

# Participation and Strategic Communication of Saudi Food Banks through Twitter to Enhance Food Waste Awareness among Saudi Arabian Citizens

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**Abstract**—Twitter is a platform service that has quickly risen to prominence as the social media platform most preferred for strategic communication campaigns. It is used by most of the Non-Profit Organizations (NPO) in Saudi Arabia, making it the most popular social media platform in the country. Non-Profit Organizations (NPOs) use Twitter to raise awareness of social issues and to communicate with stakeholders. Despite the features Twitter has recently introduced, this paper investigates how NPOs (Foodbanks) in Saudi Arabia use Twitter to raise awareness of food waste, as well as their posting behaviour over a two-year period. By the end of the research, we were able to provide a framework for using Twitter which new or existing NPOs can adopt, as well as helping NPOs (Foodbanks) to recognize and become aware of the impact of Twitter.

**Keywords**—Awareness, food banks, food waste, Saudi Arabia, social media, Twitter,

## I. INTRODUCTION

SOCIAL media technologies such as Twitter have rapidly become an essential marketing and communication tool for institutional sectors, private companies, and NPOs worldwide. They help to promote their organizational mission, vision, action, publications, events, and initiatives. This simple yet effective posting can result in prompt awareness of an environmental incident and a timely response from the various agencies responsible for the environment [1].

“Social media” is a buzzword that signals an organization’s ability to reach its audience. In the non-profit sector, the use of social-media technologies such as Twitter have enhanced and increased the communication and engagement strategies available to NPOs [2]. Twitter is one of the most popular social platforms in Saudi Arabia. Moreover, Saudi citizens comprise 40% of total Twitter users in the Middle East and North Africa (see Fig. 1), and females constitute 51% of Saudi users [3]. In addition, the number of users on Twitter in Saudi Arabia rose by 80% between 2013 and 2015 [3].

## II. MATERIALS

Alshammari [4] collected data on the volume of activity and interaction in the Twitter accounts of foodbanks and other institutional charities in the KSA. A total of 657 Twitter accounts were identified as the primary sample. These accounts were manually classified according to organization and the nature of their activity (Fig. 2). The Twitter API was used to

fetch account and tweet data for the period from 2015/16 January. Approximately 300,000 tweets published during the year were collected and analysed. Alshammari found that foodbanks were the most inactive NPO in the Kingdom of Saudi Arabia (KSA) during 2016 (see Fig. 2) [4].

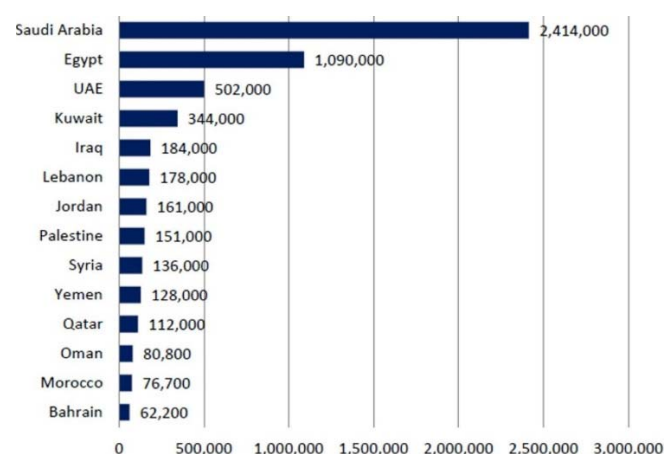


Fig. 1 Number of Active Twitter users in the Arab Region [1]

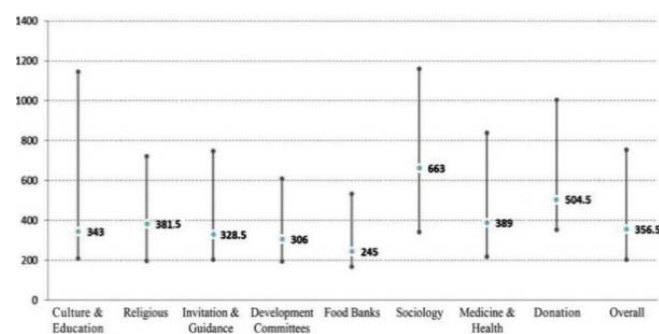


Fig. 2 The level of activity of NPOs on Twitter in Saudi Arabia

Many studies suggest that social-media applications create leverage for core non-profit functions such as stakeholder communication and advocacy, building networks (collaboration), communicating with the public, service delivery, and fundraising and donor engagement [5]-[7]. The goal of most NPOs is to fulfil their social mission by adding some form of public value. One way in which they go about meeting this objective is by making strategic choices related to

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communication which they utilize in order to create mission awareness [8]. Furthermore, Waters and Jamal indicate that raising awareness of the purpose of an NPO will benefit the organization by increasing the number of donations, volunteers, and program participants [9]. Thus, social media provide NPOs with the necessary platform to spread the word about their mission and goals. Because technology proliferates every aspect of doing business, the need to use social media in order to reach a large audience cannot be overstated.

### III. METHODS

Taking a social constructionism epistemological position, we explored the meanings of the culture, religious values, and language being used by NPOs and the people targeted when replying to the organizational content on Twitter. Aligned with the qualitative research methods employed, this approach involved extracting comments from Twitter in order to understand what type of language is being used to influence other Twitter users with regard to food wastage. However, through the extraction of tweets and retweets, we would not be able to interact with the participants. Therefore, in-depth semi-structured interviews were conducted with the participants to answer the ‘why?’ and ‘how?’ questions that led to the development of a contextual framework based on the overall data. Thematic analysis is commonly employed to analyse qualitative data as it helps in developing themes on the basis of different codes. Consequently, at a later stage, we interpreted the results on the basis of themes and quotes that came to hand which we believed allowed for the development of the contextual framework.

The major purpose behind the extraction of the comments was to help understand the role of different words in creating a social impact on the Twitter users. Additionally, it was helpful in elucidating the organizational efforts being made to socially influence Twitter users in an attempt to reduce food wastage in Saudi Arabia.

We analysed the Twitter accounts of four NPOs that work in the food waste area (Saudi Food Banks) over a period of 2 years - 2019 to 2021. The data were gathered one year before the pandemic and one year after the pandemic. However, the major focus of this research was not the effect of the pandemic and subsequent social interactions in the context of food wastage. Therefore, the pandemic was not particularly relevant to the context of the study. Additionally, we also tried to identify differences in social media users’ views before and during the pandemic but was unable to find any. Consequently, we did not include the pandemic context in this study.

We conducted 5 interviews with the experts and decision-makers working in these organizations as a preliminary study for a more ambitious piece of research. Among the expected results were a platform for new or existing organizations that explain how Twitter is used, and will help NPOs learn about the impact of social media on their work, the critical factors to focus on, and how interested users can learn about NPOs and make best use of Twitter.

Analysing the data using a thematic analysis, different codes and categories were identified which could be interpreted at a

later date. Social impact theory was used to interpret the results of the thematic analysis to develop a final conceptual framework based on the findings and illuminate the practical underpinnings of the data.

### IV. RESULTS

TABLE I presents the activity of different organizations when using Twitter. The major reason for selecting these four organizations was all were involved in reducing food wastage in Saudi Arabia. Therefore, the selection was based on the main objectives of the organizations and the fact they were located in Saudi Arabia. This would help the researcher to understand the same context in detail through consideration of these organizations’ data on Twitter. The first organization (Ekram\_Mekka) generated a total of 1598 tweet retweets and replies. Manual reading indicated that they were simply replying and sharing their activities. However, there was a lack of attention being paid to creating awareness among the public in order to reduce food wastage.

TABLE I  
 THE NUMBER OF TWEETS, REPLIES, AND RETWEETS OF 4 FOODBANK ORGANIZATIONS IN SAUDI ARABIA

Account	Reply	Retweet	Tweet	Total
Ekram	552	138	908	1598
Flw_saudi	0	120	116	236
Ettam	382	672	1374	2428
shukaseer	171	526	745	1442
Total	1105	1456	3143	5704

Saudi Food Bank was found to be an active organization in terms of communicating with the public on Twitter with regard to food wastage. Overall, there were 2428 tweet/retweets and replies on Twitter. This shows that the number of fields retweets, applies and quantity is not important to claim which organization is the most active on Twitter. However, most attention was paid to which food bank organization is more actively involved in creating awareness among the public in an attempt to reduce food wastage among the Saudi public.

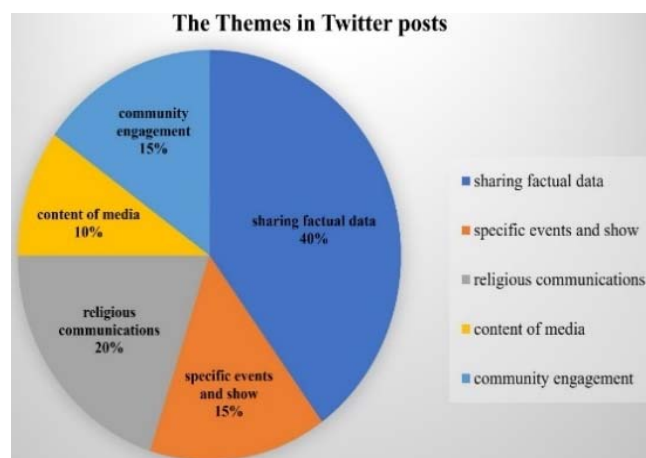


Fig. 3 The major themes developed during the thematic analysis

Fig. 3 presents the major themes that were developed during

the thematic analysis of the tweets extracted from the Twitter pages. A metric analysis of these tweets and the subsequent number of retweets and replies led to the identification of five major themes: 1. Sharing factual data; 2. Specific events, 3. Religious communication and persuasion, 4. Content of media, 5. Community engagement.

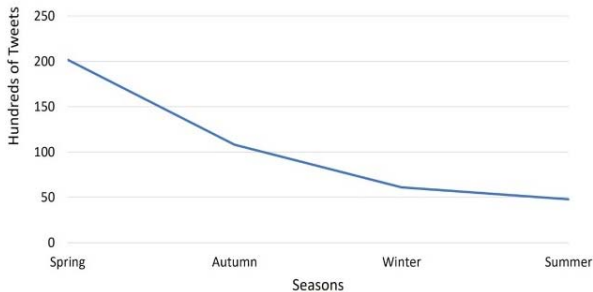


Fig. 1 Level of engagement during seasons

We also discovered a correlation between seasonal changes in Saudi Arabia and the kinds of conversations that take place on Twitter about the country's food waste crisis. There are a variety of preferences throughout the year, as shown in Fig. 4. Therefore, the social interaction of social media users with regard to food wastage is also different. Consequently, we can conclude that different types of food are consumed in different seasons. This means that different opinions are expressed at different times of year with regard to these types of food. As Fig. 4 shows, there is a greater degree of sharing and tweeting and retweeting in spring, and a decline in summer. Therefore, there is more potential to create awareness in spring, and less potential in the summer season. However, these results are only based on two years of Twitter replies, which also took place during the COVID-19 pandemic. The difference in the number of tweets in different seasons could be based on the consumption of different foods. Another possible explanation is that users in that region simply do not have the resources available on social media to engage in meaningful conversation about social issues, so they spend more time in the field.

TABLE II  
 ILLUSTRATION OF AWARENESS-RELATED CONTENT

Theme	No. of tweets	No. of Likes, Retweets
1	5	7185
2	8	697
3	80	597021
4	11	79
5	141	432992
6	22	374026
7	82	5650
8	99	2321

Table II presents the number of themes and likes. The table shows the first theme that was developed based on data analysis. The different content was selected on the bases of the number of likes and retweets. This indicates the importance of the content on Twitter. As shown, five tweets and 7185 likes

related to the first tweet reveal the importance and social intention of Twitter users regarding this theme. The 8th theme has 2321 likes on Twitter. Thus, Table II shows how different themes have been developed on the basis of the importance of the different content that has been liked and retweeted by Twitter users. Of more interest is that it also shows how different views received varying amounts of social intention attraction and exerted differing degrees of influence on the different type of tweets shared by different organizations. Therefore, when developing the themes, the social impact of these tweets was considered. This is why the number of likes received with regard to the selected tweets are also presented in Fig. 4.

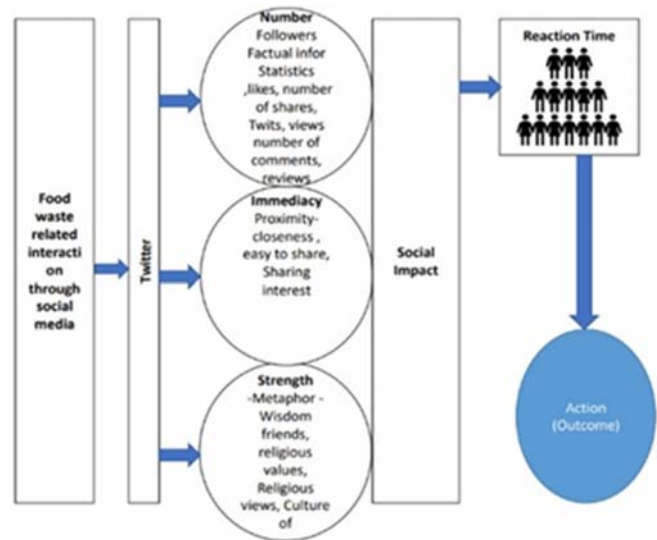


Fig. 2 Proposed Model

As noted previously, this research is based on a social constructionist epistemological position. Therefore, it was necessary to understand the different realities underlying the social impact with regard to reducing food wastage in Saudi Arabia. This involved constructing the social realities that are based on the language and local social cultural values in such a way as to ascertain the development of the social impact on Twitter users in Saudi Arabia. Additionally, social practice theory provides cues to develop this framework though its radical lens. This is why the overall framework has been divided according to the major elements of this theory, which includes strength, immediacy and numbers. Therefore, the first major contribution of this framework is the application of social impact theory in a real context related to reducing food wastage in Saudi Arabia. Additionally, the framework makes a contribution to the literature in terms of performing a social impact assessment with regard to social media users in terms of reducing food wastage in a specific country.

Because the theoretical underpinning of this research is based on social impact theory, the interpretation and development of the final framework was also based on this theory [10]. Moreover, the social constructionist position was embedded in the framework by incorporating the five themes into the three

major elements of social impact theory. The major purpose in developing this framework was to formulate an effective social impact approach aimed at exerting an impact on local society with regard to the food wastage issue in Saudi Arabia. Thus, the five major themes identified could help to exert such an impact.

As per the above model, there are three major elements that are based on social impact theory. It is helpful to view them as a theoretical guideline to exert a social impact on society. The three elements have been aligned with the findings of this research, linking the numerical results to factual information. The number of likes, shares, and tweets can all determine the extent of social influence on the public in terms of the content shared. Furthermore, the immediacy of social media users with each other in terms of the number of likes, retweets, and replies, in addition to the immediacy in everyday social interaction, can also be used as a form of social impact to influence people regarding the food wastage issue in Saudi Arabia. The third major factor related to social impact theory was aligned with the wisdom of friends, religion, crowds, and culture as positive and negative factors in an attempt to understand the root causes underlying food wastage. Therefore, in order to make a positive impact on the Saudi public, the involved organisations should tap into the collective intelligence of the populace so that people in Saudi Arabia begin to appreciate and discuss the issue of food waste. At the same time, it would also be right and effective to use the number of likes, and the number of shares of different videos, to determine how people are appreciating the reduction in food wastage in Saudi Arabia. This would serve to increase social impact in such a way as to deal with the issue as an immediacy factor.

#### V. DISCUSSION

There are two major contributions of this research, both theoretical and practical. The theoretical contribution of this research is to update social impact theory. The aim of this research was to understand how different social media users are impacted on while interacting on social media. Consequently, we paid particular attention to understanding how the social impact has affected different social media users through their interaction. An understanding of this would help organizations exert a positive social impact on the general public to reduce food wastage. Therefore, the final framework clarifies the effect of social impact which in turn enables us to deal with such social issues as food wastage. Moreover, the framework developed can be applied to deal with different types of social issues in different societies, thereby making a real theoretical contribution.

The practical contribution of this research lies in the pragmatic outcomes it has generated. In future, organizations in Saudi Arabia that want to deal with food wastage can use this framework as a guideline to deal with the issues. Specifically, they can use the three presented elements as influencing factors. Thus, the immediacy, numbers, and strengths of the content can be utilised to generate a social impact on society in order to reduce food waste. This is the major practical contribution of this research.

#### VI. CONCLUSION

The primary purpose of this research was to investigate the ways in which Saudi foodbanks utilised Twitter to raise awareness and cut down on food waste. In addition, the study investigated the impact Twitter has had on the discourse surrounding the issue of food waste. Adopting a qualitative approach, data were gathered through a total of 16 semi-structured interviews along with the Twitter posts made by foodbanks. To analyse the data, a thematic analysis was carried out.

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#### DISCLOSURE STATEMENT

No potential conflict of interest was reported by the author.

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