Drivers of Twitter as a strategic communication tool for non-profit organizations

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Abstract

Purpose – In view of the increased impact of social media, non-profit organizations (NPOs) should review their management model for stakeholder relationships. The purpose of this paper is to analyze the influence of factors on the use of Twitter by NPOs as a mechanism for disclosing information and dialogue with their stakeholders, and in particular: "donor dependence," "fundraising expenses," "organizational age," "organizational size," "online community size," "network activity" and "board size."

Design/methodology/approach – A content analysis of Twitter use as a strategic communication tool was conducted and a multivariable linear regression analysis was performed.

Findings – Smaller organizations and those with a larger online community are the most interested in implementing Twitter as a one or two-way communication strategy. Likewise, the NPOs with the highest degree of donor dependence strive most in the use of contents of Twitter as one-way communication mechanism.

Social implications – This study contributes to a better understanding of social media implementation in the NPO sector and advances the identification of the main causes that motivate NPOs to improve their accountability through social media.

Originality/value – The paper's subject is relatively innovative due to the scarce studies focussing on social media used by NPOs. In spite of the advantages offered by Twitter, few studies have specifically addressed NPOs' current use of this platform, and fewer still have analyzed the factors that motivate them to use this tool.

Keywords Social media, Twitter, Communication, Social networks, Non-profit organizations

Paper type Research paper

1. Introduction

Online communication is considered to be a strategic resource for the success of non-profit organizations (NPOs) (Lee *et al.*, 2001; Lovejoy and Saxton, 2012). In particular, it is a very useful tool for carrying out the social actions of NPOs such as community building (Briones *et al.*, 2011), advocacy work (Saxton and Guo, 2012) and development (Kurniawan and Rye, 2013). In addition, it fosters the better functioning of the organization in activities such as public relations (Kang and Norton, 2004; Waters *et al.*, 2009), the recruitment of volunteers (Briones *et al.*, 2011) and fundraising (Gandía, 2011).

With respect to the new models of online communication social media is highlighted (Boyd and Ellison, 2007). Overall, there is a growing use of such technologies, as through them, organizations provide their stakeholders a place to exchange opinions and thoughts, resulting in an excellent source of information to "predict" societal behavior (Schoen *et al.*, 2013; Jungherr and Jürgens, 2013; Kalampokis *et al.*, 2013). These are very helpful for the NPO sector as they provide a new efficient and effective strategy for obtaining relevant information, via stakeholders' comments, allowing them

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to improve decision making and to reinforce the engagement and loyalty of their stakeholders (Waters and Lo, 2012).

Among the existing social media, there is an increased use of Twitter by NPOs (Guo and Saxton, 2014). This tool is defined as a short message service, or "micro-blogging" application, that allows users to broadcast real-time messages of up to 140 characters (Castillo *et al.*, 2013). The usefulness of Twitter in the NPO sector has been evidenced by authors like Guo and Saxton (2014) who, via their analysis of advocacy NPOs from the USA detected that Twitter was a very effective tool for educating the public on topics related to the NPO's mission. In addition, Briones *et al.* (2011) performed a study on the international NPO, "American Red Cross," concluding that Twitter is considered very useful for engaging and developing relationships with key publics, for improving the organization, for coordinating in emergency situations and for obtaining feedback from all NPO stakeholders.

Regarding the studies that compare the advantages most remarkable among the most popular social media, results indicate that Twitter is used more frequently than Facebook for sharing information (Hong and Oh, 2010). Moreover, although both are oriented to promote social interactions, Twitter fosters daily interaction more so than Facebook as it presents a simpler user interface, greater openness toward the public at large and a more conversational interaction that makes it ideal to be used not only via desktop computers but also via other handheld devices such as mobile phones (Kwon *et al.*, 2014). Hence, it could be considered that Twitter can provide better guarantees to NPOs in meeting the expectations of their stakeholders with regards to keeping them continuously informed and enhancing relationship building with them.

However, according to McCarthy *et al.* (2014) the adoption of social media alone does not guarantee a positive effect on an organization's image and performance; aspects such as the content of social media are crucial to maintain interest and engagement in the organization. Furthermore, such authors noted that one of the main concerns of the organizations is how social media content should be implemented, as an inappropriate management of social media could prejudice the organization's communication strategy. Moreover, as the use of websites is influenced by both internal and external factors (Gallego-Álvarez *et al.*, 2011), several authors, including Liu *et al.* (2012) and Gulati and Williams (2013) highlight the need to identify the factors that may facilitate or hinder the use of social media.

Despite the importance of understanding the content and determining factors that contribute to the information disclosed on Twitter, there remain few studies that specifically examine this issue (Li and Li, 2014). In the case of the NPO sector, most studies of social media address the context of Facebook (Waters *et al.*, 2009; Waters and Lo, 2012; Saxton and Waters, 2014), with very little attention being paid to the factors that explain the information disseminated on Twitter in this sector (Lovejoy *et al.*, 2012). Hence, this paper aims to analyze the drivers of the use of Twitter content as a communication strategy by NPOs. To this end, two steps were performed:

(1) an analysis of the content of Twitter information made available by leading NPOs; and

(2) identification of the influence of certain factors on the use of content of Twitter by leading NPOs.

This paper presents contributions at both an academic and practical level. Regarding the academic field, it contributes to the scant literature that identifies the causes that motivate NPOs to develop content in social media and the extent to which behavior is conditioned by certain organizational factors. In addition, considering that NPOs are characterized by their great dependence on social support, this study aims to serve as a "guide" for NPO managers particularly in the manner they should implement these platforms to fully utilize their potential as mechanisms to enhance their relationships with their stakeholders.

2. Making use of Twitter content to improve NPO communication

Although social media are generally all designed to improve the interactions between an organization and its stakeholders, the attributes of Twitter are the most suitable to constantly provide information about the organizational activities and to respond, in real time, to the reactions of their stakeholders (Golbeck *et al.*, 2010). Therefore, Twitter can give NPOs the opportunity of being more effective in transmitting credibility to their current public as well as in attracting new public. However to this end, the quality in the use of content for such purposes is crucial (Fussell Sisco and McCorkindale, 2013). In this vein, Guo and Saxton (2014) argue that it is more important for NPOs to understand how to use social media effectively than to merely adopt their use. Therefore, a greater knowledge of how NPOs should use Twitter in order to attain the full benefits of this tool as communication strategy is needed.

From the studies focussed on Twitter content analysis (Rybalko and Seltzer, 2010; Lovejoy *et al.,* 2012; Nah and Saxton, 2012; Guo and Saxton, 2014; Kim *et al.*, 2014) it can be concluded that both one-way and two-way communication strategies should be developed to ensure the adequate disclosure of information and to generate an appropriate interaction and dialogue between NPOs and their stakeholders. As Waters and Jamal (2011) point out, a one-way communication strategy involves the unidirectional dissemination of information, from the organization to the stakeholder, while a two-way strategy means that both the organization and its stakeholder can receive and provide information. Both approaches should be implemented in the organization's Twitter profile and in its tweets.

As part of a one-way communication strategy, Rybalko and Seltzer (2010) recommend that NPOs should describe their mission in the organization's Twitter profile. These authors also note that it is very useful to include a link to the organization's website so that stakeholders can access further information. In relation to the use of tweets, there are several ways to overcome the 140-character limitation. Waters and Jamal (2011) and Lovejoy *et al.* (2012) observe that hyperlinks can be used, together with short URLs for the organization's website and for external news. In this respect, too, Lovejoy *et al.* (2012) highlight the usefulness of third-party websites such as picTwitter and vidTwitter, in which picture and video files can be downloaded.

Another means of achieving a wider dissemination of information is the implementation of hashtags. This convention indicates that the tweet being sent addresses a specific issue, and is very useful so that users can receive information about a particular topic. For NPOs, this tool is helpful both for information disclosure in general and for specific purposes, such as achieving better coordination in emergency situations (Rybalko and Seltzer, 2010; Lovejoy *et al.*, 2012).

In addition, Twitter users can copy the public messages sent by other users. This type of message, called a retweet, can be used in two ways: with the retweet icon and the name of the user who is retweeting, or alternatively, the retweet can look like a normal tweet, with the organization's name and username attached (Guo and Saxton, 2014).

With respect to two-way communication strategies, Rybalko and Seltzer (2010) remark that the organization's Twitter profile should include the administrator's name and Twitter address in order to create a more personal relationship with stakeholders who would thus be able to get in touch with just a click of the mouse. This possibility would greatly encourage stakeholder participation.

With regards to the tweets themselves, Waters and Jamal (2011) suggest that tools should be implemented to promote stakeholders' loyalty and involvement in the NPO. Among other aspects, tweets should encourage the following actions: to become more involved in the organization, to support the organization by means of an online donation, to participate in an online survey, take part in online forums or sign online petitions, to be part of a TweetUp event and to follow the organization's activities through other social media accounts.

Finally, to improve the dialogue between the NPO and its stakeholders, a conversation of mutual interest is necessary, and for this purpose, public messages on Twitter can be very useful (Kim *et al.*, 2014). Public messages are direct comments to a particular user, and can be distinguished by the symbol of the addressee of the message. When one user sends a public message to another and this message is replied to, then a conversation is created between the two parties. Therefore, NPOs must act responsibly and generate conversations by replying to the public messages received from their stakeholders or by posting public messages to their stakeholders' tweets (Waters and Jamal, 2011; Guo and Saxton, 2014).

3. Determining factors in the use of Twitter by NPOs

In the context of NPOs, few studies have examined the explanatory factors underlying online communication in the sector. In this respect, past research is focussed on explaining the level of information disclosed via web pages (Saxton and Guo, 2011; Saxton *et al.*, 2012; Gálvez-Rodríguez *et al.*, 2014a) or on the adoption of social media (Bortree and Seltzer, 2009; Saxton and Guo, 2012; Nah and Saxton, 2012). However, the understanding of explanatory factors that affect the specific issue of using the contents available in Twitter as a communication strategy is still limited. Therefore, its analysis could provide a fruitful contribution to the existing literature related to micro-blogging technologies in general and to Twitter in particular.

Resource dependence theory is quite often used to explain various aspects related to NPO's behavior including their communication policies (Verbruggen *et al.*, 2011). This theory posits that organizations are not self-sufficient as they depend on their environment to obtain vital resources for their survival and growth. This implies that their behavior is conditioned by the demands and pressures of other organizations and groups in its environment (Pfeffer and Salancik, 1978). Therefore, the core of the theory focusses on explaining how organizations reduce environmental uncertainty and dependence via the implementation of diverse tactics (Chen and Roberts, 2010) such as efficient communication strategies that strengthen their relationships with the key stakeholders (Yeon *et al.*, 2007).

Based on this theoretical framework, five factors should be considered as drivers of the use of Twitter as NPOs' communication strategy: "donor dependence," "fundraising expenses," "organizational age," "organizational size," "online community size," "network activity" and "board size".

3.1 Donor dependence

Donor contributions are key funding sources for the survival of NPOs (Froelich, 1999). Consequently, the sector is very aware of the importance of responding to certain expectations such as the demand for greater transparency (Gandía, 2011). In this line, previous authors evidenced that greater donor dependence leads to a greater proactive online disclosure concerning the performance of the organization (Gálvez-Rodríguez *et al.*, 2014a). Moreover, Sargeant *et al.* (2007) note that for donors not only is important a greater access to information but also the use of those technologies that boost interaction and empowerment. Therefore, based on the attributes of Twitter it would be logical to consider that NPOs with greater donor dependence will be more likely to use this tool for improving their communication strategies. Thus, the first hypothesis proposed is the following:

H1. Donor dependence positively influences the development of NPOs' Twitter content.

3.2 Fundraising expenses

One of the tactics to minimize the dependence of NPOs on external funding is to reduce their expenses such as those related to fundraising (Macedo and Pinho, 2006). In this respect, authors like Ingenhoff and Koelling (2009) and Kang and Norton (2004) argue that without having the resources to invest in a variety of advertising or public relations measures, these organizations can still reach a large public by means of an appropriate use of their web technologies. Focussing on social media, Saxton and Wang (2014) argue that social media have enabled NPOs to strategically engage new, larger and younger audiences in a cost-effective manner. In this vein, Nah and Saxton (2012) demonstrate that this factor is a significant predictor for social media adoption and particularly evidenced a negatively significant relation between fundraising expenses and the frequency of Twitter updates. Thereby, it could be reasonable to expect that those NPOs that are reducing their fundraising expenses are those that better implement Twitter content as an effective alternative to reach all publics in an affordable manner. Thus, the following hypothesis is proposed:

H2. Fundraising expenses negatively influence the development of NPOs' Twitter content.

3.3 Organizational age

In general terms older organizations are well-established organizations with a good "track record" and valuable reputation. However, the maintenance of their position in the market depends, among others, on retaining society's trust and thus, they need to implement mechanisms that allows them to convey a better image among their stakeholders (Hossain and Hammami, 2009; Zeng *et al.*, 2012). In this vein, Viader and Espina (2014) argue that with the aim of maximizing their reputation to negotiate their positions with their key stakeholders, these entities should implement appropriate communication policies. In accordance with this, within the NPOs context, Saxton and Guo (2011) stressed that organizational age is an important factor to be considered in analyzing the use of web technologies for dissemination of information and the increment of interactive communication with stakeholders. This argument is corroborated by Gálvez-Rodríguez *et al.* (2012) who evidenced that older NPOs are more likely to use web pages as a channel to disclose the activities carried out by the organization. Focussing on social media, few studies have addressed this issue. In this respect, Gálvez-Rodríguez *et al.* (2014b) examined its effect in the case of Facebook but without obtaining conclusive results. Hence, based on the previous literature that posits that older organizations are the most keen on using web technologies with the aim to keep and strengthen the image of the organization, the third study hypothesis proposed is:

H3. Organizational age positively influences the development of NPOs' Twitter content.

3.4 *Organizational size*

Larger organizations are more likely to have greater capacity to implement strategies that ensure access to vital resources for survival and growth of the organization (Davis and Cobb, 2009). In this regard, previous studies on the corporate sector (Bonsón *et al.*, 2012), public sector (Carcaba García and García García, 2010) and the NPO sector (Saxton and Guo, 2011) show that these entities have a greater capacity to use technologies strategically in order to build close relationships with key stakeholders. Regarding social media, the effect of this factor on the adoption of Twitter has been examined, obtaining a neutral effect in the case of corporate sector (Fosso Wamba and Carter, 2013) and a negative effect in the NPO sector (Nah and Saxton, 2012). However, its influence on the extent and degree of usage of contents in Twitter has not been explored as yet. Hence, considering the outcomes exposed from previous studies concerning the disclosure of content in web pages, this study argues that large NPOs will be more likely to develop Twitter content as they possess more capacity to cope with critical power organizations to their survival. Thus, the fourth hypothesis is the following:

H4. Organizational size positively influences the development of NPOs' Twitter content.

3.5 *Online community size*

Under the resource dependence approach Treem and Leonardi (2012) state that organizations try to establish collaborative relations or alliances with their key stakeholders via the online communities from social media, an argument also shared by other approaches like dialogic communication theory (Kent and Taylor, 1998). However, online communities are volatile and can lose the sense of belonging to the organization if the social media do not provide contents that encourage interest and involvement of the stakeholders (Ch'ng, 2015). To this end, Kaiser and Bodendorf (2012) note that the entities most willing to create a large online community are also those which develop the most content for interaction and dialogue with their stakeholders. In accordance with this, Bortree and Seltzer (2009) demonstrate a significant relationship between the use of the dialogic content in Facebook and the online community size. Given these precedents, it could be logical to expect that NPOs that possess a larger online community are more likely to present a greater use of Twitter content in order to maintain and reinforce their ties with said communities over the time. Therefore the fifth study hypothesis proposed is the following:

H5. Online community size positively influences the development of NPOs' Twitter content.

3.6 *Network activity*

Fu and Shumate (2015) note that the active practice of social media, via the messages published, is an effective alternative to improve NPOs' public relations with stakeholders that control the critical resources of the organization. In this regards, Gálvez-Rodríguez *et al.* (2014b) evidence that NPOs that present a high-level network activity in Facebook also possess more contents in said online platform. This is due to the fact that NPOs that have "frequent online contact" with their stakeholders are more aware that building of relations with its environment depends on its ability to keep the interest in the information they provided through social media. Pertaining to Twitter, Sáez-Martín *et al.* (2015) confirm that the greater level of network activity influences the greater use of Twitter content by local governments as a communication strategy to increase citizen engagement. In this line, Liu *et al.* (2012) indicate that those corporations that are most active in their Twitter account are those who better use this online platform and in particular, they analyze the utility of retweets to promote the loyalty of their stakeholders. In accordance with these precedents, the sixth hypothesis presented is the following:

H6. Network activity positively influences the development of NPOs' Twitter content.

3.7 Board size

NPO board members are responsible for the provision of resources to the organization that allow it to carry out its mission, such as the development of valuable external relationships with key stakeholders of the organization (Viader and Espina, 2014). To achieve this purpose, board members should consider that web technologies, with their benefit of disseminating timely information and dialogue building, can improve perceptions about the organization and thus help to augment their public relations (Gruber *et al.*, 2015).

Among the board members features, board size has been considered as determinant in the decision concerning the use of web technologies as a communication strategy. In this regards, Saxton *et al.* (2012) evidence that Taiwanese NPOs with larger board sizes are those who most disclose their financial statements via their websites, while Saxton and Guo (2011) show the positive effect of this factor for enhancing the dialogic capacity of NPOs' website and particularly, in those from the USA. Regarding social media, previous authors have stated the importance of analyzing the influence of this factor in the adoption of social media (Nah and Saxton, 2012). According to this, this factor could be considered also relevant in exploring the causes of the use of social media content and specifically to predict the greater use of Twitter content. Hence, the seventh hypothesis is:

H7. Board size positively influences the development of NPOs' Twitter content.

4. Methodology

The fundamental aim of this paper is to analyze the influence of certain factors in the use of Twitter as a communication tool and to this end, this study must first observe the content provided in Twitter by such entities and later identify if there is a causal relationship between the use of Twitter as a communication strategy and the factors selected. To achieve this result, a content analysis has been applied which is the methodology implemented in recent studies that have analyzed the content in social media (Saxton and Guo, 2012; Guo and Saxton, 2014) as well as a regression analysis in line with those recent studies focussed on identifying influencing factors in online communication (Chung-Chi *et al.*, 2011; Bonsón *et al.*, 2012).

4.1 Analysis of Twitter use

Content analysis is considered to be a fundamental technique for studying online information (Kim *et al.*, 2014). In this case, the type of content analysis implemented is deductive, in particular the information from both the Twitter profile and tweets on the basis of a pre-defined scheme developed from the literature reviewed in Section 2 has been rated, as it is shown in Table III, and is in line with Berg (2001). Following Cuadrado-Ballesteros (2014) a Twitter content index (TUI) has been developed which is composed of two main dimensions: the content related to the one-way communication strategy (TUI_{Oneway}); and the content related to the two-way communication strategy (TUI_{Twoway}). Each main dimension is, in turn, a partial index that has eight items (TUI_{Oneway}) and nine items (TUI_{Twoway}), respectively, of which two concern the Twitter's content profile and the other six and seven, the content of the tweets themselves.

To identify the absence or presence of the items, the information has been scored using a dichotomous system in line with Abbott and Monsen (1979). To avoid the potential arbitrariness of using weighted indexes, an index has been developed as the sum of the unweighted items, in line with recent online information studies (Cuadrado-Ballesteros *et al.*, 2014; Cuadrado-Ballesteros, 2014).

The analysis of the content of each Twitter account selected was hand coded by two coders that worked independently using a pre-defined scheme. This data collection method presents a low potential of inter-rater coding errors as the coding scheme does not present many sub-dimensions and there is no independency and interactivity among the items used (Milne and Adler, 1999). Intercoder reliability is important to assess the degree of consensus in the ratings given by coders, therefore when coding was finished the coefficient of agreement of Scott's pi was calculated in line with Krippendorf (1980), obtaining an inter-coder range of 0.83 which indicates an adequate level of consensus for the validity of our content analysis.

A consistency analysis of the index was carried out, using Cronbach's α coefficient (Saxton and Guo, 2011). According to the minimum levels of reliability indicated by Nunnally (1978), the consistency index was 0.69. In order to raise this value, the item "Ask to participate in a TweetUp" was deleted, and the index was thus increased to an acceptable 0.71. Hence, the final TUI is composed of sixteen items. Each partial index has eight items, of which two concern the Twitter's content profile and the other six, the content of the tweets themselves. Thereby, TUI is scored from 0 (total absence of content) to 16 (total presence of content), and the partial indexes TUI_{oneway} and TUI_{twoway} will be scored from 0 to 8.

4.2 Empirical analysis

To identify the causal relationship between the use of Twitter as a communication strategy and the factors selected, a multivariate regression analysis was performed in line with Bonsón *et al.* (2012) who used this method in order to answer a similar research question albeit related to the public sector. For the dependent variable, not only was the score obtained by using the index (TUI) but also from the score obtained for each of the two partial indexes that comprise it. Thus, three dependent variables were obtained: content index (TUI), the partial index of one-way communication strategy (TUI_{Oneway}) and the partial index related to the contents concerning the two-way communication strategy (TUI_{Twoway}).

In addition, in line with the approach adopted by Nah and Saxton (2012), the social activity of the NPOs (industry) was included as a control variable.

Three multivariate regression analyses were performed in order to test if the three dependent variables are determined by the independent variables indicated in Table I in line with the following expression:

$$
\begin{aligned}
Dependent\_variable_i = {} & \beta_0 + \beta_1 Dependence_i + \beta_2 F\_expenses_i + \beta_3 Age_i \\
& + \beta_4 Size_i + \beta_5 Followers_i + \beta_6 Following_i + \beta_7 Tw/m_i \\
& + \beta_8 Tw/day_i + \beta_9 Board\_sz_i + \beta_{10} Industry_i + \mu_i
\end{aligned}
$$

where each of the indexes *TUI*, TUI_{Oneway} and TUI_{Twoway} would be the *dependent_variable*; β the parameters to be estimated, *Dependence, F_expenses, Age, Size, Followers, Following, Tw/m, Tw/day, Board_sz* and *Industry* the different independent variables, μ the classic disturbance term; and, i refers to each of the NPOs considered.

4.3 Sample

For the purposes of this study, the NPOs with the 60 most popular websites were analyzed in accordance with the list published in 2014 by the entity "Top Nonprofits." This entity is an NPO set up to further best practices in the NPO sector. The selection of the "Top NPOs on the web" was made according to Yang and Kent (2014) who consider this database a good "benchmark" to observe the behavior of the NPO sector in issues related to social media.

The tweets analyzed were compiled during a one-month period (April-May 2014), in line with the approach adopted in comparable previous research (Waters and Jamal, 2011; Lovejoy *et al.*, 2012). The information required to derive the contingency factors examined in this study were compiled from: the financial statements published on NPOs' web pages – to calculate donor dependence, fundraising expenses and organizational size; the Twitter profile – to identify online community size and network activity; and finally, the

Hypothesis	Independent variables	Measurement
H1	Donor dependence (Dependence)	The ratio of donations to total income (Nah and Saxton, 2012)
H2	Fundraising expenses (F_expenses)	The ratio of fundraising expenses to total costs (Kang and Norton, 2004)
H3	Organizational age (Age)	The number of years since the organization was created (Saxton and Guo, 2011)
H4	Organizational size (Size)	The natural logarithm of total assets (Saxton and Waters, 2014)
H5	Online community size (Followers; Following)	The natural logarithm of the number of followers and following associated with a given social media profile (Liu *et al.*, 2012)
H6	Network activity (Tw/m; Tw/day)	The number of tweets posted per month (Tw/m) and number of tweets posted per day (Tw/day) (Bortree and Seltzer, 2009; Rybalko and Seltzer, 2010)
H7	Board size (Board_sz)	The total number of board members (Nah and Saxton, 2012)
Control variable	Industry	Six dummy variables that takes value 1 if the NPO belongs to that industry 0, otherwise: Arts and Humanities (Industry1_Arts) Education (Industry2_Edu) Health (Industry3_Heal) Human services(Industry4_H-S) Public/society benefits (Industry5_P.Ben) Religion (Industry6_Relig) (Waters *et al.*, 2009)

Table I. Independent variables

organizational history, mission and governance disclosed on the NPO website – to determine organizational age, board size and industry. As all this information is publicly accessible and supplied by the organizations themselves, the assumption was that it was reliable for the purpose of analysis in line with Kim *et al.* (2014).

5. Results

5.1 Index of Twitter use

With respect to the TUI, the results in Table II show that NPOs, on average, make use of 10.9 contents of the 16 contents recommended for better communication between an organization and its stakeholders. However, it is interesting to note that the results obtained from the partial indexes, which describe the use of Twitter in terms of one-way and two-way communication strategies, are not proportional. While TUI_{Oneway} scored 7.467 out of 8, TUI_{Twoway} scored 3.43 out of 8. These results are comparable to those reported by previous studies, which concluded that NPOs principally use Twitter as a mechanism for disseminating information (Waters and Jamal, 2011; Lovejoy *et al.*, 2012) (see Table II).

Delving further into the contents that belong to both partial indexes and in particular, in the Twitter profile and tweets (see Table III) it can be observed that, in the

	Mean	SD	Min.	Max.
Total Twitter usage index (16 items)	10.9	1.664179	7	14
1. One way communication usage (8 items)	7.466667	0.7240813	6	8
2. Two way communication usage (8 items)	3.433333	1.465613	0	7

Table II. Results Twitter usage index

Content	Frequency	Percentage
1. One way communication usage		
1.1 Twitter profile content		
1.1.1 Description of the organization	47	78.33
1.1.2 Links to company website	59	98.33
1.2 Content of tweets		
1.2.1 Hyperlinks	59	98.33
1.2.2 Shortened URL's	53	93.33
1.2.3 Use of third-party websites: Twitpic.com	53	93.33
1.2.4 Use of third-party websites: Twitvid.com	52	86.67
1.2.5 Hashtags	59	98.33
1.2.6 Retweets	60	100
2. Two way communication usage		
2.1 Twitter profile content		
2.1.1 Links of others social networking site accounts	10	16.67
2.1.2 Link of administrator of the platform	11	18.33
2.2 Content of tweets		
2.2.1 Ask to become involve with the organization (as an employee or volunteer)	25	41.67
2.2.2 Ask to support the organization by making an online donation	37	61.67
2.2.3 Ask to participate on a survey pool; online forums; signing online petitions	46	76.67
2.2.4 Asking to follow the organization on the social media accounts of others	34	56.67
2.2.5 Direct public messages answering a messages received from stakeholder	21	35
2.2.6 Direct public messages posting a question or comment in a stakeholder tweet	22	36.67

Table III. Number and percentage of NPOs that implement each of the contents of Twitter usage index one-way communication strategy, most of the NPOs analyzed describe their mission and provide the organization's website address in their Twitter profile. These findings are in line with those of Rybalko and Seltzer (2010) who in their study of the corporate sector, and in partial agreement with those of Kim *et al.* (2014), observe that in environmental NPOs it is common to use social media for disseminating their own website. With respect to the tweets, most NPOs perform an adequate use of the tools available to foster the dissemination of information. All of them use hashtags, not only for the better management of emergency situations but also to share information with other stakeholders about a particular issue or event. Hyperlinks are mainly implemented in order to provide more detailed information about their programs. Retweeting is another method used to disclose information about the organization. Among the two options of using Retweet the most common is to copy the message with the picture of the user, which is then retweeted. The mechanism that is least often used is that of the third-party website Twitvid.com, in which multimedia content is provided. These results coincide in part with those of Lovejoy *et al.* (2012), who note that little use is made of retweets and hashtags in NPO tweets.

With respect to a two-way communication strategy, fewer than 20 percent of the NPOs analyzed provided an administrator's address and a link for stakeholders to participate in other NPOs' social media accounts. This finding is in accordance with the results obtained by Rybalko and Seltzer (2010). In relation with the content of the tweets, 76.77 percent of the entities analyzed had sought to involve their stakeholders by inviting them to sign an e-petition in favor of or against a certain issue. Furthermore, more than half of the NPOs asked for support via online donations. These results are in line with those of Waters and Jamal (2011) who report that NPOs are very interested in achieving interaction with their stakeholders in order to attain a specific goal of benefit to the organization.

Fewer than 40 percent of the entities carried out conversations by means of public messages. The number of NPOs that posted a comment in response to stakeholders' tweets is slightly above those in which they replied to stakeholders' public messages. NPOs mainly send public messages in order to thank stakeholders for financial support, to inform about events or to disclose positive opinions about the organization's activities. To a lesser extent, NPOs also send public messages in support of the activities of other organizations or to express their opinion about the information disclosed by their stakeholders. In their replies to public messages, NPOs mainly clarify questions concerning the functioning of the organization and thank stakeholders for their suggestions.

5.2 Factors determining the use of Twitters by NPOs

In line with Oyelere *et al.* (2003) a correlation analysis among the continuous independent variables was performed. According to Taylor (1990), values above 0.7 show a high linear relationship between two variables. Moreover, the test was used to quantify the variance inflation factor (VIF) which assesses to what extent the variance of an estimated regression coefficient increases if the explanatory variables are correlated. In VIF, values above ten indicate the absence of independence among the variables (Neter *et al.*, 1989). After examining both (see Tables IV and V), it can be concluded that the models do not present problems of multicollinearity. However, as problems of heteroskedasticity were identified, the models were adjusted using White's robust estimator.

Regarding the hypothesis set out in this study (see Table V), the expected influence in the *H1* proposed were not found, particularly regarding "Donor Dependence"

	1	2	3	4	5	6	7	8	9
1. Dependence	1								
2. F_expenses	0.15	1							
3. Age	−0.32	−0.01	1						
4. Size	−0.18	0.21	0.42	1					
5. Followers	−0.05	0.25**	−0.02	0.03	1				
6. Following	−0.08	−0.10	−0.18	−0.03	−0.18	1			
7. Tw/m	0.32**	0.11	−0.26**	−0.21	0.06	0.07	1		
8. Twday	0.23*	0.05	−0.072	0.05	0.15	0.09	0.63***	1	
9. Board_sz	−0.14	−0.03	0.13	0.18	0.04	−0.04	0.01	0.04	1

Notes: $^{**}p < 0.05$; $^{***}p < 0.01$

Table IV.
Bivariate correlations

		Model 1 *TUI*	Model 2 TUI_{Oneway}	Model 3 TUI_{Twoway}	VIF
Level of dependency on donors					
H1	Dependence	1.05 (1.006732)	0.83 (0.4742601)*	0.21 (0.9075875)	1.59
Fundraising expenses					
H2	F_expenses	−0.90 (1.437411)	0.64 (0.5677557)	−1.54 (1.295853)	1.42
Organizational age					
H3	Age	0.00 (0.0065259)	0.00 (0.0025478)	0.00 (0.0057056)	1.76
Organizational size					
H4	Size	−0.41 (0.2219213)**	−0.031 (0.1140174)	−0.37 (0.2000662)**	1.60
Online community size					
H5	Followers	−0.16 (0.4300642)	−0.24 (0.2140312)	0.07 (0.3877109)	1.54
	Following	0.73 (0.2412673)***	0.28 (0.1233334)**	0.45 (0.2175069)**	1.21
Network activity					
H6	Tw/m	0.00 (0.0015717)	−0.00 (0.0008138)	0.00 (0.0014169)	2.14
	Twday	−0.03 (0.0523793)	0.26 (0.23588)	0.06 (0.0472209)	2.11
Board size					
H7	Board_sz	−0.02 (0.017822)	−0.00 (0.0109599)	−0.01 (0.0174016)	1.43
Control variable: industry					
	Industry1_Arts	−1.10 (1.079362)	−0.38 (0.4906193)	−0.71 (0.9730651)	2.23
	Industry2_Edu	Base	Base	Base	
	Industry3_Heal	−0.84 (0.963448)	−0.36 (0.3651333)	−0.48 (1.056331)	2.62
	Industry4_H-S	−0.78 (0.963448)	−0.50 (0.2833093)*	−0.28 (0.8685663)	5.65
	Industry5_P.Ben	−0.73 (0.9230638)	0.37 (0.2588755)	−0.35 (0.8321592)	4.85
	Industry6_Relig	1.34 (1.482506)	0.19 (0.2712735)	1.14 (1.336507)	1.77
R^2		0.33	0.27	0.34	

Notes: Robust standard errors are shown in parenthesis. $^{*}p < 0.1$; $^{**}p < 0.05$; $^{***}p < 0.01$

Table V.
Results regression analysis

in TUI (Model 1). However, regarding Model 2, this factor has a direct effect on TUI_{Oneway} ($\beta = 0.83$; $p < 0.1$), which is in line with previous results that evidence the positive influence of donations in the disclosure of information (Gálvez-Rodríguez *et al.*, 2014a). The effect of donor dependence on TUI_{Twoway} was neutral, a result that differs from

Sargeant *et al.* (2007), who found that organizations with greater external funding are more likely to use web technologies to enhance stakeholder involvement. Hence, based on the hypothesis it seems that NPOs that have a greater dependence on donor funding are more aware of the benefits of Twitter to provide relevant information to their key stakeholders.

Pertaining to *H2*, the study failed to obtain statistically significant results with respect to the impact of "fundraising expenses" on any of the models proposed. Therefore, while Nah and Saxton (2012) evidence that this factor is associated with the frequency of Twitter updates and dialogic messages in Twitter, the outcomes of this study indicate that it is not a determining aspect in the implementation of contents that aim to use Twitter in one-way and two-way communication strategies.

In relation with *H3*, the influence of "organizational age" was neutral in TUI (Model 1). This outcome is in accordance with that of authors that have analyzed NPOs' use of web pages for dissemination and dialogic communication (Saxton and Guo, 2011). Also, there is no empirical evidence to confirm the influence of "organizational age" on TUI_{Oneway} (Model 2). This is in contrast to Gálvez-Rodríguez *et al.* (2012), who concluded that NPOs with a greater organizational age would be more likely to disclose information on their web pages. In turn, the effect of "organizational age" in TUI_{twoway} was neutral in line with previous authors that analyzed its influence in the use of Facebook as an involvement strategy (Gálvez-Rodríguez *et al.*, 2014b).

Regarding *H4*, significant statistical results were found in Models 1 and 3. In particular, "organizational size" had a significant but negative effect on TUI, not presenting the expected sign ($\beta = -0.41$; $p < 0.05$). This finding is in line with Nah and Saxton (2012) who corroborated its negative relationship in the tenure of a Twitter account. Likewise in Model 3, a negative influence of "organizational size" on TUI_{Twoway} ($\beta = -0.37$; $p < 0.05$) was identified, not coinciding with results reported in previous studies on 2.0 web technologies in the corporate sector (Bonsón *et al.* 2012). No empirical evidence for the explicative power of such factor on TUI_{Oneway} (Model 2) was found, not sharing the results obtained by Carcaba García and García García (2010) regarding the positive effect of this variable in the web disclosure of local governments.

The *H5* is supported in all of the models, in particular "online community size" had a positive influence on TUI ($\beta = 0.73$; $p < 0.01$) which is in line with the results reported by Bortree and Seltzer (2009). With respect to Model 2, the explicative power of "online community size" in TUI_{oneway} is also confirmed ($\beta = 0.28$; $p < 0.05$), thus indicating that this variable promotes the implementation of Twitter content in order to improve the dissemination of organizational information. Finally, the results indicate a significant and direct effect of "online community size" on TUI_{Twoway} ($\beta = 0.45$; $p < 0.05$). These data are in line with those of Kaiser and Bodendorf (2012) who noted that the entities most interested in creating a large online community are those which develop most content for interaction and dialogue with their stakeholders.

With respect to *H6*, "network activity" showed a neutral effect on TUI (Model 1) and in the partial indexes TUI_{oneway} (Model 2) and TUI_{Twoway} (Model 3). These results do not coincide with previous authors that evidence the strong influence of network activity in the ongoing development of Facebook's content in NPOs from less developed countries (Gálvez-Rodríguez *et al.*, 2014b) as well as, in the improvement of content Twitter from local governments (Sáez-Martín *et al.*, 2015).

Concerning *H7*, the study did not reach any conclusive results on the effect of "board size" in TUI (Model 1) or both partial indexes TUI_{Oneway} (Model 2) and

TUI_{Twoway} (Model 3), not sharing the outcomes obtained in previous studies on the use of web pages in the NPO sector as a tool for disseminating information (Saxton *et al.*, 2012) and for dialogic communication (Saxton and Guo, 2011).

6. Conclusions

For an optimum use of Twitter, this study considers that NPOs should implement one-way and two-way communication strategies in both their Twitter profile and tweets. In this respect, the results show that the perception of Twitter as a valuable strategy for one-way communication is unanimous, but that NPOs do not seem to be interested in fully implementing the contents that allow using it as a two-way communication strategy.

Regarding the main shortcomings in the use of Twitter as a two-way communication strategy, most NPOs do not consider it important to customize their Twitter presence by showing their administrator's name and Twitter address. As reflected in the content of tweets, most of the two-way tools implemented are those focussing on performing a specific task that mainly benefits the organization, such as requesting support for the organization, or collecting signatures either in favor or against a particular cause. Likewise, the NPOs sampled do not show great interest in creating conversations with their stakeholders. Thus, the majority of conversations entered into were with donors, while almost none were with other key stakeholders such as beneficiaries.

In line with the resource dependence theory, three factors should be considered as determinants in the use of Twitter content as part of NPOs' communication strategy: level of dependence of the NPO to donor funding, the organizational size and online community size.

The level of dependence of the NPO to donor funding leads to a greater use of Twitter content related to the development of a one-way communication strategy. Hence, NPOs' behavior is strongly oriented toward meeting the expectations of their financiers, including the need to respond to the demands in renewing communications channels for information disclosure that allow them to better track the functioning and resources allocation of the organization.

In addition, a large online community promotes the greater use of contents that allow NPOs to obtain the most benefit of this tool as one or two-way communication strategies. The online community is an effective alternative to achieve alliances or collaborative relations with key stakeholders thus, in order to keep and reinforce their ties with such communities over the time these entities try to "feed" the relationship with them via an active use of Twitter content.

Surprisingly, "organizational size" had a significant but negative effect on the use of Twitter as communication strategy. The smallest NPOs normally enjoy less capacity in terms of income and staff and thus are the most vulnerable to the demands and pressures of organizations and groups in its environment. Therefore, these entities seek to enrich and strengthen their public relations management via the greater use of Twitter as communication strategy to improve both a timely dissemination of information and the increment of interactive communication with their stakeholders.

7. Implications and further research

This paper has diverse implications for the existing literature and practice of the use of Twitter as a communication strategy. Regarding the previous literature, and particularly the one-way communication strategy, authors like Lovejoy *et al.* (2012) note that NPOs mainly use Twitter as a channel to disseminate information. By analyzing the case of the top 60 NPOs on the internet, whose results could be considered a benchmark for trends in the sector; this study argues that NPOs are increasingly mastering Twitter contents thus enabling their organizations to broadcast relevant information while also overcoming the limitation of 140 characters that this tool presents.

With respect to the two-way communication channel, this study agrees with previous authors in the underutilization of this social media for dialogic purposes (Waters and Jamal, 2011). Nevertheless, the findings show an advance in the use of tweets that foster online fundraising, online engagement in NPO activities and, in the stakeholders' participation with other social media of the organization. However, coinciding with Guo and Saxton (2014), the use of public messages is still very low. In this respect, it is observed that a low level of interest in the use of public messages as a way to obtain feedback regarding the effectiveness of the NPO's activities. With regards to Twitter profiles and considering the scarce literature that focusses on this aspect, the results of this study contribute to this line of research by emphasizing the importance of customizing NPOs' Twitter account by showing the administrator's name, in order to make the stakeholder-NPO relationship more personal and familiar.

Pertaining to the explanatory analysis, in line with the findings obtained by Bortree and Seltzer (2009) in Facebook, it can be argued that online communication size is a good predictor for the greater use of contents in Twitter. Moreover, with regards to the level of donor dependence, while previous authors have evidenced that donations are a predictor for proactive web disclosure (Gálvez-Rodríguez *et al.*, 2014a), this study argues that this effect also occurs in the case of social media. Hence, this could indicate that NPOs value the benefits that both technologies have for maintaining and increasing donor support. Concerning the organizational size of the organization, while Nah and Saxton (2012) corroborate its negative effect on the adoption of a Twitter account, the outcomes of this study's analysis advance this point, indicating that it is the smallest NPOs, and thus those with fewer financial resources, that are the most aware of the advantages of developing Twitter as a successful communication strategy.

There are also practical implications, as the index proposed in this study could be used as a guide to better understand how Twitter can offer a greater opportunity to foster the interest, enrolment and support of society in the NPO sector. As the sector is suffering a crisis both, at an economic (Clark, 2011) and trust (Pianta, 2013) level; NPOs should update their communication models, with social media being excellent tools for this purpose. Although the results indicate that there has been an improvement in the implementation of two-way communication strategies, NPO managers need to be aware that to attain best practice in the sector they must make a major effort in identifying what are the concerns of their stakeholders. Therefore, the NPOs still need to make a major effort in using Twitter as a channel to facilitate and encourage symmetrical communication with their stakeholders.

On the basis of the empirical results of this study, those NPOs with greater dependence on donors, smaller size and with a larger online community seem to value more the use Twitter as a channel to enhance their communication strategies. Therefore, it is suggested that practitioners in larger NPOs and those with less dependence on external funding need to be more aware of the need for implementing Twitter, as if they do not update their communication strategies they could lose out on the opportunity to both strengthen their image as well as, identifying the opinions and concerns of their current stakeholders about the organization. In addition, for those NPOs that have a small online community, these results can be a "reflection" of the importance of building online relationships via implementing more informative and interactive content in their social media accounts.

The study of the factors that explain the content usage in NPOs' Twitter profile is still a nascent body of research. Therefore future studies that analyze the influence of other internal and external factors could be very interesting. Likewise, it could be very informative to identify the opinion of NPOs regarding the aspects that encourage them to use this tool and to contrast empirical data obtained with the perceptions of the sector itself. Furthermore, it could also be very informative to identify the opinion of the followers of NPOs' Twitter accounts in order to identify to what extent one-way and two-way communication strategies are perceived as effective communication strategies. Moreover, a longitudinal analysis of the progress of the use of Twitter could offer "tips" regarding the level of impact of this tool in the NPO sector. In addition, it would be very interesting to identify to what extent other collectives that form part of civil society, such as social movements, are currently implementing social media contents as a communication strategy. Finally, future researchers could consider replicating this study in different contexts.

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