Exploring Health Journalists' Social Media Visibility during the Covid-19 Public Health Emergency

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ABSTRACT

Social media enables journalists to gain visibility in order to offer more information to the audience and promote their works. Due to the overwhelming information on social media and the limited attention of media users, the visibility of a journalist is not controlled by himself/herself but codetermined by both the journalist and the audience. Therefore, it is imperative to figure out the determinants of the visibility on social media. This study is guided by the theoretical frameworks of journalists' branding and the heuristic-systematic model to examine the visibility of journalists at two levels, namely, the Twitter account level (i.e., the number of followers of a Twitter account) and the tweet level (i.e., the number of retweets and favorites received by a tweet). And the present paper focuses on the outbreak of Covid-19, a public health emergency that has been announced by the World Health Organization as a global pandemic and has generated more than 155 million discussions on Twitter within 5 months. A content analysis of 76 Twitter profiles and 1128 tweets of 76 health journalists from 7 media in the US suggests that branding on the organizational and individual levels would increase the visibility of a journalist while on the institutional level would have an opposite effect. And the effects of different rational cues varies while the influence of affective cues on a tweet's visibility is not evident. What is more, this study also reveals that with the progress of a crisis, Covid-19, the heuristic processing strategy would gradually dominate, that is, tweets with affective cues would generate more retweets and favorites as things got worse.

Keywords: visibility, journalistic branding, heuristic-systematic model (HSM), communication style, public health emergency, social media

INTRODUCTION

There are two levels of visibility on Twitter:
- The visibility of Twitter accounts
- The visibility of tweets

The opportunities of journalists to gain visibility on social media:
- Social media open the door for journalists to be visible by the audience, build their own brands and form intimate relationships with other users.
- The audience in social media plays an increasingly important role in disseminating information by sharing functions of social media, such as Twitter's retweet function, their produces, tweets, are capable of being more visible in cyberspace.

Gaining visibility, no matter the visibility of their Twitter account or tweets, could be challenging for journalists:
- Journalists are faced with the pressure of the organization and media industry when they engaged in social media branding.
- Journalists have to compete with various information providers to gain public attention and make their voices more visible on social media.
- Social media have posed more uncertainty for journalists in gaining visibility, especially during a crisis. For example, after the outbreak of COVID-19 in late December 2020, there have been more than 155 million tweets about the event accumulated on Twitter. The overwhelming information on Twitter would dilute the visibility of journalists.

This study focuses on a specific global public health emergency, COVID-19, and examines:
- The effects of journalistic branding practices on the visibility of health journalists on Twitter within the framework of branding.
  RQ1*: How will different branding practices, namely, personal branding, organizational branding, institutional branding, and individual branding, influence the number of followers of a journalist?*
- The effects of communication styles on the visibility of the tweets of journalists and the change of such effects with the progress of a public health emergency within the framework of the heuristic-systematic model(HSM).
  RQ2a: *How affective communication style influences the number of retweets received by a single tweet*
  RQ2b: *How affective communication style influences the number of favorites received by a single tweet*
  RQ3a: *How rational communication style influences the number of retweets received by a single tweet*
  RQ3b: *How rational communication style influences the number of favorites received by a single tweet*
  RQ4: *In different phases of COVID-19, would the influence of rational and affective communication styles on the number of retweet and favorite vary?*

METHODOLOGY

Data

This study focused on health journalists from 7 media, including 5 legacy media, *Wall Street Journal, New York Times, Washington Post, CNN and Fox News*, 2 web-based media, *Huffington Post and BuzzFeed.* These 7 media lied in different positions on the media ideology spectrum. According to a report of Pew Research Centre (2014), *Huffington Post, BuzzFeed, New York Times, Washington Post and CNN* were leaning towards liberal, *Wall Street Journal* was relatively neutral, whereas *Fox News* was leaning towards conservative.

Target journalists were those whose have published health-related news about COVID-19 in the official websites of the media they were affiliated with, including the progress of the epidemic, health care system, health advice, interpret official documents launched by health officials, etc. For all the identified journalists, the researcher searched their name on Twitter to find their Twitter accounts. And the account was further verified by whether the account was followed by the official account of the media they were affiliated with, or followed by other journalists from the same media.

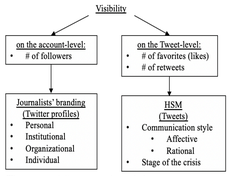
The most recent 3200 tweets of each journalist and the profiles of their Twitter were collected via a Twitter streaming API on April 30 and May 10 Twitter API. Since this study only focused on the original, all the retweets were removed from the dataset. Finally, 109,872 original tweets left.

Sampling

Since this study included a cross-time comparison, the time period of the comparison part was from 21 Jan 2020, when the first confirmed case appeared in the till 20 Apr 2020, for a consecutive of 3 months. Tweets created from 21 Jan 2020 till 10 Mar 2020 were classified to be in the 1st phase, and from 12 Mar 2020 till 20 Apr 2020 were considered as in the 2nd phase, when on 11 Mar 2020 the WHO announced that the Covid-19 was a global pandemic.

In sum, for the 76 journalists, 1128 original tweets (10%) were sampled for manual coding, 542 created from 21 Jan 2020 till 10 Mar 2020 while 586 created from 12 Mar 2020 till 20 Apr 2020.

Measurement



Theoretical framework and the measurements

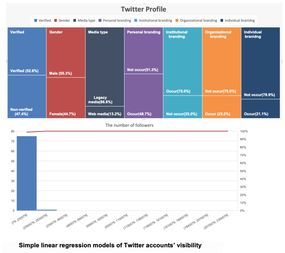
- **Dependent Variables**
  Account level The visibility was measured by the number of followers of the account
  Tweet level The visibility was measured by the number of retweets and favorites of a single tweet.

- **Independent Variables**
  Account level Branding elements in Twitter profiles were the independent variables:1)Personal branding elements, including mentioning non-professional personal information, such as family status, hobbies, etc.; 2)Organizational branding elements, including to mentioning the current employer; 3)institutional branding elements, including the reference to another news organization or journalist, one's former employer(s) or any other kinds of reference to other organizations; 4)personal expertise branding, or individual branding elements including mentioning personal-level professional skills and expertise; including a disclaimer, a mention of the journalist's beat or a coverage area, personal contact for seeking, professional expertise and experiences in reporting, etc.
  Tweets level Affective and rational communication styles in tweets were independent variables. Each tweet was first coded for whether it did or did not contain affective or rational elements by programming language in Python. Affective elements included emojis and uppercases. Rational elements referred to the URLs. And all the tweets were further coded manually to see whether it contained affective and rational languages or not. Affective language included emotional verbal expressions, emoticons, humor, and punctuations expressing emotions. Rational elements are reason or evidence that support an opinion, argument, or fact, including quotations.

- **Control variables**
  Account level The verification of the Twitter account, the gender, the type of the media the journalist affiliated with, and the number of followers of the official account of the media were set as the control variables.
  Tweet level The visible features of Twitter, such as the hashtags, the number of mentioned users in a tweet, and the length of a tweet were set as the control variables.

- **Model** Simple linear regression models were built to estimate the relationships between dependent variables and independent variables.

RESULTS



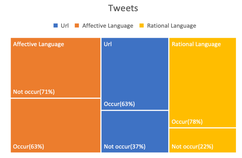
Simple linear regression models of Twitter accounts' visibility

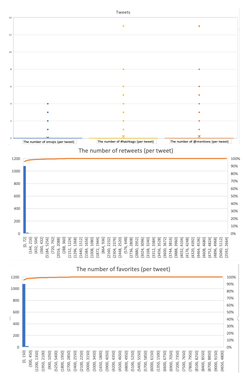
	The number of followers (log)
Personal branding	0.143 (0.344)
Institutional branding	-.881* (0.386)
Organization branding	0.697 (0.716)
Individual branding	0.9 (1.423)
Verified	.969** (0.353)
Gender	-0.492 (0.326)
Media type	-0.08 (0.427)
The number of followers of the media	-0.108 (0.088)
Constant	7.475*** (1.693)
N	76
R-squared	0.208
Adj. R-squared	0.114
Residual Std. Error	1.358 (df = 67)
F Statistic	2.202* (df = 8; 67)

***p < .001; **p < .01; *p < .05

Account level
- Branding was common in the overall sampled journalists with more than half of them included personal branding elements (51.3%), organizational branding elements (75%), and individual branding elements (78.9%) in their Twitter profiles. Institutional branding was the least common branding practice as only 25% of the sample's profile contained relative elements.
- These journalists had a large followers base overall, but the number of followers they had varied greatly from one another.
- To answer RQ1, a simple linear regression model was built. After including the verification, gender, media type, and the number of followers of the media's official account as control variables, the result of linear regression indicated that there was a significant effect between branding practices and the visibility of journalists. The occurrence of institutional branding elements and verification were significant predictors of the number of followers in this model.
- Based on this model, the occurrence of personal, organizational, and individual branding elements in a tweet would increase its visibility, while engaging in institutional branding would result in the decrease of followers.

Tweet level
- In general, affective language (71%) was more likely to occur in a tweet than rational language (22%) and URL, another indicator of rational communication style, only occurred in 37% of tweets.
- The lengths of the tweet, the number of uppercases, emojis, hashtags, mentioned users per tweets varied hugely, and also the number of retweets and favorites received per tweet.
- Six relative simple linear regression models were built to answer RQ2a, RQ2b, RQ3a, RQ3b, PQ4.
- In all the 6 simple linear regression models, *Phase 1* refers to the first stage of the COVID-19 in the USA (from 21 January 2020 to 11 March 2020), and *Phase 2* referes to the second stage (from 12 March 2020 to 20 April 2020). Taking the length of the tweet, the number of hashtags and mentions per tweets as control variables, the result of all the six models suggested that communication style would influence the number of retweets and favorites of a tweet, and the length of the tweet, the use of URL and the number of mentioned users in a tweet were always significant predictors of the visibility of a tweet.
- *2 Total* models showed that using uppercases and affective language in a tweet would result in the decrease of both retweet count and favorite count, and the occurrence of emojis would have a slight positive effect on a tweets' visibility.
- For rational cues, the rational language would result in the decrease of visibility both on the number of retweets and favorite while using URL in a tweet could positively influence the retweetbility and the probability of being favorited of a tweet.
- Comparing the result of *Phase 1 (retweet)* with *Phase 2 (retweet)* and *Phase 1 (favorite)* and *Phase 2 (favorite)*, the differences between the influences of different communication styles on the visibility of a tweet in different stages of COVID-19 appeared.
  - In *Phase 1* the number of emojis had a negative effect on the number of retweets, but after COVID-19 announced by WHO as a global pandemic, in Phase 2, the increase of the number of emojis in a tweet could increase the number of retweets received by the tweet. And the coefficiency of affective language and visibility also transformed from negative to positive with the progress of the COVID-19 event, which indicates that as the situation went worse, affective communication style could overall increase the visibility of a tweet.
  - For rational elements, the estimated coefficient of the occurrence of URL and a tweets' visibility became more positive with time, while the change of effect of rational language differed on the number of retweets (from negative to positive) and on the number of favorites received by a tweet (more negative) varied.





Simple linear regression models of tweets' visibility

	The number of retweets (log)			The number of favorite(log)		
	Phase 1	Phase 2	Total	Phase 1	Phase 2	Total
The number of uppercases	-.001 (.004)	-.004 (.005)	-.002 (.003)	-.003 (.004)	-.003 (.005)	-.003 (.003)
The number of emojis	-.002 (.056)	.016 (.167)	.006 (.056)	.048 (.067)	.086 (.188)	.060 (.065)
Affective language	-.026 (.049)	.025 (.055)	-.005 (.037)	-.041 (.058)	.024 (.062)	-.014 (.042)
Url	.271*** (.049)	.396*** (.056)	.332*** (.037)	.019 (.058)	.231*** (.063)	.125** (.043)
Rational language	-.116* (.053)	.016 (.061)	-.046 (.041)	-.157* (.063)	-.046 (.069)	-.096* (.047)
Text length	.014*** (.002)	.018*** (.002)	.016*** (.001)	.016*** (.002)	.019*** (.002)	.017*** (.002)
The number of hashtags	.027 (.029)	.036 (.027)	.034 (.020)	.087* (.034)	.073* (.031)	.082*** (.023)
The number of mentions	-.016 (.024)	-.067** (.025)	-.046** (.017)	-.042 (.029)	-.096*** (.028)	-.072*** (.020)
Constant	.013 (.060)	-.126 (.068)	-.066 (.045)	.360*** (.071)	.213** (.077)	.290*** (.052)
N	542	586	1128	542	586	1128
R-squared	.180	.203	.186	.118	.148	.126
Adj. R-squared	.168	.192	.180	.105	.136	.119
Residual Std. Error	.512 (df = 533)	.591 (df = 577)	.555 (df = 1119)	.610 (df = 533)	.666 (df = 577)	.641 (df = 1119)
F Statistic	14.613*** (df = 8; 533)	18.327*** (df = 8; 577)	31.972*** (df = 8; 1119)	8.900*** (df = 8; 533)	12.510*** (df = 8; 577)	20.102*** (df = 8; 1119)

***p < .001; **p < .01; *p < .05

CONCLUSION

To sum up, the empirical results of the current study show that while branding has been common among journalists on social media, different branding practices would result in different levels of visibility of a journalist's Twitter account. Branding on the organizational and individual level could increase journals' visibility while institutional branding would negatively impact their visibility. The effect of different rational cues varies. The use of URL has significantly increased the visibility of a tweet and the appearance of rational language has had an opposite effect. The influence of affective cues on a tweet's visibility is not evident in this study. What is more, this study finds that as the progress of a crisis, tweets with affective cues would generate more retweets and favorites. This finding confirms that when facing a crisis, heuristic processing strategy would dominate.

RECOMMENDATIONS

There are several limitations of the current study that need to be addressed in future research.
- Though this study has examined the visibility of journalists from two different levels, the account levels and the tweet level, the interactions between these two levels have not been researched. Therefore, future research could consider building a multilevel regression model to test the interactivity.
- While using a simple linear regression model to investigate the relationships between dependent variables and independent variables, the values of the dependent variables (the number of retweets and favorites) follow a long-tail distribution, so future studies could try to use other models to make the prediction.
- This study only focuses on several rational and affective cues on Twitter, other Twitter features such as #hashtag and @mention may also be conceptualized to be whether rational or affective.
- Rather than the number of retweets, favorites and followers, other visibility measurements could also be considered in future studies, such as the number of comments and the number of replies received by a Twitter account and the frequency of an account is mentioned by other users, etc.

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