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Short Research Paper

# Analysis on the Influencing Factors of User Participation in Corporate Social Responsibility Communication in Social Media

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**Abstract:** For the current status of research on the factors influencing CSR communication in users' participation in social media, which is dominated by information content features, this study combines corporate features with information features based on ELM. In this study, 4183 CSR communication data obtained from Sina Weibo were studied using negative binomial regression analysis. The results prove that sentiment of messages and message content quality such as information presentation richness, interactivity, CSR tags, CSR quantification results and CSR COVID-19 pandemic theme influence user participation from the central route, while enterprise features such as controversial companies and number of followers influence user participation through the peripheral route. Specifically, information presentation richness, interactivity, CSR quantification results, number of followers and sentiment of messages positively influence user participation. CSR tags and COVID-19 pandemic theme positively influence users' reposts. CSR tags positively affect users' likes. Controversial corporate background negatively influence users' reposts and comments, and positively influence users' likes.

Keywords: CSR communication, social media, user participation, ELM

## 1. INTRODUCTION

Corporate social responsibility (CSR) communication is a process by which companies communicate with their stakeholders in terms of CSR contributions to meet the latter's expectations<sup>[1]</sup>. The emergence of social media has enabled companies and stakeholders to achieve two-way, instant, symmetrical communication<sup>[2]</sup>. An increasing number of companies are choosing to communicate CSR through social media, which supports the co-creation of content between enterprises and users, namely, Enterprise-Generated Content (EGC) and User-Generated Content (UGC)<sup>[3]</sup>. Enterprises publish social responsibility information posts on social media, and users generate content, such as reposting numbers, commenting numbers, and liking numbers, through reposting, commenting, and liking posts. Simultaneously, a large number of UGC is gathered through reposting and commenting to express users' recognition, praise, criticism, and even expose false CSR behavior. Similar to offline word-of-mouth, UGC may affect the reputation and credibility of the company's information<sup>[4]</sup>. At this time, the company may improve the quality of CSR information posted on social media to reduce public suspicion. Simultaneously, enterprises can observe users' opinions and reactions almost instantaneously through UGC and accordingly adjust their CSR activities on time.

Social media users' participation in CSR communication helps reduce stakeholders' suspicion, obtain timely feedback from users on CSR, evaluate whether CSR goals are achieved, and expand CSR influence; however, user participation in CSR communication on social media is not high. Therefore, it is necessary to explore the factors that affect user participation in CSR communication in social media.

Through literature review, it is found that existing studies have mostly explored the influence of EGC information characteristics on user participation, and few scholars have combined background characteristics with information characteristics to study user involvement. In addition to the characteristics of social media

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itself, existing studies mostly mine EGC information characteristics from the perspective of CSR topics and content, ignoring the impact of CSR quantitative results on user participation in social media. Clarifying whether these characteristics can influence user engagement is of great relevance to enterprises. Therefore, this article will focus on the message content quality (richness of information presentation, interactivity, CSR tags, CSR quantitative results and CSR theme), sentiment of messages and enterprise characteristics (corporate background and number of followers) and discuss their influence on user participation in CSR communication in social media.

## 2. HYPOTHESIS AND DATA

### 2.1 Hypothesis

Elaboration Likelihood Model (ELM) is a dual-process theory of persuasion<sup>[5]</sup>. ELM suggests that individual attitude change can be accomplished through a central and peripheral route. Attitudes change from the central route when receivers have both the motivation and the ability to process the information. When this route works, receivers rationally. While receivers lack the motivation or ability to cope with the message, persuasion occurs via the peripheral route. In this route, receivers make empirical decisions about simple cues<sup>[6]</sup>. ELM has been widely used to study user behavior in social media. Social media marketing events related to content introduction and surrounding information affect user attitudes from central and peripheral routes, respectively<sup>[7]</sup>. Therefore, this paper argues that message content quality and sentiment of messages affect user engagement from the central route and surrounding information, such as corporate characteristics, affects user engagement from the peripheral route. Thus, we can derive a conceptual framework as shown in Figure 1.

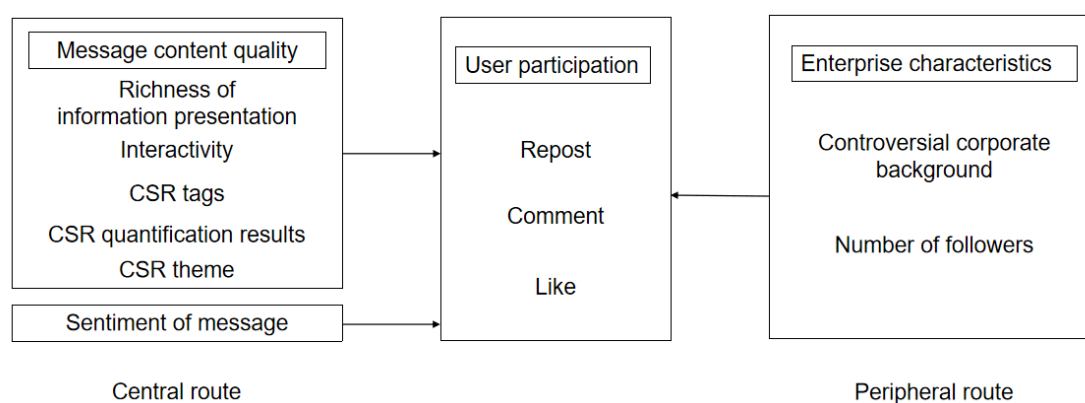


Figure 1. Conceptual framework

#### 2.1.1 Central route

Insufficient information significantly reduces user engagement<sup>[8]</sup>. Different media (photos, videos, links, etc.) can increase the amount of CSR information, enhance the richness of the CSR content, and make it more attractive, thereby increasing user participation and completing more effective communication. The proper combination of visual and textual contents can enrich the dimensions of CSR information presentation, improve information quality, and promote effective user participation<sup>[8]</sup>. The findings of Brubaker and Wilson<sup>[9]</sup> confirm that visual content has a significant impact on user engagement in social media. Therefore, this research proposes the following:

*H1: The richness of information presentation will positively promote users' participation in CSR communication in social media.*

EGC texts with interactive features increase users' positive experiences and promote user participation<sup>[10]</sup>. For example, @Users can shorten the distance between enterprises and users, increase the delivery rate of CSR

information, and encourage users to obtain more CSR information.<sup>[11]</sup> CSR posts with a draw set up have much higher user participation than other types of posts. Therefore, this research proposes the following:

*H2: Interactivity will positively promote users' participation in CSR communication in social media.*

The use of information tags makes the information focused and easier to search, which is an important cue for users to read quickly. It is easier to attract users to participate by clarifying the CSR theme of posts through labels<sup>[12]</sup>. The results of team games influence user participation in social media<sup>[13]</sup>. Similarly, the use of CSR quantification results has implications for users. Through the quantified CSR results, users can more intuitively perceive the degree of enterprise effort and contribution to society. Therefore, this research proposes the following:

*H3: The CSR tags will positively promote users' participation in CSR communication in social media.*

*H4: CSR quantification results will positively promote users' participation in CSR communication in social media.*

Current affairs hotpots on social media are usually high-profile news and hot events, which have a high degree of attention. Companies choose to engage in CSR in the context of current affairs hotpots that have garnered widespread social attention. Communication through social media may gain greater attention, resonating with social media users and leading to higher involvement<sup>[12]</sup>. The COVID-19 pandemic is a major global public health event; thus, “anti-pandemic” has become the main theme of the hot search on Sina Weibo in 2020. This study categorizes CSR themes as COVID-19 related and unrelated, proposing the following:

*H5: The CSR theme of COVID-19 pandemic will positively promote users' participation in CSR communication in social media.*

Sentiment is a mental state<sup>[14]</sup>, which can be expressed through language and actions. According to sentiment attitude tendencies, sentiment can be divided into the following three categories: positive, neutral, and negative<sup>[15]</sup>. The theory of sentiment contagion states that the sentiment of the sentimental stimulator and the receiver in the interaction process tend to be consistent and have an impact on individual behavior. Online sentiment infections are widespread on social media and are closely related to user engagement. Du and Vieira<sup>[16]</sup> proposed that the use of sentimental stories to convey CSR can increase CSR communication participation and enhance trust. Therefore, this research proposes the following:

*H6: Sentiment of messages will affect users' participation in CSR communication in social media.*

### **2.1.2 Peripheral route**

There is a difference in the CSR communication between uncontroversial and controversial companies<sup>[17]</sup>. Controversial companies refer to companies whose production and operation processes or products do not conform to social norms, have negative external effects, or have potential hazards, such as addiction to the audience. This type of enterprise itself is controversial: First, it has the nature of “moral corruption,” such as alcohol companies, tobacco companies, and so on. Second, it is related to social and environmental issues, such as petroleum companies, nuclear energy companies, and so on.

To establish a good corporate image and meet the expectations of stakeholders, controversial companies are more actively involved in CSR activities than uncontroversial companies. However, due to the contradiction between the nature of the industry and the CSR performance, the public will treat disputed companies differently from uncontroversial companies when evaluating CSR. The effectiveness of the CSR activities of controversial companies will be weakened because the public will negatively attribute their CSR behavior. The CSR communication of controversial companies is more likely to be suspected by stakeholders<sup>[18]</sup>. Similar to how Song and Wen<sup>[17]</sup> regard CSR performance as a means of the normal operation of the petroleum industry, the public is more likely to suspect the CSR activities of controversial companies. Godfrey et al.<sup>[18]</sup> also found that the CSR effect of controversial companies is lower than that of uncontroversial companies. Therefore, this

research proposes the following:

*H7: Controversial companies will negatively influence users' participation in CSR communication in social media.*

As a social media, Weibo has social network characteristics. Users can actively follow corporate Weibo to obtain CSR related information based on their preferences. The more followers a Weibo user has, the more CSR posts posted will be read, which will attract higher attention<sup>[19]</sup> and the greater the likelihood of user engagement. Therefore, this research proposes the following:

*H8: Number of followers is positively related to users' participation in CSR communication in social media.*

## 2.2 Data

We selected 32 companies as a sample from the top 60 China Corporate Social Responsibility Leading Index released by the China Brand Development Research Institute of the People's Daily, covering a variety of industry categories. All posts published by 32 companies between November 1, 2019 and October 31, 2020 were collected by octopus collector. Details include Weibo name, number of followers, number of posts, post website, release time, post content, post pictures, post video, number of reposts, number of comments, number of likes, and other fields. Finally, 4,183 posts related to CSR were screened for the study sample.

## 3. RESULTS

### 3.1 Variable operationalization

In this study, the number of reposts, comments and likes were used as the dependent variables to measure user participation, and the quality of information content (richness of information presentation, interactivity, CSR tags, quantitative CSR results, CSR themes, sentiment) and corporate characteristics (controversial enterprise background, number of followers) were used as independent variables, and text length as control variables to conduct the study, as shown in Table 1.

**Table 1. Operationalization of variables**

Variables	Operationalization
Richness of information presentation (Richness)	The number of videos, links, and pictures included in the post
Interactivity (Interact)	Whether @Users, lottery, voting and inviting users to participate in the post; 0 = No, 1 = Yes
CSR tags (#CSR)	Does the post contain the CSR information tags; 0 = No, 1 = Yes
Quantitative CSR results (CSRQr)	Does the post include quantitative CSR results; 0 = No, 1 = Yes
CSR themes (COVID-19)	Whether it was related to the COVID-19 pandemic; 0 = No, 1 = Yes
Sentiment of messages (Sentiment)	The sentimental tendency of the post, positive, neutral, and negative are coded as 1, 0, -1 respectively
Enterprise Background (Ebackground)	Whether it is a controversial enterprise; 0 = No, 1 = Yes
Followers (Followers)	The number of followers
Text length (Length)	The number of characters in the post
Reposting (Reposts)	The number of reposting
Commenting (Comments)	The number of commenting
Liking (Likes)	The number of liking

### 3.2 Data analysis

#### 3.2.1 Summary statistics of variables

Descriptive statistics for the count and categorical variables are presented in Tables 2 and 3, respectively.

**Table 2. Descriptive statistical analysis of count variables (N = 4183)**

Variable	Min	Max	Mean	SD
Length	5	1283	173.17	97.14
Richness	0	2	1.04	0.42
Followers	24613	6306764	1148565	1454713
Reposts	0	44373	76.44	932.19
Comments	0	14236	48.76	334.18
Likes	0	199399	336.02	3989.38

**Table 3. Descriptive statistics results of categorical variables (N = 4183)**

Variables	Values	Percentages
Interact	0	0.983
	1	0.017
#CSR	0	0.171
	1	0.829
CSRQr	0	0.828
	1	0.172
Sentiment	-1	0.205
	0	0.597
	1	0.198
COVID-19	0	0.434
	1	0.566
Ebackground	0	0.786
	1	0.214

#### 3.2.2 Test of hypotheses

Based on previous studies<sup>[20]</sup>, we adopted the negative binomial regression model to verify our hypothesis. The dependent variables in this paper are reposts, comments and likes, which are non-negative integers (count variables), are randomly and independently distributed, and have the characteristics of Poisson distribution. The Poisson distribution requires the data to meet the equal dispersion of mean and variance. As shown in Table 2, the variance of the count variable is not equal to the mean, and the variance is much larger than the mean, resulting in over-dispersion. At this point, it is more scientific to use the negative binomial regression model for testing. Logarithms of the number of followers and the length of the text were used to maintain the stability of the model.

The results of the negative binomial regression are presented in Table 4.

**Table 4. Results of the negative binomial regression model**

Variables	Reposts		Comments		Likes	
	M1		M2		M3	
	$\beta$	SE	$\beta$	SE	$\beta$	SE
Ln(Length)	-0.193***	0.050	-0.398***	0.033	-0.645***	0.040
Richness	0.885***	0.073	0.262***	0.053	0.248***	0.062
Interact	1.900***	0.197	1.539***	0.146	2.719***	0.187
#CSR	0.693***	0.067	-0.066	0.054	0.185**	0.066
CSRQr	1.069***	0.075	1.543***	0.060	1.893***	0.077
COVID-19	0.566***	0.059	-0.049	0.048	-0.036	0.065
Sentiment	0.257***	0.058	0.125**	0.043	0.239***	0.054
Ebackground	-1.244***	0.077	-1.749***	0.062	0.166*	0.082
Ln(Followers)	0.368***	0.020	0.057***	0.016	0.109***	0.019
Intercept	-2.067***	0.424	4.389***	0.300	6.099***	0.367
alpha	2.936***	0.055	1.841***	0.036	2.780***	0.049
Log Likelihood	-17634.024		-18111.971		-24067.447	
P	0.000		0.000		0.000	
N	4183					

Note(s): \*p < 0.05; \*\*p < 0.01; \*\*\*p < 0.001

All models had o-values significantly greater than 1.96 ( $p=0.000<0.05$ ), which indicates a significant over dispersion of the data and therefore the use of negative binomial regression is appropriate. As can be seen from the table 4, p values of Model 1, Model 2 and Model 3 are all less than 0.001, indicating that the model construction is meaningful.

Based on the empirical results, H1 is supported. The richer the media used in the posts, the richer the information presentation method, and the more information it may contain. Users can obtain information from it and respond quickly, which has a positive impact on user reposts ( $\beta=0.885$ ,  $P=0.000<0.05$ ), comments ( $\beta=0.262$ ,  $P=0.000<0.05$ ) and likes ( $\beta=0.248$ ,  $P=0.000<0.05$ ). H2 and H4 are supported. The interactivity of posts has a significantly positive impact on user reposts ( $\beta=1.900$ ,  $P=0.000<0.05$ ), comments ( $\beta=1.539$ ,  $P=0.000<0.05$ ) and likes ( $\beta=2.719$ ,  $P=0.000<0.05$ ), and CSR quantitative results has a significantly positive impact on user reposts ( $\beta=1.069$ ,  $P=0.000<0.05$ ), comments ( $\beta=1.543$ ,  $P=0.000<0.05$ ) and likes ( $\beta=1.893$ ,  $P=0.000<0.05$ ). Conducting behavior guidance through posts can significantly increase user engagement. Results-oriented users are more concerned about what the company “has done” rather than what it “had done”; quantifying CSR results in numbers can give people a more intuitive perception of the contribution value, which can effectively promote user participation. H6 is supported. The sentimental tendency of posts can significantly affect user reposts ( $\beta=0.257$ ,  $P=0.000<0.05$ ), comments ( $\beta=0.125$ ,  $P=0.004<0.05$ ) and likes ( $\beta=0.239$ ,  $P=0.000<0.05$ ). The company publishes posts, and the overall sentiment tend to be positive. The more positive the sentiment, the more user participation can be promoted. H8 is supported. The number of followers is positively correlated with user reposts ( $\beta=0.368$ ,  $P=0.000<0.05$ ), comments ( $\beta=0.057$ ,  $P=0.000<0.05$ ) and likes ( $\beta=0.109$ ,  $P=0.000<0.05$ ).

H3 is rejected. The CSR information tags have a significantly positive impact on user participation in reposting ( $\beta=0.693$ ,  $P=0.000<0.05$ ) and liking ( $\beta=0.185$ ,  $P=0.005<0.05$ ), but have no significant impact on user participation in commenting ( $\beta=-0.066$ ,  $P=0.222>0.05$ ). The CSR theme of the COVID-19 pandemic has a significantly positive impact on user participation in reposting ( $\beta=0.566$ ,  $P=0.000<0.05$ ) but has no significant

impact on the same in comments( $\beta=-0.049$ ,  $P=0.304>0.05$ ) and likes( $\beta=-0.036$ ,  $P=0.577>0.05$ ). Thus, H5 is rejected. An enterprise's background affects user participation. The controversial enterprise background has a significantly negative impact on user participation in reposting( $\beta=-1.244$ ,  $P=0.000<0.05$ ) and commenting( $\beta=-1.749$ ,  $P=0.000<0.05$ ). But there is a significantly positive impact on user participation in liking( $\beta=0.166$ ,  $P=0.043<0.05$ ), H7 is rejected. This may be because users are skeptical of the CSR of the controversial enterprise and are unwilling to spread it again through reposting. They are also more cautious about commenting and instead express their emotions through likes.

#### 4. CONCLUSIONS

This study validates the factors influencing users' participation in CSR communication in social media based on ELM. Sentiment of messages and message content quality such as information presentation richness, interactivity, CSR tags, CSR quantification results and CSR COVID-19 pandemic theme influence user participation from the central route, while corporate characteristics such as controversial companies and number of followers influence user participation through the peripheral route. Specifically, information presentation richness, interactivity, CSR quantification results, sentiment and number of followers positively influence user participation. CSR tags and COVID-19 pandemic theme positively influence users' reposts. CSR tags positively affect users' likes. Controversial corporate backgrounds negatively influence users' reposts and comments, and positively influence users' likes.

The first theoretical contribution of this study is a breakthrough from the existing literature that takes corporate background (Du and Vieira, 2012) or topical issues as the research context. This study enriches the research on the factors influencing user engagement in social media CSR communication by including corporate context and current events hotspots as influencing factors and creatively proposing the influence of quantitative CSR results on user engagement. Second, the study contributes to the literature in the field of CSR communication by introducing ELM into the research, bringing new developments to the study of user participation behavior in CSR communication.

At the same time, the study has practical implications for companies to refer to when formulating CSR communication strategies. First, enterprises should pay attention to EGC and optimize the combination of information features. The study shows that information presentation richness, interactivity, CSR tags, CSR quantitative results and CSR themes all have a positive impact on users' reposts, comments or likes, and companies should use more of these features in practice. Second, companies should use more positive words and show positive emotions when communicating about CSR. Finally, controversial companies should integrate CSR activities into their business operations and use social media to invite users to participate in CSR design to reduce the negative impact of corporate context and reduce public suspicion.

This study has certain limitations. The sample data of the research only comes from Weibo in China, and whether the research results apply to other social media platforms remains to be discussed. It does not involve qualitative research on UGC. In the future, we will consider further examining users' opinions and attitudes toward UGC.

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