance of specific social media engagement strategies on the Social Media Engagement Index. Using the independent constructs previously noted, the researcher tested the theoretical explanation of social media engagement antecedents against the empirical model generated by the data. The theoretical model (Figure 1) is offered below for consideration.

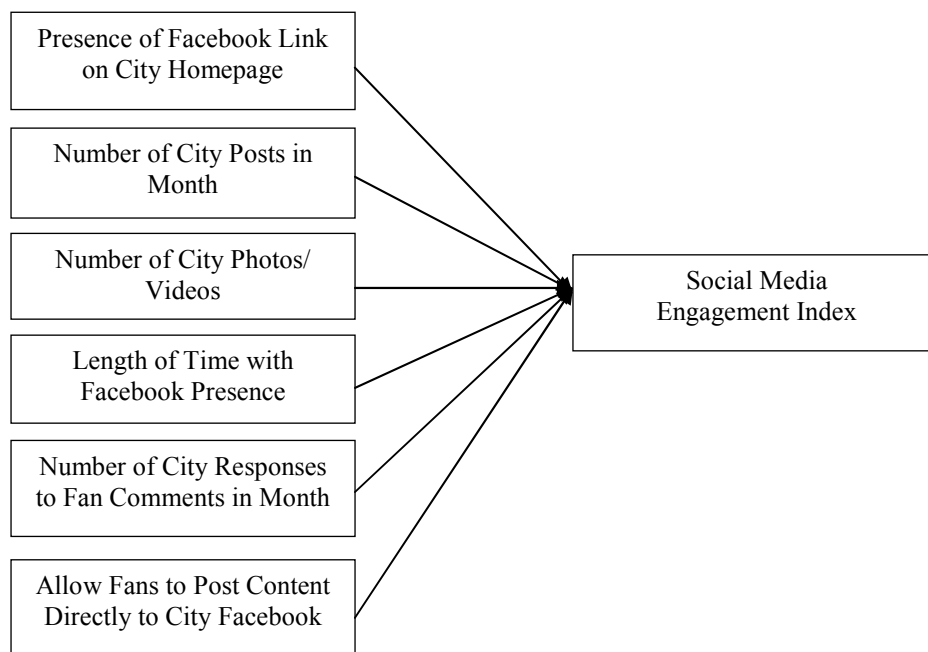


Figure 1: Empirical Model of Research Proposition

The previously specified conceptual model included six commonly accepted practices to increase Fan engagement on Facebook Fan Pages (see Figure 1). However, given the bivariate analysis already conducted, the model was re-specified prior to running the regression. Linear regression was used to determine the relative influence of the four correlated variables noted in Table 1. Then, it was re-specified to a more limited scope to ensure the most parsimonious fit. The final model includes

two independent variables, length of time with Facebook presence and Number of City Postings on Facebook Fan Page in a given month. The model is significant and has an adjusted R-square of 0.282, indicates that the combined variables explain 28.2 percent of the variance in determining whether the Social Media Engagement Index will be affected by the two strategies. Table 3 demonstrates the logistic regression model and statistics.

Table 3: Linear Regression Model

Model Summary					
Model		R Square	Adjusted R Square	Std. Error of the Estimate	
1	.282	.304	.282	.09975	

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.077	.037		2.078	.042
	Length of Time with Facebook Presence	-7.190E-5	.000	-.226	-2.071	.043
	Number of City Posts in Month	.003	.001	.460	4.213	.000

a. Dependent Variable: smengagescore

While the model is useful in predicting the antecedents of the Social Media Engagement Index, only two of the six theoretical strategies derived from the literature were found to be statistically significant. Length of time with Facebook presence and number of Facebook Posts by City (December 1-31, 2012) were included in the final regression model due to their significance. Each of the significant independent variables will be discussed with respect to their relative statistical importance and practical implications.

As the linear regression demonstrates, there are many strategies for engaging Fans on Facebook that do not hold true under strict empirical analysis. One strategy that clearly matters is the role of routine City posting to its Facebook page. This effort is the single greatest predictor of the Social Media Engagement Index score and is consistently with prevailing scholarship and practical application. By providing fresh content on a regular cycle, the City can ensure that its fans will review that content, take action related to such content (i.e. like, share, or comment on said content), and that action leads to increased attention by friends of those fans, who may choose to become fans themselves. This “friend of a friend” effect is the basis for effective social media engagement and should be leveraged by governments and private organizations alike.

Furthermore, the regression model demonstrates that there is a slight negative bias against organizations with long-standing Facebook presence, in terms of the Social Media Engagement Index. This bias may exist because of a City’s lack of continued social media engagement strategies, or it could simply be evidence of Facebook fatigue by early adopters. Future research will assess the associated causes of this finding to determine if there are mitigation strategies which can be employed by local jurisdictions. In addition, future research will test the newly specified model with data collected from other cities of varying population sizes and with varying demographics as a means of controlling for attributes unique to the seventy-five largest US cities.

CONCLUSION AND FUTURE RESEARCH

Social media usage has substantially increased in the public sector over the past five years. As governments move to this new medium of communication and engagement, little attention has been paid to its impact on citizen engagement. This study highlights the importance of active participation by the government, leveraging the two-way communication features of Facebook, to increase citizen participation and engagement in online

government channels. The study demonstrates that two-way, responsive engagement by the government leads to greater levels of citizen participation, measured as fan comments and likes, on the government's Facebook site, as well as increases the fan base of the site.

Beyond broadening the knowledge base surrounding citizen engagement via social media channels, specifically Facebook, this paper specifically addresses issues related to social media engagement strategies and their relative return on investment. Based on this work, there are demonstrated results relative to increased fan participation when governments engage in regular, frequent communication via postings on Facebook Fan pages. It is also evident that the decision to allow fans to post content directly to a government's page does not impact the engagement of those fans, and therefore is not an advisable strategy, which runs counter to many prevailing social media consultant recommendations. Finally, the presence of a Facebook link on the City's website homepage is a critical first step to driving traffic and fans to the Facebook page. This simple decision makes the connection process seamless for the potential fan, and without that connection, searching Facebook for an official governmental page proves to be quite burdensome.

Upon reflection of these results, there is a need for future research to understand the purposefulness and strategy employed in the active engagement of citizens via social media sites. Probing questions, such as "Does the use of social media and digital civic engagement positively impact citizen perceptions of their communities?" should be investigated. Evidenced by the commonalities between the City Facebook pages, questions of the degree of tailoring and thoughtful application of such pages to targeted audiences are raised. Additionally, while this research examines how cities current use of Facebook pages for citizen engagement may be impacted by the strategies they employ, there are a range of additional citizen engagement and return on investment related questions pertaining to the use of and extent to which such sites add value, which should be considered within the new context of social media and its ever evolving nature.

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