

EMPIRICAL STUDY ON IMPACT FACTORS OF SHORT VIDEO INFORMATION CREDIBILITY

SHUANG WANG, YUQI BI AND YANZHOU LI

School of Economics and Management
Dalian University
No. 10, Xuefu Street, Jinzhou New District, Dalian 116622, P. R. China
wangshuang@dlu.edu.cn; dm64670@163.com; 3225986847@qq.com

Received February 2021; accepted April 2021

ABSTRACT. *With the rapid popularization of network technology, a growing number of Chinese watch short videos. However, there are a lot of false information, network rumors and spam advertisements in the current network short video, which brings great trouble to the short video users to obtain effective information. In order to explore the impact factors of the credibility on short video information, this paper redesigns the scale on the basis of the existing scale, takes into account the social status of information disseminators, the motivation of information disseminators and the distinguish ability of information receivers and the dependence of users on short video platform which were not considered in the original scale. Through the network survey method, this paper collects 802 samples nationwide. By applying exploratory factor analysis, reliability analysis, confirmatory factor and convergent validity analysis and discriminant validity analysis, this paper tests the reliability and validity as well as the stability of the model. By applying structural equation model, this paper analyzes the impact factors via Amos software. The results show that information disseminator, information content and information dissemination channel have a positive and significant impact on the credibility of short video information, while the information receiver has a negative significant impact on the credibility of short video information.*

Keywords: Short video, Information credibility, Structural equation model, Amos

1. Introduction. Covid-19 is rampant all over the world at early 2020. Under the home quarantine environment, public demand for online entertainment increases. As the main force of user usage time, short video grows explosively on user scale. According to the 45th *Statistical Report on the Development of China's Internet Network*, the number of short video users in China has reached 773 million by March 2020, accounting for 85.6% of the total Internet users. However, there are more than 20000 Covid-19 rumors and illegal videos only on Tiktok because of its lack of effective content auditing mechanism. For example, the rumor "Covid-19 is transmitted through surgical masks" on Tiktok obtained more than 2 million LIKE from users. This is because the openness of network short video makes each user not only become the receiver of information, but also the provider of information. User identity on short video platform is virtual, so users release information with randomness and concealment to a certain degree. As a result, there are a lot of false information, network rumors and spam advertisements in the network short video, which brings great trouble to obtain the real and effective information for the short video users.

Social network information refers to the information transmitted through WeChat, MicroBlog, short video and other media; while short video information refers to the information presented to the public only through short video, which has the characteristics of rich content, novel and diverse forms, and stronger expression. Many scholars

have studied the credibility of social network information, mainly focusing on the information disseminator, information receiver, information content, communication channels and other aspects [1-6]. However, on the study of information credibility evaluation index system construction, Cao and Chang [2] did not consider the social status of information disseminators; Ding [3] did not consider the distinguish ability of information receivers; Wu et al. [4] did not consider the dissemination motivation of information disseminators and the dependence of users on short video platform. On the study of processing and analyzing the evaluation index data, Li [5] extracted the main factors of the measurement indicators in the scale by applying exploratory factor analysis, but did not verify the rationality of the extraction. Zhang [6] explored the relationship between variables and information credibility by applying partial correlation analysis, but did not test the reliability and validity of the questionnaire. Few scholars have studied the credibility of short video information. Therefore, this paper constructs a new questionnaire to improve the five dimensions including information disseminator, information receiver, information content, and communication channel and information credibility. By applying exploratory factor analysis, reliability analysis, confirmatory factor and convergent validity analysis and discriminant validity analysis, this paper tests the reliability and validity of the questionnaire, and then analyzes the relationship between variables and information credibility via structural equation model. Finally, according to the research results, reasonable suggestions are put forward to increase the credibility of information in short video.

2. Theoretical Basis and Research Hypothesis.

2.1. Credibility of information. Some scholars evaluate network information by credibility. However, different scholars hold different views on the definition of credibility. Freeman and Spyridakis [7] believe that credibility is the objective judgment of information quality and accuracy by information receivers and subjective perception of reliability and professionalism of information sources. Ahmad et al. [8] believe that credibility is not the objective attribute of an information source and a piece of information, but the subjective perception of information by the information receiver. Li and Wang [9] believe that information credibility is the degree to which information is trustworthy, which is an intuitive feeling of information audiences. Guo et al. [10] believe that if information is disseminated through media such as the Internet, information credibility can be analyzed from the three dimensions of information source credibility, information content credibility, and media credibility. Based on the above definitions of information credibility from these scholars, it can be found that they all agree that information credibility is the subjective perception of information users and a subjective judgment of users. Therefore, this paper puts forward the following assumptions.

H_a : The higher the credibility of disseminators, the higher the credibility of information.

H_b : The higher the perception ability of the receiver, the lower the credibility of information.

H_c : The higher the credibility of information content, the higher the credibility of information.

H_d : The higher the credibility of information dissemination channels, the higher the credibility of information.

2.2. Credibility of information disseminator. Aristotle pointed out in *Rhetoric* that if a person has *good sense, good morals, good will*, he could win the trust of the audience. Vandenbergh et al. [11] believe that the credibility of disseminators is related to their prestige, ability and public familiarity with them. McCroskey and Young [12] believe that the credibility of disseminators is related to their personality, ability, professionalism and sociality. Ge et al. [13] believe that the credibility of disseminators is related to

the credibility of disseminators, professional authority and self identity. The higher the information receiver believes on the disseminator about their prestige, status, professionalism and personal ability, the higher the credibility of the information the disseminator releases, the easier it will be accepted by users. If the information receiver finds that the information on social media contains some hidden motives from the disseminators (such as advertising information, and rumors), the credibility of the information released by the disseminator will be greatly reduced. Therefore, this paper puts forward the following assumptions.

H_{a1} : The short video information receiver's perception on professionalism of the short video information disseminator has a positive impact on the credibility of the short video information.

H_{a2} : The short video information receiver's perception on social status of the short video information disseminator has a positive impact on the credibility of the short video information.

H_{a3} : The short video information receiver's perception on good intentions of the short video information disseminator has a positive impact on the credibility of short video information.

2.3. Information receiver's perception ability. Information receiver's perception ability refers to information receiver's subjective judgment on information. It is related to the professionalism, discrimination and trust tendency of information receivers [14]. Information receiver's professionalism is related to its own knowledge level, which is the degree of knowledge and experience an individual has when understanding information. The higher a person's knowledge level is, the more capable he will be to think about what the information wants to express. The lower a person's knowledge level is, the more likely he will be to trust and to be affected by the false information [15]. Information receiver's distinguish ability refers to that the information receiver can distinguish the truth from the false information when facing a large number of information, and he can obtain the relevant information that he needs without being blinded by some false information. The lower a person's ability is to distinguish the authenticity of the information in the short video, the more likely he will be to be affected by the false information. Personal trust tendency is a characteristic of the information recipient, a willingness to trust displayed by the information recipient, and the degree of trust in other people or things. Therefore, the higher trust tendency a person owns, the more likely he will believe the information provided by others. Meanwhile, the lower trust tendency a person owns, the more likely he will be skeptical about the information or things received. Therefore, this paper puts forward the following assumptions.

H_{b1} : Short video information receiver's perception on his or her own professionalism has a negative impact on the credibility of short video information.

H_{b2} : Short video information receiver's distinguish ability has a negative impact on the credibility of short video information.

H_{b3} : Short video information receiver's trust tendency has a negative impact on the credibility of short video information.

2.4. Credibility of information content. Credibility of information content is the perception of information content itself, such as expression mode, and consistency [16]. There are many ways to express information. When the information expression mode is interesting, the information receiver will often remember the information. Therefore, the interest of the short video information expression can improve the user's perception on the short video information, thus affecting the reliability of the short video information. When the information expression is objective, the information receiver is more likely to trust the information. Information consistency means that if the information receiver can find the corresponding instance or data to verify the information, then the information

content is reliable. Among the numerous short video information, users tend to trust the information that can be corroborated by traditional media. Therefore, this paper puts forward the following assumptions.

H_{c1} : Short video information receiver’s perception on short video information expression has a positive impact on the credibility of short video information.

H_{c2} : Short video information receiver’s perception on short video information consistency has a positive impact on the credibility of short video information.

2.5. Credibility of information dissemination channels. The reliability of short video platform can affect the user’s attitude towards the credibility of the short video information content. The short video platform with high reliability must have a high popularity and a good brand image, and has a high influence in its field, which is generally recognized by users and consumers. Fischer and Reuber [17] believed that users’ social media dependence will affect their thinking and behavior, especially the judgment on information credibility. Metzger [18] found that information receivers tend to regard their familiar and commonly used channels as the most reliable in the process of information collection. Therefore, this paper puts forward the following assumptions.

H_{d1} : Short video information receiver’s judgement on the application reliability of short video platform has a positive impact on the credibility of short video information.

H_{d2} : Short video information receiver’s judgement on the application dependence of short video platform has a positive impact on the credibility of short video information.

Based on the above assumptions, this paper constructs the model of impact factors of short video information credibility, as shown in Figure 1.

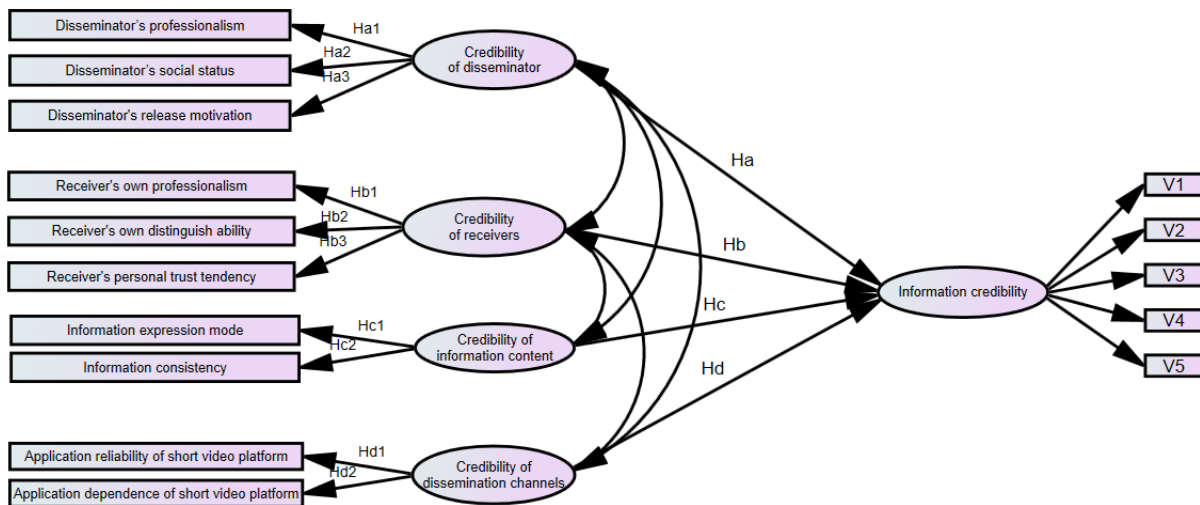


FIGURE 1. Model of impact factors of short video message credibility

$V1 \sim V5$ in Figure 1 represent measurement items of information credibility, as shown in Table 1.

TABLE 1. Measurement items of information credibility

Symbol	Measurement items
$V1$	I think the information is complete.
$V2$	I think the information is correct.
$V3$	I think the information is very professional.
$V4$	I think this piece of information is a description of objective things.
$V5$	I think the information is credible.

3. Variable Selection and Data Collection. On the basis of analyzing the impact factors of the credibility of short video information and referring to the previous research results of scholars on the measurement of information credibility, this paper further refines the impact factors mentioned above by combining with the specific characteristics of short video information, perfects the relevant factors that may be the impact factors of credibility, and includes the social status of information disseminator, distinguish ability of information receivers, releasing motivation of information disseminator and user’s dependence on short video platform not taken into account in the original scale, and finally forms in the final questionnaire. It sets up 40 measurement items in total, including 5 on information credibility. And it measures with Likert scale 5, in which 1 represents full agreement and 5 represents total disagreement.

Finally, through the combination of online and offline survey methods, this paper collects 850 questionnaires nationwide, and obtains 802 valid questionnaires after eliminating the invalid questionnaires such as too many blanks or inconsistencies, with the recovery rate of 94.4%. Among the samples, 52.12% are female and 47.88% are male. In addition, the participants in the survey aged 21-30 years old accounted for 39.65%, 31-40 years old accounted for 23.44%, 41-50 years old accounted for 22.32%, 51-60 years old accounted for 7.73%, 61 years old and above accounted for 1.62%, the proportion of 20 years old and below is 5.24%. Students accounted for 30.67%, corporate employees accounted for 23.94%, public institutions accounted for 18.33%, freelancers accounted for 13.09%, retirees accounted for 7.61%, and civil servants accounted for 6.36%. Therefore, the survey sample is basically reasonable.

4. Empirical Analysis.

4.1. Reliability and validity test. In order to study the rationality, consistency and the stability of the model, this paper uses four analysis steps including exploratory factor analysis, reliability analysis, confirmatory factor and convergent validity analysis, discrimination analysis. It measures the reliability, significance, *KMO* value, and standardized load factor of each measurement factor by applying *Amos* and *SPSS* software. The *Cronbach’s α* coefficient, *KMO* value and standardized load factor of all the factors exceeded 0.7 [19], and are significant at the level of 0.001, indicating that the questionnaire has good reliability and is suitable for factor analysis. According to the standardized load coefficient of each measurement factor, it calculates the average extraction variance value (*AVE*) and combination reliability value (*CR*). Through calculation, it shows that the *AVE* value of each measurement index is greater than 0.5, and the *CR* values are all greater than 0.7, indicating that the model has good goodness of fit and good convergence validity. Finally, by comparing the correlation coefficients between the second-order principal factor *AVE* value and the second-order principal factor and other second-order principal factors in different dimensions, it is concluded that the second-order principal factor *AVE* values of each dimension are greater than the correlation coefficients between the second-order principal factors and other second-order principal factors, indicating that the questionnaire has good discrimination validity. *Cronbach’s α* coefficient, *KMO*, *AVE*, *CR* value for each level of indicators are shown in Table 2.

TABLE 2. *Cronbach’s α* coefficient, *KMO*, *AVE*, *CR* value for each level of indicators

Dimension	<i>Cronbach’s α</i> coefficient	<i>KMO</i>	<i>CR</i>	<i>AVE</i>
Credibility of disseminators	0.921	0.867	0.952	0.869
Credibility of receivers	0.785	0.744	0.865	0.681
Credibility of information content	0.788	0.849	0.892	0.736
Credibility of dissemination channels	0.800	0.848	0.792	0.651
Information credibility	0.770	0.805	0.833	0.730

4.2. Structural equation model analysis. By applying the structural equation model [20], this paper tests the relationship between the variables assumed in the theoretical model, analyzes the model data by *Amos* software, and obtains the estimated results and hypothesis test results of path coefficients, where *** means $P \leq 0.001$, as shown in Table 3.

TABLE 3. Path coefficient and hypothesis test results

Hypothesis and path	Regression coefficient	Standardization regression coefficient	P value	If assumptions are supported?
H_a : Information credibility \leftarrow Credibility of disseminators	.338	.287	***	Pass
H_{a1} : Information credibility \leftarrow Professionalism of disseminators	.213	.171	***	Pass
H_{a2} : Information credibility \leftarrow Social status of disseminators	.133	.095	.004	Pass
H_{a3} : Information credibility \leftarrow Release motivation of disseminators	.174	.116	.738	Failed
H_b : Information credibility \leftarrow Credibility of receivers	-.231	-.154	***	Pass
H_{b1} : Information credibility \leftarrow Professionalism of receivers	-.157	-.132	.392	Failed
H_{b2} : Information credibility \leftarrow Distinguish ability of receivers	-.487	-.357	***	Pass
H_{b3} : Information credibility \leftarrow Personal trust tendency of receivers	-.325	-.262	***	Pass
H_c : Information credibility \leftarrow Credibility of information content	.615	.539	***	Pass
H_{c1} : Information credibility \leftarrow Information expression mode	.463	.382	.102	Failed
H_{c2} : Information credibility \leftarrow Information consistency	.273	.254	.005	Pass
H_d : Information credibility \leftarrow Credibility of information dissemination channels	.114	.092	***	Pass
H_{d1} : Information credibility \leftarrow Application reliability of short video platform	.317	.235	***	Pass
H_{d2} : Information credibility \leftarrow Application dependence of short video platform	.089	.076	.100	Failed

It can be seen from Table 3 that credibility of disseminator, credibility of receivers, credibility of information content and credibility of dissemination channels all have significant impact on the credibility of short video information, so the hypothesis H_a , H_b , H_c , H_d are tenable. Disseminator's professionalism, disseminator's social status, receiver's own distinguish ability, receiver's personal trust tendency, information consistency and application reliability of short video platform have significant impact on the credibility of short video information, so the hypotheses H_{a1} , H_{a2} , H_{b2} , H_{b3} , H_{c2} , H_{d1} are tenable. However, disseminator's release motivation, receiver's own professionalism, information expression mode, and application dependence of short video platform have no significant impact on the credibility of short video information, so the hypotheses H_{a3} , H_{b1} , H_{c1} , H_{d2} are not tenable.

5. Conclusion and Suggestion.

5.1. Conclusion.

1) Users' perception of the credibility on short video information is affected by credibility of short video information disseminator, credibility perception ability of short video information receiver, credibility of short video information content, and credibility of short

video information dissemination channel. Among them, credibility of short video information content is the most important factor, which positively affects the user's perception of credibility of the short video information. It shows that information content is most likely to determine the user's perception of credibility of short video information. Credibility of the disseminator is the second important factor. The higher the credibility of disseminator, the higher the users' perception of the credibility on the short video information. Receiver's credibility has the least impact on users' perception of short video information credibility, and receiver's credibility has a negative impact on users' perception of short video information credibility.

2) For the credibility of short video disseminator, disseminator's professionalism, social status and release motivation have positive impact on them. Among them, the impact of disseminator's professionalism is the largest, followed by the release motivation, and then the social status. It shows that the information receiver's perception of the credibility of the information disseminator is more inclined to the perception of its professionalism. Therefore, the disseminator's professionalism is more helpful to enhance the user's perception of the credibility of social media information.

3) Credibility perception of short video receivers is affected by the specialty of receivers' professionalism, distinguish ability, and personal trust tendency. Receivers' distinguish ability is the most important factor, then receivers' personal trust tendency, and finally receivers' professionalism. And the above three factors have a negative impact on the perception ability of the short video receiver. Therefore, from the perspective of the receiver, whether the information is accepted as credible first depends on the receiver's own distinguish ability. The higher the receiver's own distinguish ability, the more the receiver thinks that he understands the information, the more he believes in his own subjective judgment, and the lower his perception of the credibility of information disseminated by others.

4) Information expression mode and information consistency affect the credibility of short video information content. The higher the rationality and consistency of information expression mode, the higher the credibility of short video information content. The impact of information expression mode is large while the impact of information consistency is small, which indicates that whether information is believed to be credible or not depends on the information expression mode – objectivity.

5) The credibility of short video information dissemination channel is related to the application reliability of short video platform and the application dependence of short video platform. Both of them have a positive impact on the credibility of short video information dissemination channel, while short video application platform has the greatest impact. With the development of social environment, users can watch more and more short video platforms. However, users tend to trust the information on short video platforms with high reliability for that the higher the reliability of the platform, the more strict the audit on short video, so as to avoid false information on the platform as much as possible.

5.2. Suggestion.

1) Strengthen the self-discipline of the short video information publishers and enhance their professionalism.

The information receiver's perception on the credibility of the information disseminator is more inclined to the perception of its professionalism. Therefore, compared with disseminator's social status and release motivation, disseminator's professionalism is more helpful to enhance users' perception of the credibility of short video information. This hints that information disseminators should display their professionalism as much as possible in short video, so as to enhance the information receiver's perception of information credibility. That is, information disseminators should release and disseminate information

in their familiar professional fields. Short video platform should also fully encourage users to choose this kind of professional behavior.

2) Short video information receiver can improve the distinguish ability and cultivate excellent media accomplishment.

The credibility perception ability of short video information receivers is mainly affected by their own distinguish ability, and the impact on information credibility is negative. Therefore, short video users should improve their distinguish ability to avoid being misled by false short video information. At the same time, short video users also should cultivate their own excellent media accomplishment, take into account the possible consequences of their own behavior and bear the corresponding responsibility, so as to avoid the occurrence of false short video information dissemination.

3) Short video platform should supervise the release of short video information by reasonably using administrative means.

According to the survey results, the reliability of short video platform significantly affects users' perception of information credibility. In order to effectively eliminate the phenomenon of false information in short video information, relevant platforms should strengthen the supervision on the release of short video information and improve relevant regulatory policies.

Acknowledgement. This research was supported by the Fund Project of Science and Technology Innovation of Dalian (2020JJ27FZ119), and Innovation and Entrepreneurship Training Program of Undergraduate in 2020 (202011258357).

REFERENCES

- [1] Y. Jin, D. Wang and J. Li, Empirical analysis on impact factors of social media platform information credibility, *Journal of Beijing University of Posts and Telecommunications (Social Sciences Edition)*, vol.19, no.4, pp.1-8, 2017.
- [2] S. Cao and L. Chang, Research on influencing factors of information credibility of public health emergencies in social media – Taking WeChat as an example, *Modern Intelligence*, vol.40, no.9, 2020.
- [3] X. Ding, Impact factors of credibility of Internet word-of-mouth, *Technical Economy*, vol.31, no.11, pp.122-128, 2012.
- [4] L. Wu, Y. Rao, X. Fan and H. Yang, Research progress on credibility of network communication information content, *Chinese Journal of Information Technology*, vol.32, no.2, pp.1-11+21, 2018.
- [5] J. Li, Evaluation strategies and impact factors of social media information credibility, *Intelligence Journal*, vol.36, no.1, pp.181-186, 2017.
- [6] M. Zhang, Research on the credibility of network information: The perspective of netizens, *News and Communication Research*, no.2, pp.17-27+95, 2005.
- [7] K. S. Freeman and J. H. Spyridakis, An examination of factors that affect the credibility of online health information, *Technical Communication*, vol.51, no.2, pp.239-263, 2004.
- [8] R. Ahmad, J. Wang, K. Hercegi and A. Komlodi, Different people different styles: Impact of personality style in web sites credibility judgement, in *Human Interface and the Management of Information. Interacting with Information. Lecture Notes in Computer Science*, Springer Berlin Heidelberg, 2011.
- [9] B. Li and Y. Wang, A review of network information credibility evaluation in social media environment, *Journal of Information Science*, vol.34, no.12, pp.1314-1321, 2015.
- [10] J. Guo, Y. Guo, W. Shen and M. Pan, Research on online community information credibility evaluation method based on online reviews, *Library and Information Work*, vol.63, no.17, pp.137-144, 2019.
- [11] B. G. Vandenberg, L. C. Soley and L. N. Reid, Factor study of dimensions of advertiser credibility, *Journalism and Mass Communication Quarterly*, vol.58, no.4, p.629, 1981.
- [12] J. C. McCroskey and T. J. Young, Ethos and credibility: The construct and its measurement after three decades, *Communication Studies*, vol.32, no.1, pp.24-34, 1981.
- [13] Y. Ge, D. Zhao and Y. Qin, The influence of netizen comments on consumer attitude and willingness: The interaction of information stimulation, credibility of information source and brand experience, *Modern Communication (Journal of Communication University of China)*, no.10, pp.102-108, 2010.

- [14] X. Sun and D. Li, Research on impact factors of health information credibility in mobile social media – Taking WeChat as an example, *Intelligence Exploration*, no.6, pp.1-12, 2020.
- [15] E. H. Jung, C. K. Walsh and H. S. Kim, Factors influencing the perceived credibility of diet-nutrition information web sites, *Computers in Human Behavior*, vol.58, no.6, pp.37-47, 2016.
- [16] W. Shen, X. Kang, J. Wang and Z. Rao, Research on credibility evaluation of social Q&A on community information from the perspective of users, *Library and Information Work*, vol.62, no.17, pp.104-111, 2018.
- [17] E. Fischer and A. R. Reuber, Social interaction via new social media: (How) can interactions on Twitter affect effectual thinking and behavior?, *Journal of Business Venturing*, vol.26, no.1, pp.1-18, 2011.
- [18] M. J. Metzger, Making sense of credibility on the Web: Models for evaluating online information and recommendations for future research, *Journal of the American Society for Information Science and Technology*, vol.58, no.13, pp.2078-2091, 2007.
- [19] B. Lv, D. Chen and Z. Cha, Analysis of variance and reliability and validity test of entrepreneur incentive scale factors, *Statistics and Decision Making*, no.3, pp.184-188, 2014.
- [20] Z. Wu and X. Ding, Theory, establishment and application of structural equation model, *Science and Technology Management Research*, no.6, pp.90-92+95, 2004.