Proceedings of the 2nd International Conference on Interdisciplinary Humanities and Communication Studies
DOI: 10.54254/2753-7048/35/20232137

The Effects of Misinformation Identification in the Computer-mediated Communication Through Media Literacy Intervention

Ran Tao[1,a,*]

[1]*College of Liberal Arts and Social Sciences, City University of Hong Kong, Hong Kong, China*
a. tran9612@outlook.com
**corresponding author*

Abstract: Computer-mediated communication is an integral form of recent communication that allows people to gain information quickly and improve the engagement of information. However, computer-mediated communication also provides a medium for misinformation production and dissemination, which is caused by the need for a fact-checking mechanism, the distribution mechanism of systems, and the difference in the media literacy level of participants. Therefore, this study aims to explore misinformation identification's effect in computer-mediated communication's computer programming section by evaluating and analysing past research to enhance the misinformation research view. Media literacy intervention as a tool to improve the personal capacity for misinformation identification. Results have shown that the capacity of misinformation identification can work in the computer programming section to enhance the fact-checking system and improve the accuracy of information resources, content, and interactions in computer-mediated communication.

Keywords: Misinformation Identification, Media literacy Intervention, the Computer-mediated Communication, Arithmetic, Computer Programming

1. Introduction

Since the development of digital technology and the broadening of the digital environment, computer-mediated communication has provided a diversified platform for individuals, allowing them to search for various types of information independently and form the appropriate facts [1]. It means that most forms of computer-mediated communication enable individuals to access information at any time and location. Information and data can be pushed, modified, and extracted from connected devices without permission [2]. In general, computer-mediated communication is the process by which individuals use networked communication systems to create, exchange, and perceive information, facilitating the encoding, transmission, and decoding of information [3]. At the same time, media literacy research shows that media literacy intervention can improve the personal recognition ability to mainstream information and misinformation headlines and reduce misinformation influences [4]. With the development of usage in computer-mediated communication, the extent to which such misinformation identification effects are a significant area of research, as the misinformation governance, improvement of the information environment, and the cultivation of the ability of

DOI: 10.54254/2753-7048/35/20232137

misinformation identification. However, there are variances of studies in the misinformation identification area that most focus on the information receiver side. Therefore, this study focuses on the information distribution section on how computer programming influences misinformation production and dissemination by analysing the effects of misinformation identification ability through summarize and analysis past relative researches. Meanwhile, media literacy intervention is an instrument that will help to discuss the possibility of improving misinformation identification ability in computer-mediated communication. The implications of this study could include providing research views on misinformation identification research, aiding relative corporations to avoid risks from a lack of misinformation identification mechanism, and referring to further media literacy intervention in computer programming.

2. Evidence for the misinformation identification in computer-mediated communication

Some differences exist between misinformation and rumours, such as the existence of or belief in objectively incorrect information [5]. With the development of information technology, much false, unsubstantiated, and misleading information spreads faster through computer-mediated communication, which causes negative social influences [6]. Meanwhile, misinformation is a type of threat influencing the personal ability to make informed decisions quickly [7]. Misinformation is an unavoidable component of the computer-mediated communication information ecology. In fact, recent studies of misinformation identification focus more on the receiver side and investigate how to reduce user misinformation participation. There still needs to be more research in the information distribution or computer programming section. At the same time, most existing misinformation studies have generalised the misinformation dissemination environment without sufficiently considering the variability of the distribution mechanism. Research about misinformation identification in the computer programming section can address contextual generalisation to some extent.

2.1. Factors of Production and Dissemination of information

The production and dissemination of misinformation are caused by two factors: personal factors and content factors [8]. In other words, misinformation identification can provide a view of misinformation governance by enhancing the personal capacity of information engagement and the accuracy of information content.

2.1.1. Personal Capacity

The factors of personal capacity for information engagement are composed of the degree of influence by the information, personal desire, and cognitive level. First of all, computer-mediated communication is more straightforward to form virtual echo chambers that amplify radical, negative information or ideas that these factors often tend to constitute misinformation. Dame Adjin-Tettey has shown that this form of virtual echo chamber promotes misinformation dissemination [9]. Meanwhile, the degree of influence on information can accelerate misinformation's generation and dissemination. For example, individuals create anxiety and panic amid a large amount of information during COVID-19, which relates to personal benefits or interests [10]. It means that individuals susceptible to the negative effects of misinformation find it harder to complete the process of misinformation identification.

The desire for entertainment or enjoyment materialises through computer-mediated communication [11]. Computer-mediated communication provides a medium for individuals to gain or join entertainment that leads individuals to focus less on accuracy, such as funny stories and spoofs of celebrities or political figures [12]. According to the distribution mechanism of computer-mediated

DOI: 10.54254/2753-7048/35/20232137

communication, this sort of information will spread widely with a lot of exposure and views. In other words, misinformation identification ability plays a significant role in the computer programming section that can reduce information spreading and shorten the dissemination chain of this information to avoid misinformation secondary generation and dissemination.

Individuals' cognitive level also influences the identification capacity of misinformation. Individuals who use computer-mediated communication suffer from cognitive overload, which creates fatigue [13]. The one characteristic of misinformation identification ability is the capacity of cognition that helps individuals distinguish the truth of value and content. Islam et al., pointed out the relationship between the fatigue of usage of computer-mediated communication and misinformation sharing and that the usage fatigue will push individuals to share misinformation or join in the misinformation dissemination process [10]. According to computer programming or arithmetic techniques in computer-mediated communication systems, the credibility of sources and the quality of information items can be measured by taking advantage of collaborative filtering features [14]. Therefore, identifying misinformation in the computer programming section can enhance the information environment and improve the accuracy and quality of information content in computer-mediated communication.

2.1.2. Information content

In computer-mediated communication, novelty level and homogenisation are two factors that influence misinformation identification. At first, the novelty of the content affects the judgements of misinformation. Moreover, misinformation spreads faster than factual information with novelty, similar to the dissemination model of fake and real news [15]. This feature leads misinformation to disseminate wider, faster, and longer. Then, homogenous is another feature of the content of misinformation in computer-mediated communication. Computer-mediated communication enables individuals with common interests, opinions, and values to congregate and form homogenous clusters driven by content [6]. At the same time, these clusters are more accessible to form ‘virtual echo chambers’ with homogenisation as the internal driver. According to the features of misinformation content, computer-mediated communication is not only the medium of communication but also the regulatory role of intergroup communication [2]. Thus, misinformation identification in the process of computer programming can play a role in information regulation to ensure the accuracy and quality of information during the distribution process.

2.2. Distribution mechanism of information

Personal and content factors also work on the information distribution side, where the capacity of misinformation identification can improve the accuracy of computer programming and avoid the risks of misinformation dissemination. Computer-mediated communication is an interactive media environment that enables individuals to discuss topics or seek the opinions of others while getting quick access to information [16]. The interactive communication environment also increases the likelihood that individuals will receive misinformation and participate in the generation and dissemination of misinformation. At the same time, misinformation influences people’s cognition of information content by interfering with the reading or browsing context and affecing individuals’ focus [17]. According to the logic and features of computer-mediated communication, information with apparent errors will be identified and filtered by algorithms and computer programming. In a recent study, intelligent computer systems had the potential to act on automatically presented recommendations with little human input or intervention [3]. Meanwhile, such intelligent technologies are increasingly being used to actively filter and selectively present information in computer-mediated communication systems.

DOI: 10.54254/2753-7048/35/20232137

3. Evidence for the Effects of Media literacy intervention in computer-mediated communication

Media literacy generally means gaining, analyzing, and explaining information content [18]. Computer-mediated communication provides a medium for individuals as both posters and receivers that the majority of self-publish content without editing sections. Preventing the use of misinformation is more effective than treating the negative effects of misinformation [14]. Dissemination of misinformation can be prevented if individuals can make accurate decisions when forwarding incoming messages [14]. Craft et al. claimed that individual knowledge of the media is negatively correlated with the impact of misinformation [18]. It means that individuals know more about the media (including the type of media, the context of the media, and the impact of the news on public opinion), and the fewer misinformation effects. Meanwhile, media literacy can improve personal critical thinking ability by helping individuals improve media relative knowledge level and distinguish the truth about media [19].

In recent years, several studies have pointed to the relationship between media literacy and misinformation. Some of these studies argue that media literacy is crucial in misinformation-ridden environments [5]. In other words, media literacy reshapes individuals' engagement of information in computer-mediated communication that selects accurate information with recognition ability, critical thinking ability, and relative media knowledge. In past studies, media literacy of information in users' view has always been a significant research area. Most media literacy intervention programmes are also designed from the perspective of the information user, who lacks the perspective of information distribution or computer programming in computer-mediated communication.

For the computer programming section of computer-mediated communication, media literacy intervention can improve the personal recognition ability of mainstream information, misinformation titles, and keywords [4], which is used to design computer-mediated communication systems. This type of intervention ensures the accuracy of information on the information distribution side. Moreover, relative programming designers can use media or communication mindsets in algorithm design to avoid risks caused by misinformation. In fact, technology or algorithms can achieve this goal, such as Wikipedia. Wikipedia includes reliable information and an extensive knowledge base, allowing individuals to access information and contribute to content openly [7]. After media literacy intervention, the computer programming section plays the role of fact-checking and selection through algorithm design. Therefore, algorithms act as filters in computer-mediated communication, separating misinformation from accurate information [14]. After media literacy intervention, they have increased the accuracy of algorithms for automatic misinformation identification, reducing the possibility of distribution or dissemination of misinformation.

4. Factors of Misinformation identification

The 2018 World Economic Forum listed the spread of misinformation as one of the top risks [20]. Meanwhile, computer-mediated communication reshaped the structure of public social life by 'Sociality' and 'Spatiality' [2]. 'Sociality' means connecting and disconnecting from traditional personal relationships, and 'Spatiality' means connecting and disconnecting from space. Misinformation not only impacts information security, production safety, organizational operations, and social safety but also leads to information overload caused by the inaccurate and ambiguous features of misinformation, even impacting individuals' health. According to the influences of misinformation, misinformation identification can protect individuals using computer-mediated communication and help computer-mediated communication organizations avoid risks from inadequate control of misinformation.

DOI: 10.54254/2753-7048/35/20232137

With the development of the computer-mediated communication industry, competition in this industry is also getting fiercer by the day. For misinformation, the complex and significant misinformation identification task of implementing verification can be effectively reduced to a simple network or system analysis problem that computers can quickly solve [7]. From the perspective of computer-mediated communication-related companies, it will increase positive reviews and usage of the product, which realizes the growth of business interests. Furthermore, misinformation identification can also help related companies avoid exposures caused by lacking information management and control, including legal risks, infringement risks, and other risks. For the individuals in the programming design section, they are both computer-mediated communication users and designers. Misinformation identification works in the areas of expertise and personal use contexts. In the expert area, misinformation identification helps them ensure information accuracy in resources, information contents, and interactions in the programming or algorithm section. In the personal use area, misinformation identification reduces the negative impact of misinformation by filtering it out. Overall, misinformation identification positively impacts businesses, individuals, and the information environment.

5. Conclusion

This paper reviews recent research on misinformation identification from different perspectives. By analyzing the information environment, the importance and effect of misinformation identification in computer-mediated communication, it is found that misinformation identification on the computer programming side or in the design of algorithms can produce positive results by taking advantage of the information distribution characteristics of computer-mediated communication. In addition to analyzing misinformation identification, this study also explores the possibility and effect of media literacy intervention on the computer programming side or the process of algorithm design in computer-mediated communication. For the current research on misinformation, this study demonstrates the possibility and positive effect of misinformation identification on the computer programming side or algorithm side of computer-mediated communication. It provides a new research perspective for further research. At the same time, this study also demonstrates the role of media literacy intervention in the process of misinformation identification in computer-mediated communication. Due to this research focus on past studies analyzing that may lack of supporting from experimental data. Moreover, media literacy intervention programs need to be adapted to the study population. Based on this study, it is suggested that media literacy interventions on the computer programming side of computer-mediated communication can be proposed for further related research.

References

[1] *Fletcher, R., & Park, S. (2017). The Impact of Trust in the News Media on Online News Consumption and Participation. Digital Journalism, 5(10), 1281–1299. https://doi.org/10.1080/21670811.2017.1279979*

[2] *Yao, M. Z., & Ling, R. (2020). "What Is Computer-Mediated Communication?"—An Introduction to the Special Issue. Journal of Computer-Mediated Communication, 25(1), 4–8. https://doi.org/10.1093/jcmc/zmz027*

[3] *Romiszowski, A., & Mason, R. (2003). COMPUTER-MEDIATED COMMUNICATION.*

[4] *Guess, A. M., Lerner, M., Lyons, B., Montgomery, J. M., Nyhan, B., Reifler, J., & Sircar, N. (2020). A digital media literacy intervention increases discernment between mainstream and false news in the United States and India. Proceedings of the National Academy of Sciences, 117(27), 15536–15545. https://doi.org/10.1073/pnas.1920498117*

[5] *Bode, L., & Vraga, E. K. (2015). In Related News, That Was Wrong: The Correction of Misinformation Through Related Stories Functionality in Social Media: In Related News. Journal of Communication, 65(4), 619–638. https://doi.org/10.1111/jcom.12166*

[6] *Del Vicario, M., Bessi, A., Zollo, F., Petroni, F., Scala, A., Caldarelli, G., Stanley, H. E., & Quattrociocchi, W. (2016). The spreading of misinformation online. Proceedings of the National Academy of Sciences, 113(3), 554–559. https://doi.org/10.1073/pnas.1517441113*

DOI: 10.54254/2753-7048/35/20232137

[7] Ciampaglia, G. L., Shiralkar, P., Rocha, L. M., Bollen, J., Menczer, F., & Flammini, A. (2015). Computational Fact Checking from Knowledge Networks. PLOS ONE, 10(6), e0128193. https://doi.org/10.1371/journal.pone.0128193

[8] Rubin, V. L. (2019). Disinformation and misinformation triangle: A conceptual model for "fake news" epidemic, causal factors and interventions. Journal of Documentation.

[9] Dame Adjin-Tettey, T. (2022). Combating fake news, disinformation, and misinformation: Experimental evidence for media literacy education. Cogent Arts & Humanities, 9(1), 2037229. https://doi.org/10.1080/23311983.2022.2037229

[10] Islam, A. K. M. N., Laato, S., Talukder, S., & Sutinen, E. (2020). Misinformation sharing and social media fatigue during COVID-19: An affordance and cognitive load perspective. Technological Forecasting and Social Change, 159, 120201. https://doi.org/10.1016/j.techfore.2020.120201

[11] Islam, M. R., Liu, S., Wang, X., & Xu, G. (2020). Deep learning for misinformation detection on online social networks: A survey and new perspectives. Social Network Analysis and Mining, 10(1), 82. https://doi.org/10.1007/s13278-020-00696-x

[12] Rieger, D., & Klimmt, C. (2019). The daily dose of digital inspiration: A multi-method exploration of meaningful communication in social media. New Media & Society, 21(1), 97–118.

[13] Xiao, L., & Mou, J. (2019). Social media fatigue-Technological antecedents and the moderating roles of personality traits: The case of WeChat. Computers in Human Behavior, 101, 297–310.

[14] Kumar, K. P. K., & Geethakumari, G. (2014). Detecting misinformation in online social networks using cognitive psychology. Human-Centric Computing and Information Sciences, 4(1), 14. https://doi.org/10.1186/s13673-014-0014-x

[15] Vosoughi, S., Roy, D., & Aral, S. (2018). The spread of true and false news online. Science, 359(6380), 1146–1151.

[16] Lee, C. S., & Ma, L. (2012). News sharing in social media: The effect of gratifications and prior experience. Computers in Human Behavior, 28(2), 331–339.

[17] Marin, L. (2021). Sharing (mis) information on social networking sites. An exploration of the norms for distributing content authored by others. Ethics and Information Technology, 23(3), 363–372.

[18] Craft, S., Ashley, S., & Maksl, A. (2017). News media literacy and conspiracy theory endorsement. Communication and the Public, 2(4), 388–401. https://doi.org/10.1177/2057047317725539

[19] Jones-Jang, S. M., Mortensen, T., & Liu, J. (2021). Does Media Literacy Help Identification of Fake News? Information Literacy Helps, but Other Literacies Don't. American Behavioral Scientist, 65(2), 371–388. https://doi.org/10.1177/0002764219869406

[20] Global risks 2019: Insight report (14th Edition). (2019). World Economic Forum.