

The Relationship Between University Students' Media Literacy and Information-related Emotions in Public Emergencies and Corresponding Improvement Strategies

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Abstract: This study aims to provide a practical framework for enhancing university students' media literacy capabilities and mitigating negative emotions related to information during public emergencies. **Methods:** Through comprehensive literature reviews, we rigorously screened items for inclusion in the media literacy and information-related emotion scales, developed and validated a customized assessment tool, and collected data through a well-structured questionnaire survey. **Results:** Our findings indicate that there are no statistically significant differences in the impact of gender and place of origin on students' media literacy levels or their information-related emotions. A notable correlation was observed between media literacy levels and information-related emotions, with information retrieval learning experiences emerging as a significant factor influencing students' media literacy. **Conclusion:** The overall proficiency of university students in managing information-related emotions and media literacy needs improvement. It is imperative to harness the educational potential and guiding role of information retrieval courses within academic institutions. By adopting a "task-driven" teaching approach and emphasizing the cultivation of students' skills in information evaluation, analysis, management, and utilization, we can elevate their media literacy levels and effectively alleviate negative emotions related to information during emergencies.

Keywords: Public Emergencies; Media Literacy; Information-related Emotions; Information Retrieval; University Students

1. Introduction

In recent years, various public emergencies have frequently occurred globally, including earthquakes, floods, work safety accidents, and severe acute respiratory syndrome, among others. These emergencies, characterized by inherent uncertainty and the urgent public demand for information, have led to a significant surge in the volume and frequency of information dissemination, resulting in information overload. The scarcity of critical information has emerged as a major challenge in the process of information communication. As the main users of new media, university students are more prone to experiencing negative information-related emotions such as fatigue, anxiety, dependence, and panic when confronted with information overload during emergency events [1,2]. Therefore, it is imperative to enhance university students' media literacy skills in acquiring, understanding, distinguishing, and utilizing information related to public emergencies, in order to effectively alleviate their negative information-related emotions.

Media literacy refers to the comprehensive abilities of audiences to select, understand, question, evaluate, create, produce, and respond critically to various media information [3]. Despite abundant research on media literacy both domestically and internationally, there is limited literature reporting on the correlation between information-related emotions and media literacy. This study takes agricultural university students as the research subject, conducting an in-depth investigation and analysis of the intrinsic link between negative information-related emotions arising from information overload in the context of sudden social events and their media literacy. From the perspective of reducing negative information-related emotions, this study actively explores effective pathways to enhance university students' media literacy.

2. Questionnaire Design and Data Collection

2.1 Questionnaire Design

We systematically sorted through relevant research literature and referred to the definition of media literacy provided by the United States Center for Media Literacy, while also drawing on the relevant research findings of scholars from both domestic and international backgrounds. Based on this, we meticulously crafted a survey questionnaire tailored to the actual circumstances of university students. The questionnaire comprises three parts: the first part focuses on the basic information of students; the second part conducts a comprehensive and in-depth investigation of students' media literacy from four dimensions, namely, their ability to acquire and understand media information, their capacity for thinking and questioning, their proficiency in using and producing media, and their engagement and creativity in media creation; [4-6] the third part delves into the information-related emotions of university students during emergencies from four perspectives: information fatigue, information anxiety, information dependence, and panic. [7-9] In terms of measurement, the questionnaire adopts a combination of "multiple-choice questions" (single-choice) and the "Likert Scale," which is divided into five levels, scored from 1 to 5. In the second part of the questionnaire, we use the scores of each dimension as quantitative indicators of media literacy levels, with higher scores indicating higher levels of media literacy. In the third part, the scores of each perspective serve as quantitative indicators of university students' information-related emotions in public emergencies, with lower scores indicating fewer negative information-related emotions and better mental health.

2.2 Data Collection

The questionnaire was edited and distributed via the Wenjuanxing platform. Utilizing the Xuetong system, we successfully pushed the designed questionnaire to students and collected the data. Among the 239 questionnaires retrieved in total, invalid ones that were filled out arbitrarily or had excessive missing values were excluded, ultimately determining that the total number of valid questionnaires was 203, with a response rate of

84.94%. According to the research requirements, the sample size of the questionnaire should be 5 to 10 times the number of scale items. [10] This questionnaire, containing a total of 31 items, fully meets this criterion. Additionally, the Cronbach's α coefficient for the four dimensions of media literacy was 0.831, and for the four dimensions of information-related emotions, it was 0.768, both demonstrating good reliability and complying with the survey requirements.

2.3 Data Analysis

This study used SPSS software for data analysis. Descriptive statistical analysis was applied to the basic information of the survey respondents, while media literacy abilities and information-related emotions were expressed as means \pm standard deviations. T-tests and analysis of variance (ANOVA) were used to analyze factors influencing media literacy and information-related emotions, with a significance level set at 0.05. Paired-sample t-tests were conducted to assess the correlation between the dimensions of media literacy and information-related emotions, with a significance level set at 0.01.

3. Research Results and Analysis

3.1 Demographic Characteristics of the Sample

Detailed information about the survey respondents is shown in Table 1. The male-to-female ratio was approximately 1.16:1; 48.77% of the students were from urban areas, and 51.23% were from rural areas. When facing sudden public events, 60.20% of the university students rated their mental health status during media use as healthy or sub-healthy. Additionally, 53.20% of the students had participated in information retrieval courses.

Table 1. Basic Information of Respondents

Basic characteristics	Content	Quantity	Proportion
Gender	Male	109	53.69%
	Female	94	46.31%
Place of origin	Urban	99	48.77%
	Rural	104	51.23%
Will the massive information in the event cause negative emotions?	Very healthy	12	5.91%
	Health	15	7.39%
	Sub-healthy	107	52.71%
	Unhealthy	15	7.39%
	Illness	2	0.99%

Have you ever taken information retrieval course	Yes	108	53.20%
	No	95	46.80%

3.2 Scores of Various Dimensions of Media Literacy Among University Students in Public Emergencies

The results indicate that the overall average score for university students' media literacy in emergencies is 3.629 (on a scale of 1 to 5), which is at a moderate level. There are differences in abilities across various dimensions, with the highest average score in critical thinking and questioning skills and the lowest in participation and creativity skills. The degree of dispersion among students in terms of participation and creativity is slightly higher than that in the other four aspects, while the degree of dispersion in usage and production skills is the lowest. See Table 2 for details.

Table 2. Scores for Each Dimension of University Students' Media Literacy

Dimensions	Sample size	Mean value	Standard deviation	Median
Acquisition and understanding ability	203	3.962	0.809	4.000
Thinking and questioning ability	203	3.996	0.773	4.000
Use and production capacity	203	3.622	0.734	3.667
Participation and creative ability	203	2.937	0.983	3.000

3.3 Scores of Various Dimensions of Information-related Emotions Among University Students in Public Emergencies

Table 4. Correlation Between Media Literacy and Information-Related Emotions

Dimensions	Information fatigue	Information anxiety	Information dependence	Information panic
Acquisition and understanding ability	-0.580	-0.595	-0.629	-0.462
Thinking and questioning ability	-0.301	-0.602	-0.363	-0.301
Use and production capacity	-0.631	-0.297	-0.640	-0.413
Participation and creative ability	-0.562	-0.588	-0.556	-0.380

3.5 Impact of Basic Information on Media Literacy and Information-Related Emotions

The results indicate that there are no significant differences ($P > 0.05$) in media literacy and informational symptoms among college students with respect to gender and place of origin. However, when considering the mean values, male students and those from rural areas demonstrate slightly higher levels of media literacy, while male students and those from urban areas exhibit fewer

The results indicate the overall average score for information-related emotions among university students during sudden events is 2.631, indicating a sub-healthy level, which aligns with their self-assessments of information-related emotions. A lower score in information-related emotions indicates a more positive mental health state, with insignificant variations in dispersion across different dimensions, as presented in Table 3.

Table 3. Scores of Various Dimensions of Information-Related Emotions Among University Students

Dimensions	Sample size	Mean value	Standard deviation	Median
Information fatigue	203	2.377	0.904	2.000
Information anxiety	203	3.174	0.958	3.000
Information dependence	203	2.626	0.957	2.667
Information panic	203	2.345	0.929	2.500

3.4 Correlation Analysis Between Media Literacy and Information-Related Emotions

The results of the Pearson correlation analysis reveal that the correlation coefficients $|r|$ between each dimension of university students' media literacy and Information-Related Emotions are all greater than 0.301, indicating a statistically significant negative correlation, with $P = 0.000 < 0.05$. This suggests that a higher level of media literacy is associated with fewer negative information-related emotions. See Table 4 for details.

symptoms of negative informational emotions, indicating better psychological health. The psychological state and media literacy of college students when facing public emergencies are closely related to whether they have taken an information retrieval course (significant difference, $P < 0.05$). Students who have taken a literature retrieval course show higher levels of media literacy and fewer negative informational emotions. See Table 5 for details on the impact of basic information on media literacy and informational emotions.

Table 5. Impact of Basic Information on Media Literacy and Information-Related Emotions

Information-Related Emotions	N= Sample size	media literacy	Information-Related Emotions
Gender	Male(n=109)	3.646±0.684	2.625±0.752
	Female(n=94)	3.610±0.670	2.637±0.683
	t	0.379	0.112
	p	0.705	0.911
Place of origin	Urban(n=99)	3.607±0.736	2.573±0.739
	Rural(n=104)	3.651±0.616	2.685±0.699
	t	-0.455	1.114
	p	0.650	0.267
Have you ever taken information retrieval course	Yes(n=108)	3.887±0.574	2.503±0.741
	No(n=95)	3.337±0.667	2.776±0.669
	t	6.312	2.737
	p	0.000	0.007

The findings of this study reveal that university students' media literacy generally falls into the moderate range, while their informational emotional state exhibits sub-optimal health characteristics. Specifically, students of different genders and geographical origins do not demonstrate significant differences in media literacy or informational emotions. However, it is noteworthy that those who have undergone media literacy-related training exhibit higher levels of informational emotional health. Further analysis shows that the implementation of information retrieval courses has a significant effect on enhancing university students' media literacy. This not only aids students in establishing correct informational perspectives but also significantly strengthens their abilities to acquire, understand, evaluate, apply, and create information. Through this approach, university students can more effectively cope with the negative emotions resulting from information overload, thereby enabling them to handle massive amounts of information more calmly when facing public emergencies and make more rational judgments and decisions.

4. Discussion and Suggestions

In the context of emergency situations, due to information overload and uncertainty, university students are often prone to anxiety and panic, which subsequently leads them to share and disseminate a large volume of unhelpful or even false information. To effectively respond to such events, it is particularly important to quickly grasp high-quality relevant information, a process that necessitates individuals possessing good media literacy. Systematic training in information retrieval courses can help university students establish correct information concepts and significantly enhance their media literacy in

acquiring, understanding, evaluating, utilizing, and creating information. This not only mitigates the negative emotions caused by information overload but also equips university students with the ability to calmly navigate the deluge of information during emergency public events, achieving effective information screening and utilization.

As mentioned earlier, educational interventions have a positive impact on university students' information-related emotions in the context of public emergencies. Schools, as the primary for university students' academic and daily life, are also the main channel for information literacy education and should play an active role in educational guidance. Current teaching activities mainly include introductions to online data resources, search strategies for Chinese and foreign databases, and basic knowledge and skills for information retrieval, emphasizing the practicality and technicality of information resource retrieval. However, this teaching model struggles to effectively enhance university students' media literacy in the digital information era. There is limited coverage of searching for emerging media information sources, as well as information evaluation, utilization, legal and ethical norms, and information exchange, which do not fully encompass the ability scope required by information literacy. Therefore, it is necessary to improve the existing educational forms of information literacy courses to enhance university students' media literacy.

4.1 Adhering to the Principle of "Focusing on Application and Cultivating Abilities," a "Task-driven" Teaching Approach Should be Adopted to Enhance Students' Information Skills

The survey found that during emergencies, 67.34% of students knew they should search

for a certain topic but didn't know how to articulate their search queries; 39.44% of students indicated a lack of authoritative sources for information acquisition. Students' abilities to acquire, understand, and critically evaluate information urgently need to be strengthened.

(1) In the context of sudden public events, the information environment is complex and ever-changing. New media, such as short videos, social media, and websites, have become the primary channels for information acquisition due to their rapid information dissemination, wide reach, and convenient interaction. Students should familiarize themselves with various search tools and information sources, including professional search engines, databases, websites, and social media, and select appropriate information sources and develop suitable strategies for retrieval based on their information needs.

(2) The massive amount of information on multiple platforms is a "double-edged sword." While it brings richness and ease of access to data, it also creates the drawback of "information cocoons" and data barriers. This not only provides university students with a wealth of information and knowledge, but also influences their spiritual world. Students should learn to evaluate information based on various factors, including its source, author, publication time, professionalism, relevance, and objectivity. Additionally, they should consider the completeness, logic, evidence supporting the viewpoint, and contextual factors. In the face of information that emphasizes emotions over facts during emergencies, students should be able to distinguish between facts and opinions, cultivating their independent thinking and critical thinking skills.

(3) Talents in the information era can only be cultivated in an information-rich environment. A multi-media teaching context should be created to enhance students' experiences and activate their conscious awareness of thinking about media information, thereby improving their participation and creativity.

4.2 Emphasis Should be Placed on Cultivating University Students' Abilities in Information Evaluation, Analysis, Management, and Utilization

Relevant content should be incorporated into

information literacy education to foster students' critical thinking and problem-solving skills in analyzing, using, and producing information. At the same time, students' inquiry spirit and ability to participate in creating information and shaping a positive online ecosystem should be strengthened.

(1) In terms of information and literature management, in the context of sudden public events, various types of information are constantly updated as the event progresses. Facing real-time updates of health information, students should use cloud notes to record and collect scattered information, building their own knowledge bases. They should use literature management software such as NoteExpress and EndNote to effectively organize and manage the information they have acquired, helping them better utilize information resources.

(2) In terms of information utilization, students should read, understand, extract, and interpret relevant information based on their needs to support decision-making and knowledge innovation, and write high-quality articles. During the information utilization process, education on information ethics, legal norms, and academic integrity should be strengthened. Students should be aware of and comply with relevant laws, regulations, and ethical norms, acquiring information reasonably and legally, and avoiding unintentional violations due to a lack of understanding of online information norms.

(3) In terms of information dissemination and exchange, emphasis should be placed on utilizing multiple media platforms to showcase and exchange academic information. In the context of sudden public events, there is a diverse and urgent demand for information among the public. University students should fully leverage their positive role in information dissemination. Students should be guided to disseminate accurate and correctly oriented information and knowledge through original creation or reposting on social media platforms such as Weibo and WeChat public accounts, actively participating in maintaining the order of the new-era media environment and creating a clean and positive media environment.

5. Conclusion

Through the scientific and reasonable design of literature retrieval courses, university

students can effectively enhance their media literacy, enabling them to exhibit rational responses when confronted with massive amounts of multimedia information during sudden public events. This measure not only helps cultivate positive emotions among university students during such events but also further promotes the formation of a healthy psychology and the establishment of an optimistic and proactive attitude towards life. Simultaneously, the university student population, acting as the cornerstone of future societal advancement, must diligently endeavor to elevate their competencies in independent critical thinking, information discernment, and content integration and innovation. Consequently, they will be positioned as the reliable and preferred "information hubs" and "information disseminators" in the realm of guiding online public opinion.

Acknowledgments

This paper is supported by Research Project of the Library Work Committee of Heilongjiang Province's Universitys and Universities: A Comprehensive Practical Investigation into the Education of University Students' New Media Literacy Amidst the Epidemic Prevention Scenario: An In-Depth Case Analysis of Heilongjiang Bayi Agricultural University (No. 2019021).

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