

Government–Citizen Engagement on Social Media: Sentiment Analysis of Facebook Data

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ABSTRACT

With the advancement of new technologies, internet is the core necessity of today's world. The advent of social media proved to be the most effective medium for conveying information quickly to masses. It is important for governments to keep pace with latest technologies to connect with the public. Social media is an effective tool for democratic countries to engage public and encourage their participation in feedback which helps in making decisions. The core objective of this research is to know the engagement and response of citizens towards Pakistani government activities through Facebook and to know the public response on government posts. The study involves both qualitative and quantitative method. Sentiment analysis of public response on government posts is performed on Facebook. The findings interpret low engagement of public on posts by Pakistani ministries and mixed sentiments are given through comments by citizens who involved more criticism. The study recommends new direction for researchers to conduct and expand researches in future.

Keywords: Government Ministries, Social Media, Public Response, Facebook.

Introduction

Facebook as a Social Platform for Government

Facebook is social networking platform which was launched on February 2004 by Mark Zuckerberg. It provided a new way of communication and interaction as anyone with internet access could benefit from this. Facebook is known for both personal and professional use as it allows forming pages, groups and private accounts with various features (Hassan *et al.*, 2019; Shabir *et al.*, 2014). According to Facebook statistics in 2020, Facebook is one of the most visited websites in the world. It had more than 2.7 billion users according to stats (Clement, 2020, August 10). This effective medium for socialization the Facebook got popular worldwide in very short time. Facebook has various options such as users can form specific/closed groups of similar interests (Safdar *et al.*, 2018b; Safdar *et al.*, 2015). The group participants have freedom to communicate freely in the mini-forum dialogue. Through the group's users can add "Events" to invite anyone to meetings or specific events (Jung & Sundar, 2016). In the same way Facebook allows people, business and notable personalities to form "Pages" which people like and follow according to their interests (Safdar *et al.*, 2016; Safdar *et al.*, 2018b).

Government organizations and personalities started joining Facebook as an official medium to reach citizens regarding their opinions and attitudes about different matters. It is an easy medium to interact directly with people as compared to other traditional mediums (Shabir *et al.*, 2014a; Safdar *et al.*, 2018a).

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There are over one billion Facebook users globally and authorities are doing intensive efforts to utilize Facebook's ability to address social issues by considering it as a civic communicative tool (Warren *et al.*, 2014). Facebook allows users to post information in variety of formats which includes photos, videos etc. The visual social platforms i.e., Facebook, Instagram and Snapchat have many potential benefits for local governments to share visual information and projects in different ways (BDO, 2015; Shabir *et al.*, 2015).

According to a study in the U.S, citizens prefer posting on Facebook page about political concerns rather than signing an e-petition about the matter (Bertot *et al.*, 2012; Shabir *et al.*, 2015a) As Facebook gives many options to its users to respond, comment and react to posts it improves civic engagement and feedback (Hamid and Ali, 2021).

Facebook shows higher engagement levels of public with local governments, particularly when posts are promoted by public (Reddick *et al.*, 2017). Governments learn public reaction through their direct feedback and modify their policies and actions accordingly. In the same way public learns about government initiatives and work through this platform which makes them informed, moreover this effects their behavior towards government activities (Alam *et al.*, 2021; Ullah *et al.*, 2021). This loop of civic participation results in enhanced public service quality.

In Facebook and blog messages have no limited words length. Therefore, Facebook is more suitable for in-depth discussions and for posting lengthy press releases while Twitter provides a word limit in a tweet, hence allows posting in the form of short message for information dissemination.

Rationale of Study

This study aimed the role of social media in engagement of government and citizens. In the past, traditional mediums were used by government to reach public but it didn't allow feedback in return. With the advent of social media feedback and response is now possible by citizens towards government activities. Pakistani government is now using social platforms i.e., Facebook to reach public. This platform allow public to respond to government initiatives and various issues. It is an effective way for government to know citizens feedback and perform accordingly. Facebook has become a platform that is easily accessible to anyone with internet access which allows governments to use this platform to maintain relationship with citizens and increase their level of engagement and participation.

The researcher conducted this research to facilitate government and public to know the role of social media. The researcher found very less research on this topic in Pakistan. This study proves very beneficial for execution of e-government, to know the services provided by social networks i.e., Facebook which is a new way for interaction and gaining insights of citizen's perceptions and opinions on various issues.

Problem Statement

In modern era, social media has become an effective tool for interaction. It is necessary for governments to cope up with latest technologies to communicate with public. This research study explored that how government ministries are using social media like Facebook to inform the public regarding various initiatives and issues. It will elaborate that how citizens actively participate and what is the response of citizens on government posts.

Objectives of the Study

- To explore popularity of Facebook among citizens.
- To explore the nature of response by citizens on government posts.
- To find the preferred post type by government for postings.

Research Questions

RQ1: What is the nature of response by citizens on government posts?

RQ2: Which type of post is preferred by government for postings?

Hypothesis

H1: Citizens are more likely to criticize on government issues as compared to appreciation.

Literature Review

Mishaal and Abu-Shanab (2015) study know the impact of using social networking sites by government for communication. The study discovered the importance of using social media by government and proposed model for effective communication over Facebook. Karakiza (2015) social platforms can contribute to the renovation of government administration to a new efficient plan that helps in number of factors which includes participation of public in civic affairs and services, engagement between government-citizens and transparency of government activities. Aladalah, Cheung and Lee (2015) The citizen satisfaction is an important aspect which influences public participation and also promotes relationship between satisfaction and empowerment. Twitter and Facebook are those platforms which appear convenient for government agencies. Grujic, Bogdanovic-Dinic and Stoimenov (2014) elaborated that Facebook is a modern medium of communication which allows new ways to share information for people. This social media platform increases the level of e-government and citizens interaction by its optimal use. Liu et al. (2015) Governments can gain public attention on Facebook by its effective use. Lappas et al. (2017) investigated that municipalities in Greece are using Facebook for engaging citizens online. Governments in Greece are active on posting content through Facebook which is liked and shared but has very fewer comments by citizens.

Research Methodology

The study was based on sentiment analysis and an archival study. It was quantitative as well as qualitative. Data was collected from Facebook. In qualitative method, nature of response was analyzed to see whether the post by government ministry on social media received positive, negative or neutral response by the citizens. In quantitative method, total numbers of posts on Facebook was calculated along with number of likes, reactions, comments and shares.

Independent Variable

Number of Government Posts on Facebook was independent variable of this research study. It included the social media postings by two Government Ministries of Pakistan.

Dependent Variable

Citizen's response on government posts was dependent variable of this research study. It included public likes, reactions, comments and shares.

Operationalization of Variables

Quantitative Operationalization:

Government Departments: Facebook pages of

1. Ministry of Planning, Development and Special Initiatives
2. Ministry of Human Rights

Number of Government Posts: The total number of government posts on Facebook types;

- Picture
- Video
- Text
- Link

Citizens: The citizens who are responding to posts by government on social media through:

- Likes

- Reactions (Love, Haha, Sad, Angry and Wow)
- Shares
- Comments

Qualitative Operationalization: Citizens responses via comments on Facebook posts were monitored.

1. ***Positive:*** Appreciative reaction by public on Facebook posts.
2. ***Negative:*** Critics by public on Facebook.
3. ***Neutral:*** The feedback which is neither positive or negative or mixed on Facebook posts.

Limitations of Study

This study selected two ministries of Pakistan for monitoring their social media presence and their level of engagement with public. Two ministries out of thirty-four federal ministries of Pakistan were selected based on their Facebook presence and followers as many ministries of Pakistan still don't have official pages on Facebook. The study covered six-month period for analyzing the posts of the Ministry of Planning, Development and Special Initiatives, and the Ministry of Human Rights. The study monitored Facebook, the most preferred mediums for communicating with citizens.

Research Design

The research study used mixed method which involves both qualitative and quantitative method. It was a census study of government posts for six months (1st July 2019 – 31st December 2019) on official pages of two Pakistani ministries on Facebook. Data was collected manually and by using web scrapper tool Octoparse. Sentiment Analysis used to monitor citizen's response on posts. The statistical results and sentiment percentages exhibit the response of citizens and their engagement. The sentiment in comments were analyzed and characterized into Positive, Negative and Neutral.

Sentiment Analysis

Sentiment analysis is a technique to find sentiments behind a message. The opinions and emotions are characterized into positive, negative and neutral. It is a text analysis method to monitor the response of audience. In this research the sentiment analysis was performed on response of public at government posts via official accounts of ministries on Facebook. The results depict the sentiments and attitude of public towards government posts related to various projects and initiatives.

Study Area

The current research study was focused on social media and official pages on Facebook of two Pakistan federal ministries are selected for the research. The selected ministries were:

1. Ministry of Human Rights
2. Ministry of Planning, Development and Special Initiatives

Population of the Study

The posts of federal ministries on social media via official pages on Facebook were population of the study.

Population Time Frame

It includes six months posts from 1st July 2019 to 31st December 2019 on Facebook by two federal ministries of Pakistan. It was a census study which involved all posts within the time frame.

Research Tool

The current research study was archival and data was collected from all posts which were posted by selected ministries in six months' time frame. The data was collected from official pages of Pakistani

ministries on Facebook using web scrapper tool Octoparse and comments were observed. The collected data included number of likes, shares, reactions and comments on all posts.

Data Collection

Data was collected of six months from 1st July 2019 to 31st December 2019 manually and by using web scrapper tool Octoparse to find public response. The data collection was challenging and lengthy as it included all types of posts from selected federal ministries on Facebook.

Quantitative Data: The total number of government posts and total number of likes, reactions, shares, and comments.

Qualitative Data: Nature of comments by the citizens i.e., Positive, Negative and Neutral

Positive: The comments in the favor of post.

Negative: The comments which were against the post.

Neutral: Comments having mixed response which were neither positive nor negative, also the comments which included requests and suggestions.

Coding

Coding sheets was formed having statistical data of citizen's response on ministries posts for Facebook.

Data Processing

The results of the current study presented in the form of tables and figures after analysis of coded sheets.

Data Analysis

Quantitative Analysis of Government Posts (July – December 2019)

Table 1 - Facebook Page of Ministry of Human Rights

Total no. of Posts	Post Type			
	Picture	Video	Text	Link
39	21 (54%)	9 (23%)	0 (0%)	9 (23%)

Table 1 is a quantitative analysis of government posts on Facebook official page of Ministry of Human Rights along with post types. It includes total number of posts by ministry from July to December 2019. Posts with pictures are mostly used for postings on Facebook by ministry.

Table 2 - Facebook Page of Ministry of Planning, Development and Special Initiatives

Total no. of Posts	Post Type			
	Picture	Video	Text	Link
320	266 (83%)	30 (9%)	15 (5%)	9 (3%)

Table 2 is a quantitative analysis of government posts on Facebook official page of Ministry of Planning, Development and Special Initiatives along with post types. The table constitutes total number of posts by ministry from July to December 2019. Posts with pictures are greatly used for postings on Facebook by Ministry.

Quantitative Analysis of Citizen's Response

Table 3 – Number of Followers

Total number of followers on official pages	
Ministry of Human Rights	Ministry of Planning, Development & Special Initiatives
18,290	43k

Table 3 shows the followers count on official pages of Twitter and Facebook of both ministries.

Table 4 - Facebook Page of Ministry of Human Rights

Total no. of Comments	Total no. of Likes	Total no. of Reactions	Total no. of Shares
159 (8%)	1155 (58%)	89 (5%)	587 (29%)

Table 4 is a quantitative analysis of citizen's response on Facebook page of Ministry of Human Rights. It includes total number of comments, likes, reactions and shares by public on government posts from July to December 2019. The public responded more through likes on posts.

Table 5 - Facebook Page of Ministry of Planning, Development and Special Initiatives

Total no. of Comments	Total no. of Likes	Total no. of Reactions	Total no. of Shares
116 (5%)	1758 (77%)	141 (6%)	258 (12%)

Table 5 is quantitative representation of citizen's response on Facebook official page of Ministry of Planning, Development and Special Initiatives. It includes total number of likes, comments, reactions and shares by citizens on government posts. It is seen that public highly responded through likes on the posts.

Qualitative Analysis of Citizen's Response (July – December 2019)

Table 6 – Sentiments on Facebook

Facebook - Ministry of Human Rights							
Comments				Reactions			
Positive	Negative	Neutral	Love	Haha	Wow	Angry	Sad
46 (19%)	22 (9%)	91 (38%)	56 (24%)	3 (1%)	3 (1%)	1 (0.4%)	16 (7%)

Table 6 represents the sentiments of public on government posts through comments and reactions via Facebook official page of Ministry of Human Rights. The percentage depicts that posts received more neutral comments and love reactions.

Table 7 – Sentiments on Facebook

Facebook - Ministry of Planning, Development & Special Initiatives							
Comments				Reactions			
Positive	Negative	Neutral	Love	Haha	Wow	Angry	Sad
14 (6%)	66 (26%)	36 (14%)	137 (53%)	1 (0.5%)	1 (0.5%)	0 (0.0%)	0 (0.0%)

Table 7 represents the sentiments of public on government posts on Facebook page of Ministry of Planning, Development and Special Initiatives in the form of comments and reactions. The percentages represent that posts received more negative comments but in contrast they received more love reactions too.

Table 8 – Collective sentiments on Facebook

Ministry of Human Rights and Ministry of Planning, Development & Special Initiatives							
Comments				Reactions			
Positive	Negative	Neutral	Love	Haha	Wow	Angry	Sad
46 + 14 = 60 (12%)	22 + 66 = 88 (18%)	36 + 91 = 127 (26%)	56 + 137 = 193 (39%)	3 + 1 = 4 (0.8%)	3 + 1 = 4 (0.8%)	1 + 0 = 1 (0.2%)	16 + 0 = 16 (3.2%)

Table 8 represents the collective sentiments expressed by public on Facebook posts of both ministries from July to December 2019. The percentages show that posts received more mixed response hence more “neutral” comments. The public responded more with “love” reactions on posts.

Sentiment Analysis of Facebook

The sentiments received on Facebook through comments showed more “neutral” response by citizens as represented. The comments involved mixed response which included suggestions, inquiries and requests towards government. Negative comments are second most received on posts and positive comments stand last according to final percentage. The Facebook reactions are also analyzed to know sentiments of public and according to “Love” reactions are received more on posts by both ministries.

Findings of Research Questions & Hypothesis

It is found that the response on Facebook was more neutral which contained comments expressing requests, suggestions and mixed opinions by public on government posts. The comments criticized government officials on their work, also wrote various requests for Ministry of Human Rights and suggestions for Ministry of Planning, Development and Special Initiatives.

The government ministries preferred “Picture” post type the most for social media postings on Facebook. Pictures have simple and easy details which attracted public response. After “Picture” post type, the “Link” type is mostly used by government.

The findings support this hypothesis as citizens gave more negative feedback on social media specifically. The public criticized government activities and the posts related to international matters received criticism from non-citizens too.

Discussion

With the advent of social media, the online interaction has become a norm. Public communicate through social platforms easily. It is an effective platform for government authorities to reach citizens and attain communication success (Mishaal & Abu-Shanab, 2015). Though social media platforms are of great importance for engagement and civic participation but the governments are still slow in keeping pace and are not using this to its full effectiveness. Cummings (2017) stated that challenges are faced by governments for the implementation of social media effectively. One of the great advantages of social media involves two-way communications which allows public to respond to government activities. Elvira et al. (2014) concluded that e-government fosters citizen engagement which results in good governance. The importance of social media for government is a growing trend for researchers to explain its benefits and challenges. Magro (2012) stated that new modes of communication are changing rapidly and governments lag behind to keep up with information age. Moreover, the government should acknowledge these barriers and work towards overpowering the issues. The popular social platform for socialization is Facebook which allow fast information exchange during different natural events and disasters. Hence keeps public updated and helps in decision making (Kapoor et al., 2017). The government departments must have social media presence by having official accounts. Verma, Kumar and Ilavarasan (2017) state that many government departments don’t have social media pages to update citizens regarding government activities and proper strategy is missing to address the requirements of present and future. The online platforms provide an easy way to know the sentiments and opinions of public. Government authorities learn needs and wants of public through their feedback. Sentiment analysis is modern approach to understand the emotions and thoughts of citizens (Alqaryouti et al., 2019). The same findings are supported in this study and the technique of sentiment analysis is used to know the opinions of citizens towards Pakistani government ministries. The public expressed sentiments i.e., positive, negative and neutral on official pages of Facebook through comments on the posts of ministries which reflected the perspectives of citizens on government initiatives and activities.

Conclusion

The study concluded that Pakistani government pages of social media have less engagement with public and citizens didn't respond very actively to government posts. Fewer comments found on the posts of ministries. Also, very few ministries of Pakistan have official social media presence and many do not post actively to attract response. The results indicate that the Facebook has been preferred medium by Pakistani citizens for response to any post. The public gave mixed response which included appreciation, criticism, suggestions and requests to government activities on Facebook. Hence by examining the sentiments of citizens collectively, more negative sentiments are observed. The government authorities didn't reply to comments containing queries and requests resulting in inefficient two-way communication. It is concluded that the Pakistani government departments are now acknowledging the importance of social media so they are moving towards these platforms to update public regarding projects and initiatives. They are gradually adopting the modern approaches which can result in greater government-citizen engagement in the future.

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Conflict of Interest

Author has no conflict of interest.

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CODING SHEET FACEBOOK

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