Social media and online political discussion: The effect of cues and informational cascades on participation in online political communities

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Abstract
This study examines, through a content analysis of the census of news stories posted in a Colombian online political community, how status cues and informational cascades shape participation in online political discussions. Specifically, it looks at how the authors’ news stories posting increase rate, the number of news story sources, the velocity at which comments to a news story start to appear, and the comment interactivity affect discussion participation. Results suggest that cues that signal expertise influence participation, while discussion among users also influences the decision of others to participate. However, the effect of these variables is stronger for some topics. Implications for the constitution of public spheres are discussed.

Keywords
content analysis, information cascades, online political communities, online political discussion, public spheres, status cues

Introduction
A growing interest exists among scholars about the role that online political discussion plays in the constitution of public spheres (Goldberg, 2011). Some researchers (Dahlberg, 2001; Dahlgren 2005) have argued that online political discussion facilitates the
expansion of public spheres, a central concept in deliberative democracies. However, others argue that the potential of the internet for the construction of public spheres has been exaggerated (Gripsrud, 2009). According to this perspective, online political discussion does not directly translate into the constitution of a public space. Indeed, specific characteristics of these media may influence behavior, hindering widespread and equal participation, which are key ingredients for the constitution of public spheres.

Habermas (1989) built a genealogy of the concept of public sphere, and showed some of the tensions and conditions that impede the development of the ideal of democracy underneath this notion (Crossley and Roberts, 2004: 2). His work has served as a foundation for much of the research about the relationship between the internet and the public sphere. This concept has been defined as a space that enables citizens to voice their opinions (Dahlberg, 2007), and where citizens build consensus on topics of common interest through rational discussion (Papacharissi, 2002).

This study examines online political discussion in terms of the legitimacy of the public sphere (Fraser, 2007) that it might help constitute by asking how specific features of social media influence political discussion participation. Through content analysis it examines how information about users’ behavior in a Colombian online political community might signal certain cues and affect other users’ participation and how the preceding behavior of individuals has an effect on other users’ participation in discussions.

Previous research (Ng and Detenber, 2005; Tan et al., 2008) has not found evidence that suggests the existence of the effect of some of these factors on impressions of credibility and on intentions to participate in online political discussions. Findings in these studies seem to support the idea that social media can facilitate the constitution of public spheres. However, this study argues that those studies failed to capture how users’ online experience takes place in online political communities. They might have not captured the process through which impressions and norms emerge in online communities. Although experimental methods are appropriate for finding causal relationships, sometimes they lack ecological validity, by not reflecting the way in which users experience these sites. Furthermore, these studies used subjects who were not members of the online political community used for the experiments. This might have affected the way in which participants assessed others and how they valued their participation on these sites.

This study asks about the potential benefits of social media to create egalitarian spaces that constitute public spheres. The influence of status cues would imply that this space is not free of certain dynamics that might hinder the emergence of public spheres. In contrast, the influence of the behavior of other individuals on participation in discussions would imply that some aspects of how online discussions take place can characterize elements of a public sphere.

The theoretical perspectives from which this study examines this research question take into account the dynamics of online interaction in online communities and how these sites are experienced. First, a cues-matter approach assumes that the content posted on the site and the information provided by the system become sources of information for other users when forming impressions about their interactants. Furthermore, evidence suggests that cues communicated online influence the development of impressions, and such information has an impact on individual intentions to interact with others (Tanis and Postmes, 2003). Second, an information cascades approach allows an examination of the
way in which the behavior of other users influences participation in discussions. This theory provides a framework for understanding how people tend to conform to the behavior of others and how norms are configured in a social group.

Instead of examining intentions to participate this study looks at actual participation through a content analysis of the site www.lasillavacia.com, a Colombian online political community. The study of political discussion participation in a political online community in a country such as Colombia, where political violence has had a key role as a way of resolving political conflicts (Rojas et al., 2011) and has been an obstacle for the free development of a robust democracy, can offer an opportunity to assess the degree to which social media can become a valuable alternative for the constitution of public spheres. Political discussion offers a route for inclusion, understanding and dialogue in contrast to force and imposition (Rojas, 2008). Therefore, Colombia presents an appropriate case for asking about how social media features influence participation and how they might contribute or hinder public spheres and become a democratic alternative to political conflict resolution.

While previous research has found that political discussion can strengthen democratic practices in contexts of political turmoil (Rojas, 2008), this study asks about how some of the dynamics of online interaction can support or deter participation in mediated political discussions. An examination of the relationship between status cues, the preceding behavior of other users, and participation in online political discussions can provide elements for understanding the way in which social media affect participation in online mediated political discussions. All this is based on the assumption that this type of political participation can benefit democratic processes under contexts of weak democratic institutions and practices (Rojas, 2008).

**Online cues in online political discussions**

Research about participation in online political discussions has been approached from different perspectives. Some have looked at the effects of political discussion on civic engagement (Shah et al., 2005), others have examined the relationship between online deliberation and political engagement (Kim, 2006), and the role of online social networks in the relationship between political opinion expression and civic engagement (Rojas and Puig-i-Abril, 2009). Others have focused on the discussion structures and patterns of interaction (Himelboim et al., 2009; Kelly et al., 2006), patterns of agreement (Koop and Jansen, 2009), characteristics and qualities of online discussions (Papacharissi, 2004), and even methodological issues (Vergeer and Hermans, 2008). Other studies have looked at the influence of information and norms on the opinions of participants and have found that the arguments and opinions of participants influence the opinions of users (Price et al., 2006).

However, fewer studies have looked at the role of the features of social media in discussion participation. Wright and Street (2007) looked at online political discussion from the perspective of the design of social media features and examined three online forums, concluding that design elements influence how discussions develop. According to their analysis, the existence of moderation and pre-moderation features positively influence the characteristics of the conversation.
In another study, Ho and McLeod (2008) hypothesized that the reduced amount of cues and the anonymity of computer-mediated communication (CMC) would increase the likelihood that participants would state their opinions compared to face-to-face (FtF) contexts. Their findings suggest that fear of isolation had a negative effect on willingness to express an opinion, but this effect was moderated by the type of communication used. CMC reduced the effect of fear of isolation, while FtF increased it.

Another approach for examining participation in online political discussion can be to look at the cues that are made available to users. Although CMC can potentially take place in anonymity, there are several ways in which some information can be used to develop impressions of others based on the cues available. In an online community membership information and characteristics of the content posted can cue information used to form impressions about others. The study by Tan et al. (2008) approaches the problem of participation in online political discussions by examining the role played by status cues. This experimental study manipulated language style and the information about the level of expertise of the discussant. However, no significant effect of expertise on intention to participate was found.

Findings in this study did not support what Social Information Processing theory (SIP) states. According to Walther (1992, 1996), despite the reduced amount of cues in CMC individuals look for and use the information available about others to build impressions. SIP argues that due to the limitation of non-verbal cues, in CMC it takes longer to form impressions of other individuals compared with FtF communication processes. In cases were communication is based solely on text, the restriction of having reduced cues limits the amount of social information available. This does not preclude the formation of impressions, although it does imply that it takes a longer time for those impressions to form.

According to SIP, the information disclosed by users, as well as their own behavior and the information that the system provides about it, is used by other users to form their impressions and decide how to behave. Therefore, the potential of social media for the constitution of a widespread and equalitarian public sphere should be affected by the way in which online cues influence participation.

Several studies that have examined users’ participation patterns in online communities have found that behaviors that cue characteristics such as expertise influence users’ impressions and behaviors online. In contrast, studies such as the one by Tan et al. (2008), that have examined participation in online political communities have not found supporting evidence that suggests this relationship.

Fiore et al. (2002) compared behavioral data with perceived value of authors in several Usenet newsgroups. Findings in the study suggest that longevity and frequency of participation were strongly correlated with participants’ perceptions of trust and credibility. Users that contributed more and for a longer time were evaluated as more trustworthy and credible, compared to those that have contributed less and for a shorter time. In another study, Himelboim (2008) explored the structures of health and political discussions in Usenet newsgroups by looking at the distribution of replies among participants. The author found that a significant strong positive correlation existed between out replies and in replies. Members of the online community that contributed more have received more responses to their posts.

Findings in these two studies suggest that more active users and those that have been members for a longer period of time are either perceived as more credible or elicit more
participation from other users. In this sense, these findings suggest that behaviors and system information that signal certain characteristics affect the behavior and perceptions of other users.

However, the findings in these two studies conflict with the findings by Tan et al. (2008). While findings by Fiore et al. (2002) and Himelboim (2008) support the notion that a relationship exists between status cues and participation in discussions, the study by Tan et al. (2008) did not support the idea that this relationship exists. These conflicting findings can be resolved, however, taking into account that Tan et al. (2008) measured intent to participate, while Himelboim (2008) and Fiore et al. (2002) had access to behavioral data. Likewise, although experiments allow us to find causal relationships, the findings by Tan et al. (2008) are limited by their lack of ecological validity. In contrast, the behavioral data used by Himelboim (2008) and Fiore et al. (2002), although they cannot be used for establishing causal relationships, have the advantage that they allow us to assess the phenomenon in a natural environment. Since impressions and group norms emerge over time, it is possible that the participants in the experimental study by Tan et al. (2008) did not have enough information and time to develop the impressions that would later shape their behavior. The study of participation in online political discussions in a naturalistic setting can provide us with the certainty that enough time has passed so that impressions have been formed, since characteristics of interaction in online communities emerge and take the form of norms as time passes (Postmes et al., 2000).

Also, just like impressions are built over time based on the cues available, those cues are also constructed over time. The number of posts signals the degree to which users have contributed as members of an online community during their membership. Information about the number of news articles posted by an author can be interpreted by other users as an indication of other users' status in an online community. This information can be indicative of their level of activity, reputation and expertise.

In this sense, as a user accumulates a greater amount of news stories posted, other users' comments to posts by this user will tend to increase. By exploring this hypothesis we will be able to explain the conflicting findings in the relationship between cues and commenting behavior. Following findings by Himelboim (2008) where the members with more postings in online communities received more comments, it can be hypothesized that:

Hypothesis 1a: As the rate of posting stories increases, the rate of comments to stories will increase.

However, cues might not be communicated only through the information available about users' activity, but also in the actual content posted. Another element that can provide cues regarding status of a user is the number of sources used in a story. One of the main concerns of authors of stories in online communities is to look credible and receive enough attention from other users (Galegher et al., 1998). The number of sources in a story can also signal credibility. They can be an indication of the trustworthiness of an individual as well as an indication of the level of expertise. Tan et al. (2008) examined the effect of expertise, expressed as the user’s level (i.e. Novice or Expert), on intention to participate, without finding a significant effect. Although there are no previous studies
examining the effect of the number of sources in a story on the rate of posting comments, consistent with what has been previously stated, the following hypothesis is posed:

Hypothesis 1b: As the number of sources increase, the rate of posting comments will increase.

**Informational cascades in online political discussions**

Besides the hypothesized influence of cues on users’ participation in online political discussions, it might also be the case that the behavior of users can influence the behavior of others. The theory of informational cascades (Bikhchandani et al., 1992) looks at how social behavior converges and individuals conform to norms over time. This theory asserts that the behavior of individuals is influenced by the previous behavior of others in the same social group.

Bikhchandani et al. (1992) explain that an informational cascade takes place when individuals ignore the private information they have about an issue, and prefer to base their decision regarding a specific behavior on the preceding choices of other individuals. Bikhchandani et al. (1992) show how in settings where people get to make choices about a particular issue after others have made their own choice about that same matter, individuals sometimes tend to take into account the information obtained from observing the choices and behaviors of others, instead of their own private information. An informational cascade takes place when individuals observe the sequence of decisions made by others and base their own decision on the observation of others’ behaviors. Individuals converge on the same behavior on the basis of the information they derive from the behavior of others.

Therefore, it is possible that the decision on and behavior of posting a discussion comment on a story can be in part explained by the preceding behavior of others. This would mean that when users notice that a story is commented at a higher rate, they will tend to comment on that story. Findings by previous studies suggest this might be the case.

Burke et al. (2009), from a social learning approach, used behavioral data from server logs to examine factors that predicted newcomers’ contributions to a social network site (SNS). Their findings suggest that new users of the SNS that were members of a network where individuals contributed higher amounts of content started to contribute and tended to continue contributing more content compared to those who were members of a network where individuals contributed less. Although Burke et al. (2009) explained these findings from a social learning perspective, they can also be explained from an informational cascade approach. Individuals who notice a particular behavior tend to converge towards that same behavior, noticing the sequence of behaviors in the social network and following the norm of sharing contents established in the group. Therefore, the velocity at which story comments start to appear may influence behavior of users regarding their decision to contribute. However, research about online political discussions might suggest this is not the case.

Ng and Detenber (2005) examined the effects of synchronicity and civility on perceptions and intentions to participate, and did not find a significant effect. Using a laboratory experiment, the study manipulated the language of a discussion (civil and uncivil) and the time stamps of the messages signaling slow and fast responses. Findings did not support the idea that the frequency at which comments begin to appear affect intentions to participate in discussions.

In sum, while findings by Burke et al. (2009) seem to support an informational cascade approach, findings by Ng and Detenber (2005) do not. These conflicting findings
can be explained in two ways. On one hand, Burke et al. (2009) had access to behavioral data, while Ng and Detenber (2005) measured intentions. Additionally, behavioral data—such as server logs—provides information about how individuals behaved in the actual environment where norms and behaviors within the group take shape. It is likely that the manipulation of the time stamps did not mirror what happens in an online community. It is possible that users notice the rapidity of comment posting not necessarily based on the time stamps, but based on the observation of a notable change in the amount of comments in a short period of time. In this sense, the effect of the rapidity at which comments start to appear can be better captured using a methodology, such as content analysis, that does not exclude how the online experience takes place. This can be examined by looking at how much time passes between when the first comment and the median of comments in a story are posted. Previous research (Lampe and Resnick, 2004) have used this measure (i.e. half-life of discussion) to study the time scale of conversation in an online community. It is hypothesized that:

Hypothesis 2a: The faster a story reaches its half conversation life, the higher the rate of comments posting.

Previous research has looked at the role played by comment interactivity (i.e. comments directed towards other comments) on participation. Wise et al. (2006) examined the effect of moderation, response rate and message interactivity on users’ intentions to participate. Using an experimental design, Wise et al. (2006) manipulated the information about moderation in the discussion, the time stamps of the messages, and the interactivity of each comment defined as the comments that are a response to or are directed towards a comment made by another user. The study hypothesized that discussions that showed more interactivity between participants would elicit a higher intention to participate than those with a lower level of interactivity. However, no evidence suggested that the effects of interactivity and response rate did affect respondents’ intention to participate.

However, as in the study by Ng and Detenber (2005), it might be that the conditions in the experiment did not capture the way in which the actual online experience takes place and how the behavior of others might affect one’s behavior. Following informational cascades theory, it is hypothesized that as users notice that others interact more with others through comments, users will tend to participate more by posting comments.

Hypothesis 2b: As the number of interactive comments increase, the rate of comment posting will increase.

**Method**

A total of 380 stories were gathered from www.lasillavacia.com, a Colombian online political community. These stories represent all stories published from 3 March 2009, when the community started, until 11 March 2010, with the exception of the stories authored by ‘lasillavacia’, which do not correspond to an identifiable author. Therefore, this study was performed with a census of all the stories posted in that period of time and written by registered members of the online community.
The site www.lasillavacia.com combines elements of independent journalism websites with features of online communities. The website has its own staff of journalists and editors, and highly moderates the contributions, avoiding uncivil behaviors. All registered users can post their own stories if they meet the quality criteria set by the administrators. Although they do not represent a majority of the total of stories that have been posted, some of them have been written by users who are not part of the staff of the site.

The features that characterize the site as an online community include the presence of a profile for all registered users with information about their number of posts (comments and stories), points earned based on their site contribution, and a short bio. Users can also interact with others using a private message feature.

All 380 stories were accessed using the navigation options on the website. All stories included information about the exact date and time they were published, a link to the author’s profile, and the number of comments they received. Comments could be accessed below the story and included information about their exact date and time of posting as well as which user posted it. Once the stories were selected they were coded following the operationalizations of the variables.

**Measurements**

**Control variables**

- Story views: This was measured as the number of times a story was viewed. Controlling for the number of views gave the chance of evaluating participation beyond the popularity of a topic or a story in relation with its number of visits.
- Story topics: A total of eight topics emerged from the examination of a set of stories as well as from the main tags applied to the stories in the online community. This code allowed for the assessment of possible differences among topics and the analysis of the effect of the independent variables controlling for topics.

**Independent variables**

- Number of story sources: Sources were defined as individuals, organizations or any kind of document, including websites, used by users to support the information and statements in a story. Sources were recognized by the use of verbs of attribution in the story, that either quoted directly from what a person or document said or that attributed a particular content to a person, document organization or members of an organization.
- Story half-conversation life: This was measured as the difference in minutes elapsed between the time the first comment was posted and the time the median of comments was posted, following previous operationalizations of this concept (Lampe and Resnick, 2004).
- Comment interactivity: Measured as the number of comments in a story directed to another comment. They were identified using a design feature available on the website that shows comments that reply to previous comments with a higher indentation than the previous comment in the thread.
Story posting rate: This variable was calculated for each author using months as the period of time. The final score for each author was calculated by subtracting the initial number of stories in a month from the final number of stories in each month and dividing this result by the initial number of stories in that period of time. This result was then divided by the number of months the author had posted stories.

Dependent variable

Comments posting increase rate: Comments posting increase rate was calculated for each author in month periods. The final score of this variable was calculated by subtracting the number of comments in the first story posted by each author from the final number of comments in all stories posted by the author, and dividing that by the number of comments in the first story. This result was then divided by the total number of months the author has been posting.

Two individuals applied the codes for topics, counted the sources and calculated the other variables using the information provided by the system. Intercoder reliability was calculated for the topics using Scott’s Pi test and resulted in a score of 0.88. The reliability for the number of sources was assessed with a correlation analysis. The coefficient of the correlation was 0.89.

Analysis and results

Since the dependent variable was calculated in terms of the increase in the rate of posting comments, only those stories whose authors have published more than one story were included in the analysis. The 380 stories that represented the census were written by 15 users; 10 had written more than one story. For the analysis the study used a sample of 375 stories written by 10 users. Table 1 shows the frequencies for all topics.

Table 1. Topics frequency.

<table>
<thead>
<tr>
<th>Topic</th>
<th>Number of stories</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elections</td>
<td>176</td>
<td>47.2%</td>
</tr>
<tr>
<td>Government</td>
<td>144</td>
<td>38.7%</td>
</tr>
<tr>
<td>Economic and social policy</td>
<td>76</td>
<td>20.3%</td>
</tr>
<tr>
<td>Public order and armed conflict</td>
<td>59</td>
<td>15.7%</td>
</tr>
<tr>
<td>Corruption</td>
<td>47</td>
<td>12.5%</td>
</tr>
<tr>
<td>Individual characters</td>
<td>35</td>
<td>9.3%</td>
</tr>
<tr>
<td>International relations</td>
<td>27</td>
<td>7.2%</td>
</tr>
<tr>
<td>Other</td>
<td>3</td>
<td>0.8%</td>
</tr>
</tbody>
</table>

N = 375.
Table 2. Means and standard deviations of independent and dependent variables.

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Story views</td>
<td>1660.02</td>
<td>2113.81</td>
</tr>
<tr>
<td>Sources in story</td>
<td>4.05</td>
<td>3.50</td>
</tr>
<tr>
<td>Interactive comments</td>
<td>3.59</td>
<td>5.17</td>
</tr>
<tr>
<td>Discussion half-life</td>
<td>1824.85</td>
<td>6810.50</td>
</tr>
<tr>
<td>Story posting increase rate</td>
<td>4.49</td>
<td>2.94</td>
</tr>
<tr>
<td>Dependent Variable</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comment posting increase rate</td>
<td>2.68</td>
<td>1.08</td>
</tr>
</tbody>
</table>

N = 375.

Table 2 reports the means and standard deviations of the dependent and independent variables. The dependent variable, comment posting increase rate, was not normally distributed. In order to solve the positive skewness of the variable, it was recoded into four levels where observations between the minimum value and 3 were coded as 1, 3.1 through 5 as coded as 2, 5.1 through 7 as 3, and from 7.1 and on as 4.

A set of Ordinary Least Square (OLS) regressions were performed on comment posting increase rate in order to determine the direction and size of the effect of the factors associated with it. The first regression ($F(9,352)=35.221, p<.001$) was performed including all the stories categorized into the most frequent topics: Corruption, elections, public order, government, and economic and social policy. They added a total of 361 stories which represented 96.2% of all the census of stories. OLS is reported in standardized beta coefficients (see Table 3). Since this study uses census data and not random sampling, there is no need to perform any statistical inference (Agresti and

Table 3. OLS regression for the effect of topic, views, sources, interactive comments, discussion half-life and stories increase rate on comments increase rate.

<table>
<thead>
<tr>
<th>Comments posting increase rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Topic (Corruption is reference group)</td>
</tr>
<tr>
<td>Elections</td>
</tr>
<tr>
<td>Public order and armed conflict</td>
</tr>
<tr>
<td>Government</td>
</tr>
<tr>
<td>Economic, social and public policy</td>
</tr>
<tr>
<td>Story views</td>
</tr>
<tr>
<td>Story sources</td>
</tr>
<tr>
<td>Interactive comment</td>
</tr>
<tr>
<td>Half-life of discussion</td>
</tr>
<tr>
<td>Stories posting increase rate</td>
</tr>
<tr>
<td>R²</td>
</tr>
</tbody>
</table>

N = 361.
Finlay, 2009: 144) or use statistical significance tests for making any inferences. Therefore, statistical significance values are not reported. Support for the hypothesis was determined by assessing the sign of the coefficient as well as the size of the effect. Also, besides the OLS regressions, a set of partial product moment correlation coefficients were examined to assess the strength of the relationship between each of the independent variables and the dependent variable, controlling in each case for each of the other independent variables. Following the convention for effect sizes proposed by Cohen (1988: 79, 1992), which, although no less arbitrary than other conventions, can be used as a guide to evaluate the relevance of the magnitudes of the effects in this study, a pattern was found where those variables with a more than weak (i.e. less than 0.1) partial correlation coefficient also reported a β coefficient lower than 0.08 in the OLS regressions. In this sense, those variables with coefficients of less than 0.08 were considered to show only trivial support for the hypothesis.

Hypothesis 1a stated that posting stories increase rate had a positive effect on posting comments increase rate. This hypothesis was supported (β=0.695). The sign and size of the coefficient suggest that as users increase the rate of posting stories, the rate at which their stories are commented increases as well. In other words, results suggest that stories by users who have posted at a higher rate have increased the amount of comments they receive to their stories at a higher rate than stories by users who have posted stories at a lower rate.

Regarding hypothesis 1b, results show that as the number of sources in a story increase, the predicted value in comment posting rate increases as well, controlling for all other variables. However, although the size of the coefficient is in the hypothesized direction, the effect of this variable on comment posting seems trivial (β=0.08).

In relation to half-life of the discussion, measured as the difference between the posting of the first comment and the median of comments, results show that indeed the less time elapsed between the first comment and the median of comments in a story, the higher the increase rate of comments posting, keeping consistent other factors. However, despite the negative sign in the coefficient which indicates support for the hypothesis, the coefficient (β= -0.033) indicates that the effect is trivial.

Hypothesis 2b stated that as comments directed towards other users increased, the rate of comment posting would increase. The direction of the effect is according to what was hypothesized; however, in this case the size of the coefficient suggests a trivial effect as well (β=0.065).

Results of the effect of the control variable number of story views on increase rate of comment posting also show a trivial relationship (β=0.061). Results regarding topics, the other control variable, showed that stories about public order and armed conflict, compared to stories categorized under corruption, have increased their comment posting at a higher rate (β=0.101). However, the differences between topics, when controlling for the effect of the rest of the variables, does not seem to be too big.

Since results are reported in standard deviation units, the coefficients of the different variables can be compared against each other. The effect of story posting rate as predictor of comment posting increase rate is the strongest. This variable was used to examine the effect of status cues on participation in online communities. Although with a much
Table 4. OLS regression for the effect of visits, sources, interactive comments, half-life discussion and stories increase rate on comments increase rate for stories coded under elections topic.

<table>
<thead>
<tr>
<th></th>
<th>Comment posting increase rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Story views</td>
<td>0.085</td>
</tr>
<tr>
<td>Story sources</td>
<td>0.091</td>
</tr>
<tr>
<td>Interactive comment</td>
<td>0.105</td>
</tr>
<tr>
<td>Half-life of discussion</td>
<td>-0.102</td>
</tr>
<tr>
<td>Stories posting increase rate</td>
<td>0.526</td>
</tr>
<tr>
<td>R²</td>
<td>0.322</td>
</tr>
</tbody>
</table>

N = 176.

weaker effect compared to story posting rate, sources, another variable related with status cues, resulted in a small effect on the dependent variable, as comment interactivity did. In addition, the effect of half-life of discussion, although it is in the hypothesized direction, has a very weak association with the dependent variable.

In order to examine the relationships that might have been muted by analyzing all the topics together, a further analysis was performed on the stories with the two most commonly coded topics: elections (N=176) and government (N=144). The results of the OLS regression on comment increase rate by the control and independent variables for stories about elections are shown in Table 4. The regression equation ($F(5,171)=16.237$, $p<.001$), had a $R^2$ of .322.

Data supported hypothesis 1a for stories coded under the elections stories category. The effect of stories posting increase rate ($\beta=0.526$) is still strong compared to the analysis that included all categories.

Hypothesis 1b was also supported ($\beta=0.091$). In this case, the effect of the number of sources on comment posting increase rate is larger compared to the previous analysis, which showed only a trivial effect of the independent variable on the dependent variable. For stories coded under the elections, as the number of sources increases, the rate at which stories are commented also increases.

As stated in hypothesis 2a, in the case of election stories, results show that the less amount of time elapsed between the first and the median of comments in a story, the higher the rate of posting comments ($\beta=0.102$). In this case, the predicted effect of this variable is larger for election stories.

Finally, hypothesis 2b was also supported ($\beta=0.105$). Results show that for election stories, when keeping constant the value of all other factors, as comments directed towards other users increase the rate of posting comments also increases.

The standardized coefficients of the OLS regression on comment posting increase rate for stories coded under government can be found in Table 5. This OLS regression ($F(5,139)=27.916$, $p<.001$) reports a $R^2=0.501$. Hypothesis 1a was supported. The effect of stories posting increase rate is positive and large ($\beta=0.698$) as in the two previous analysis. Results also supported hypothesis 1b ($\beta=0.085$). The effect of this variable is
There is a negative effect of the time elapsed between the first comment and the median of comments on the rate of posting. This variable in government stories has a trivial effect ($\beta=-0.059$). Hypothesis 2b was supported ($\beta=0.110$). In stories coded under government, the higher number of interactive comments the larger the rate of comment posting. The effect of this variable is similar to the one on stories under elections, and much larger than in the analysis that included all categories of stories.

Results show that the control variable, story views, has a trivial effect on comment posting increase rate compared to the rest of variables in the model. This means that the number of times a story is viewed does not greatly affect the rate at which stories are commented. For elections and government stories, the effect of number of sources and interactive comments in a story is larger when compared with the model that includes all other topics. Comment interactivity has also a non-trivial effect in these two topics.

It can be argued that the effect of the variables is stronger in these two groups than in the model including all topics. However, the effect of discussion half-life is more important in election stories than in government stories. This variable, along with comment interactivity, represents the effect of informational cascades on comment posting increase rate. It can be argued that in election stories the effect of the behavior of other users has a stronger influence on the rate at which comments are posted, when compared to stories about government only and when compared with a model including all topics. Story posting increase rate continues to be the stronger predictor of comment posting increase rate.

**Implications**

Previous research has failed to establish a relationship between cues and behavior of users on intentions to participate in online political communities. Findings in this study might suggest that such a relationship exists. Through a content analysis of stories posted in an online community, this study found that factors such as the information provided by a system regarding a user’s number of postings, the characteristics of the content

### Table 5. OLS regression standardized coefficients for the effect of visits, sources, interactive comments, half-life of discussion and stories posting increase rate on comment posting increase rate in government stories.

<table>
<thead>
<tr>
<th></th>
<th>Comment posting increase rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Story views</td>
<td>0.050</td>
</tr>
<tr>
<td>Story sources</td>
<td>0.085</td>
</tr>
<tr>
<td>Interactive comment</td>
<td>0.110</td>
</tr>
<tr>
<td>Half-life of discussion</td>
<td>-0.059</td>
</tr>
<tr>
<td>Stories posting increase rate</td>
<td>0.698</td>
</tr>
<tr>
<td>$R^2$</td>
<td>0.501</td>
</tr>
</tbody>
</table>

$N = 144$. 

larger than in the analysis that includes all stories and is very similar to the effect in elections stories.

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posted – such as the number of sources, the discussion among users, and the velocity at which comments start to appear – are related with comment posting behavior. However, this relationship seems to be more solid in stories about elections and government, the two most frequently coded topics.

Any explanation about these differences is mere speculation and will be unsatisfactory. It is possible that in the analysis including all stories, the effect of the variables was muted by including stories about topics that do not increase their rate of discussion given their topic, either because they do not have debatable material, or because they are not particularly salient for the users. Another possible explanation is that in the two most frequent topics, cues of expertise and discussion norms have already been established because of these topics’ prevalence and frequency on the site.

Findings in this study partially support the idea that, as time passes and based on the information provided by the system, characteristics of the content posted by users and users’ preceding behavior have an effect upon the way in which individuals form their impressions about others and the extent to which they conform to others’ behavior. On one hand, these findings might suggest that impressions about other users and their behavior influence users’ online behavior and how discussions develop in online political communities. This would also imply that a larger amount of comments might concentrate on stories by those users that show more expertise. An inequality in the formation of opinion could take shape as a larger amount of discussion may revolve around the content provided by the same authors.

In the same vein, the growing concentration of the discussion around the stories posted by expert users might affect the characterization of the online community as an open and egalitarian space. A limited scope might bias the discussion and impose constraints upon the discussion of stories posted by less experienced users, hindering the formation of an ideal public sphere.

On the other hand, the effect of comment interactivity on participation is of particular importance. It suggests that when users notice that more discussion comments have been directed to other users’ comments, users will tend to participate more. Despite evidence that suggests that discussion might tend to concentrate around stories posted by those perceived as more experienced users, discussion among users also increases participation. While the impressions of expertise might lead to the concentration of the discussion, interaction between users through comment posting might increase participation, strengthening the constitution of a public sphere through online political discussion.

The stronger relationship in stories about elections and government between comment interactivity and comment posting increase rate could be interpreted as being indicative of a fruitful exchange of opinions in issues such as the performance of the government, its members, and the electoral process. In stories about elections and government, findings are consistent with the idea that users tend to be influenced by previous decisions and behaviors of other users, as expressed by the coefficient in comment interactivity. In election stories, when the discussion develops faster the amount of discussion also increases. This may indicate these users’ interest in discussing stories about elections, and how this topic seems to elicit more discussion.

These findings suggest that elements of the system, as well as characteristics of the content posted, affect participation in online discussions. While impressions of expertise
based on online cues might affect negatively the constitution of a public sphere, other characteristics of the behavior of users can be understood as a manifestation of the emergence of an egalitarian public sphere.

Limitations and future research

This study examined participation in online political discussions using content analysis. It did not capture users’ perceptions of credibility, trustworthiness or expertise. Although an effect of cues and informational cascades was found, it is not certain they cause a particular impression that influences a specific behavior. Future research should assess this causal relationship by doing experiments in existing online communities. A manipulation of different conditions would assess the impact of different cues on users’ perceptions and on discussion participation.

Another limitation is that this study looked at a small amount of factors that can influence participation. Specifically, this study did not look at the role of perceived salience of the issues. It did not consider either how agreement or disagreement with the story or with the opinions of other discussants influences participation. Further research should look at these characteristics of the content and how they influence users’ behavior.

Conclusions

This study examined conflicting findings in relation to the role of cues on participation in discussions in online political communities. On one hand, previous research has not found an effect of cues on intentions to participate, while other studies suggest that cues have a significant role on participation in online communities. Findings in this article suggest that cues have an important influence not only on participation, but also the participation patterns of others.

Through a content analysis that assured the examination of these factors and their effect on participation in discussions in a natural setting, this study suggests that in some occasions the methodologies used might affect the nature of the findings.

Although the use of social media for political discussion might open new channels and broaden the spectrum of opinions by offering perspectives that are not for the most part covered by mainstream media, it is also true that the specific features of the media shape the way individuals behave. Although it is possible that social media facilitate and lower the barriers for political discussion, the features of the medium might be giving place to the creation of new inequalities. These inequalities may affect the development of the ideal of a public sphere.

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Notes

1. Corruption: Applied to stories about proved or suspected illegal activity of public officials, including court processes, investigations or reports about actions of government officials.

   Elections: Referred to any kind of elections in the executive and legislative branches of the government where citizens could vote for candidates or proposals. It included references to candidates, as well as democratic processes such as referendums or plebiscites.

   Public order and armed conflict: Referred to stories about security policy, peace initiatives, laws or actions by the government in order to deal with criminal and illegal activity.

   International relations: Applied to stories about the management or current situation of the relationships with other countries.

   Government: Referred to the management by the national or local executive branch of the government of its relationships with political parties, the legislative, and the judicial branches; appointments, withdrawals or removals of officials of the executive branch of the government, as well as questionings about its performance, policies or officials.

   Social, economic and public policy: Applied to stories that touched on any aspect of the public, economic, and social policies of the local or national government. Included stories about education, (reforms, proposals, laws, etc.), infrastructure initiatives or policies that referred to the construction or renovation of airports, roads, seaports and in general to any construction of large-scale projects such as dams, aqueducts or communications infrastructure; or the lack of them. Stories that cover topics about health and environment or that deal with proposals or reforms that affect or are related with health or environmental issues or policies. Stories that referenced initiatives or proposals to generate employment and stories about budget planning or spending, use or collection of taxes, investment of resources, policies to deal with inflation, trade agreement initiatives or policies to foster investment in the country.

   Individual characters: Applied to stories focused on personal aspects of individuals such as government officials or elections candidates, not only from a professional, but also a personal perspective.

   Other: Used when none of the above codes applied.

2. For a broader discussion about statistical significance and inference see Krantz (1999) and Gelman and Stern (2006).

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