The Influence of College Students' Media Literacy on Multi-Information Search Behaviour - The Intermediary Role of Critical Thinking

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Abstract. In the constantly developing digital media environment of algorithm recommendation and information personalisation, the problem of multi-information search behaviour of college students has received wide attention, but the research on how media literacy affects multi-information search behaviour through individual cognitive ability is still insufficient. This article takes college students as the research object. Based on the theory of media literacy and critical thinking theory, it analyses the impact mechanism of media literacy on multiple information search behaviour and tests the intermediary role of critical thinking. The research results show that media literacy can significantly positively affect the multi-information search behaviour of college students; media literacy can significantly promote the development of critical thinking; critical thinking can significantly positively affect multi-information search behaviour and play a partial intermediary role between media literacy and multi-information search behaviour. Based on this, colleges and universities should strengthen media literacy education and critical thinking cultivation, and guide college students to form the behavioural habits of cross-platform information acquisition, multi-source information verification and active contact with heterogeneous views, so as to improve their information judgement ability and rational cognition level.

Keywords: Media literacy, critical thinking, multiple information search behaviour, college students, intermediary effect.

1. Introduction

With the rapid development of digital media technology and social media platforms, social media platforms have gradually become an important channel for college students to obtain information. While expanding the scope of information contact, the multi-platform and multi-type information environment also brings problems such as information overload, false information diffusion and emotional dissemination. In recent years, while improving the efficiency of information acquisition, the algorithm recommendation mechanism may also lead users to long-term exposure to information content that is similar to their own interests and views, thus exacerbating the phenomenon of information homogenisation [1,2].

Against this background, the information search behaviour of college students has gradually attracted attention in the fields of communication and pedagogy. Compared with simply relying on the platform to push content, taking the initiative to carry out cross-platform search, multi-source information verification and comparison of different views is more conducive to improving the individual's information judgement ability and rational cognitive level. Therefore, whether college students have the awareness and ability to actively contact multiple information sources has gradually become a key research topic in the digital media environment.

Media literacy has become an essential competency for college students to navigate increasingly complex information environments. Relevant studies show that a higher level of media literacy helps improve individuals' information recognition ability and critical thinking skills, promotes more rational participation in information acquisition and dissemination, and facilitates diversified online information searching [3,4,12,13].

In addition, Critical Thinking, as an important cognitive ability for individuals to carry out rational analysis and independent judgement, is also receiving more and more attention in information

dissemination research. In the face of a large number of fragmented, emotional and positional information content in cyberspace, college students need to screen, compare and verify information with the help of critical thinking, so as to form a more comprehensive information cognition. Studies have mainly focused on the relationship between media literacy and information identification ability, and the impact of critical thinking on information judgement behaviour, but the research on how media literacy can further affect the multi-information search behaviour of college students through critical thinking is still relatively insufficient. Therefore, this article will focus on the mechanism between media literacy, critical thinking and the multiple information search behaviour of college students.

2. Research Method

2.1. Variable Introduction and Research Hypothesis

2.1.1. Media literacy

In the present study, media literacy is conceptualized as the independent construct.With the development of digital media technology, media literacy is not only reflected in the ability of individuals to obtain information, but also emphasises their ability to understand, analyse and evaluate media content.**Recent studies have further emphasized that media literacy should be understood in conjunction with information literacy and digital literacy, reflecting the integrated competencies required for individuals to effectively navigate today's digital media environment [13].**Potter believes that media literacy is an important basis for individual information selection, understanding and critical judgement in a complex media environment [4].

The measurement of media literacy was based on the New Media Literacy Scale (NMLS) developed by Koç and Barut [5]. To better reflect the social media use of college students, several items were adapted to fit the context of the present study. The New Media Literacy Scale consists of four dimensions: functional consumption, critical consumption, functional prosumption, and critical prosumption. Given the purpose of the present research, this study on college students' information acquisition, analysis, and evaluation, only the items from the functional consumption and critical consumption dimensions were adopted for measurement.

Among them, functional consumption mainly examines the ability of individuals to obtain and understand information through media; critical consumption mainly examines the ability of individuals to compare, analyse, and evaluate media information. Finally, 8 measurement questions were formed, and the 5-point Likert scale was used for measurement. The higher the score, the higher the media literacy level of the respondents.

2.1.2. Critical thinking

Critical Thinking is the intermediary variable of this study. According to Ennis, critical thinking is a thinking process based on reasonable evidence for analysis, reasoning, and judgment [6]. Facione further proposed that critical thinking encompasses multiple dimensions, including analysis, interpretation, evaluation, and reflection [7]. Recent studies have demonstrated that media literacy is positively associated with the development of critical thinking skills and online information evaluation abilities among university students [2,3,11,12]. In combination with the theme of this study, critical thinking is mainly measured in terms of information verification, logical analysis, independent judgement, open thinking, and reflection ability, focusing on the rational analysis and judgement ability of college students when facing network information.

Based on the relevant research results and combined with the information contact situation of college students, this study sets up a total of 8 measurement questions, and the 5-point Likert scale is used for measurement. The higher the score, the higher the critical thinking level of the interviewee.

2.1.3. Multi-information search behaviour

Diverse Information Seeking Behaviour is the dependent variable of this study, which mainly refers to the behaviour of individuals actively contacting multiple information sources in the process

of information acquisition and comparing, verifying and making comprehensive judgements on different information. Tendency. Multiple information search behaviour refers to the tendency of individuals to actively contact different sources of information, compare different views and verify information [8]. **In algorithm-driven online environments, actively conducting cross-platform searches and verifying information across multiple sources is regarded as an effective strategy for reducing information bias and improving judgement quality [9,10].**

Under the background of increasing algorithm recommendation and information personalisation, users are prone to long-term exposure to information content similar to their own interests and positions, thus forming the phenomenon of information homogenisation. The study of Smith and Storrs found that college students with higher levels of digital media literacy are more inclined to obtain information from multiple platforms and actively engage with information content from different perspectives [1]. Therefore, taking the initiative to carry out cross-platform information search, multi-source information verification, and contact with different views is regarded as an important way to improve information quality and expand cognitive horizons.**Recent studies further suggest that individuals with higher media literacy tend to adopt more effective online information-searching strategies and demonstrate stronger information verification behaviours [9,10].**

Combined with the research results related to information search behaviour, this study divides multiple information search behaviours into three aspects: information source diversity, information verification behaviour and contact with different points of view. Among them, the diversity of information sources emphasises that individuals actively use different platforms to obtain information; information verification behaviour emphasises the verification of the authenticity of information; heterogeneous point of view contact emphasises active contact with information content that is different from one's own views. Finally, 7 measurement questions were formed, and the 5-point Likert scale was used for measurement. The higher the score, the more inclined the respondents were to carry out multi-information search behaviour.

Based on this, this study puts forward the following hypothesis:

H1: The media literacy level of college students is a significant positive predictor of multi-information search behaviour.

H2: The level of media literacy of college students is significantly positive in predicting critical thinking.

H3: Critical thinking significantly predicts multivariate information search behaviour.

H4: Critical thinking plays an intermediary role between media literacy and multi-information search behaviour.

2.2. Research Methods

Data were collected through an online questionnaire survey targeting college students. The questionnaire was administered via the Wenjuanxing platform and distributed through social media channels commonly used by college students. Before the formal survey, the researchers conducted a preliminary test of the questionnaire and made appropriate adjustments to the expression of some questions according to the feedback to improve the understandability of the questionnaire content and the accuracy of the measurement results.

A total of 223 questionnaires were collected. To improve data quality, the returned questionnaires were carefully screened. Questionnaires completed in an unusually short amount of time were excluded from the final analysis; questionnaires with obvious regularity of answers or logical errors, 183 valid questionnaires were finally obtained, with an efficiency of 82.1%.

3. Results

3.1. Reliability and Validity Analysis

The reliability analysis indicated that the Cronbach's alpha coefficients for all scales exceeded the recommended threshold of 0.70. Among them, the media literacy scale Cronbach α coefficient is

0.938; the functional consumption dimension and critical consumption dimension are 0.821 and 0.818, respectively, the critical thinking scale is 0.875, and the multivariate information search behaviour scale is 0.774, all of which meet the reliability analysis standard. Table Each scale has good internal consistency.

Further structural validity test showed that the KMO value was 0.957, which was higher than the recommended standard of 0.70; the results of Bartlett spherical test were significant (χ^2=2122.108, p<0.001), indicating that the sample data was suitable for factor analysis. The assessment of convergent validity showed that the composite reliability (CR) values for all constructs exceeded the recommended threshold of 0.70, demonstrating satisfactory internal consistency. Except for the AVE value of multivariate information search behaviour, which is 0.427, the AVE value of the rest of the variables reaches the recommended standard above 0.50. Considering that the CR value of the variable reaches 0.838, **According to Fornell and Larcker (1981), convergent validity can still be considered acceptable when composite reliability is above 0.60 even if AVE is below 0.50.** Overall, the scale adopted by the research institute has good confidence and validity [11].

3.2. Descriptive Statistics and Correlation Analysis

Table 1 presents the descriptive statistics, including the means and standard deviations, together with the Pearson correlation coefficients for all study variables.

Table 1. Means, standard deviations, and pearson correlations among the study variables.

Variable	M	SD	(1)	(2)	(3)	(4)	(5)
Media literacy	3.73	0.79	_				
Functional consumption	3.77	0.88	.946***	_			
Critical consumption	3.70	0.79	.958***	0.810***	_		
Critical thinking	3.72	0.76	.849***	0.789***	0.826***	_	
Diverse information-seeking behavior	3.61	0.65	.819***	0.787***	0.772***	0.781***	_

Note. N = 183. Values are Pearson correlation coefficients. Statistical significance was determined at p < .05, p < .01, and p < .001.

As presented in Table 1, media literacy was positively associated with diversified information-seeking behaviour (r = 0.819, p < .001). This finding suggests that students with higher levels of media literacy are more likely to obtain information from a broader range of sources. Media literacy also demonstrated a strong positive association with critical thinking (r = 0.849, p < .001), indicating that greater media literacy is related to stronger abilities to analyse and evaluate information. In addition, critical thinking was positively correlated with diversified information-seeking behaviour (r = 0.781, p < .001), suggesting that individuals with stronger critical thinking skills are more inclined to actively seek information from multiple sources.

In addition, the correlation coefficients between each variable have reached a significant level and the direction is consistent with the research hypothesis, which provides preliminary support for subsequent hypothesis testing and mediation effect analysis.

3.3. Hypothesis Testing and Mediation Analysis

Regression analysis was performed to evaluate the proposed hypotheses. Media literacy was found to be a significant positive predictor of critical thinking (β = 0.857, p < .001) as well as diversified information-seeking behaviour (β = 0.610, p < .001); critical thinking has a significant positive impact on multivariate information search behaviour (β=0.275, p<0. 001). Therefore, H1, H2 and H3 are all supported.

3.4. Analysis of intermediary effect

In order to further verify the intermediary role of critical thinking, this study adopts Process Macro Model 4 and tests through 5,000 Bootstrap sampling. Media literacy also significantly predicted diversified information-seeking behaviour (B = 0.822, p < .001), while critical thinking was also found to be a significant predictor of diversified information-seeking behaviour (B = 0.663, p < .001). The estimated indirect effect was 0.214, with a 95% confidence interval of [0.082, 0.333], which does not include 0, indicating that the intermediary effect is significant. At the same time, the direct effect of media literacy on multi-information search behaviour is still significant (B=0.462, p<0.001), indicating that critical thinking plays a partial intermediary role between media literacy and multi-information search behaviour. The intermediary effect accounts for 31.7% of the total effect, so it is assumed that H4 is supported.

4. Discussion

4.1. Implications for Universities

This study found that media literacy can significantly promote the multi-information search behaviour of college students and play a further role through critical thinking. Based on this finding, colleges and universities should integrate media literacy education into the general education system, not only paying attention to students' information acquisition ability, but also strengthening the cultivation of information analysis, evaluation and verification ability. In the curriculum design, teaching activities such as news case analysis, rumour identification training and cross-platform information comparison can be combined to guide students to form the habit of obtaining and verifying information from multiple sources, to reduce the information limitations brought about by algorithm recommendations. This finding is consistent with the results reported by Orhan [3] and is further supported by recent studies indicating that media literacy strengthens individuals' critical evaluation and online information-searching strategies **[9,12]**.

4.2. Implications for Educators

Research results show that critical thinking is an important mechanism to connect media literacy and multi-information search behaviour. Therefore, teachers should pay more attention to the cultivation of critical thinking ability in the teaching process, not just the transmission of knowledge. Teachers can guide students to evaluate evidence, logically analyse and compare views on information through problem-oriented learning, case discussion and debate activities. By continuously strengthening students' reasoning ability, it can further promote their active contact and verification of information from different sources.

4.3. Implications for Students

For individual college students, this study shows that multi-information search behaviour not only depends on the richness of information acquisition channels, but also on the level of individual media literacy and critical thinking. Therefore, college students should take the initiative to cultivate the habit of cross-platform information search, pay attention to the reliability and diversity of information sources when obtaining information, and avoid over-reliance on a single platform or a single point of view. At the same time, it should maintain an open and prudent information attitude, and form a more comprehensive and objective understanding by comparing information from different sources.

5. Conclusion

This article takes the growing digital media environment of algorithm recommendation and information personalization as the background, takes college students as the research object, explores the relationship between media literacy, critical thinking and multi-information search behavior, and

uses questionnaire survey to collect 183 valid sample data, and uses regression analysis and Bootst The rap mediation effect test analyzes the mechanism of media literacy affecting the behavior of multiple information search and the intermediary role of critical thinking.

Research results show that media literacy can significantly have a positive impact on the multi-information search behavior of college students; at the same time, media literacy can significantly promote the development of critical thinking of college students, and critical thinking further promotes the formation of multi-information search behavior.The mediation analysis indicated that critical thinking partially mediated the relationship between media literacy and diversified information-seeking behaviour. This shows that improving college students' media literacy can not only directly promote their active access to diverse information sources, carry out information verification and compare different views, but also further enhance their diversified information search behavior by improving their critical thinking ability.

This research enriches the relevant research on the relationship between media literacy and information behavior in the digital media environment, and provides empirical reference for colleges and universities to carry out media literacy education and critical thinking cultivation. Despite these findings, several limitations should be acknowledged. For instance, the sample was drawn from a relatively limited population, and the cross-sectional research design is adopted, which makes it difficult to reveal the long-term dynamic relationship between variables.Future research could include a more diverse sample and employ longitudinal or experimental designs to further verify the causal relationships among the variables and explore additional mediating or moderating variables.

References

[1] Smith E E, & Storrs H. Digital literacy, social media, and undergraduate learning: What do students think they need to know? International Journal of Educational Technology in Higher Education, 2023, 20(29): 1-19.

[2] Galindo-Domínguez H, Bezanilla M J, & Campo L. Relationship between social media use and critical thinking in university students. Education and Information Technologies, 2025, 30(5): 6641-6665.

[3] Orhan A. Fake news detection on social media: The predictive role of university students' critical thinking dispositions and new media literacy. Smart Learning Environments, 2023, 10(29): 1-17.

[4] Potter W J. The state of media literacy. Journal of Broadcasting & Electronic Media, 2010, 54(4): 675-696.

[5] Koç M, & Barut E. Development and validation of New Media Literacy Scale (NMLS) for university students. Computers in Human Behavior, 2016, 63: 834-843.

[6] Ennis R H. A logical basis for measuring critical thinking skills. Educational Leadership, 1985, 43(2): 44-48.

[7] Facione P A. Critical Thinking: A Statement of Expert Consensus for Purposes of Educational Assessment and Instruction. Millbrae, CA: American Philosophical Association, 1992.

[8] Fornell C, Larcker D F. Evaluating structural equation models with unobservable variables and measurement error. Journal of Marketing Research, 1981, 18(1): 39-50.

[9] Tatar I, Şahin Y L, Doğan E. The role of media literacy in online information searching strategies. Digital Education Review, 2022, 41: 268–283.

[10] Tian Q. Impact of social media news overload on social media news avoidance and filtering: Moderating effect of media literacy. Frontiers in Psychology, 2022, 13: 862626.

[11] Guath, M., & Nygren, T. (2022, July). Civic online reasoning among adults: an empirical evaluation of a prescriptive theory and its correlates. In Frontiers in Education (Vol. 7, p. 721731). Frontiers Media SA.

[12] Potter W J. Critical analysis of critical thinking. Journal of Media Literacy Education, 2022, 14(1): 108–123.

[13] Wuyckens G, Landry N, Fastrez P. Untangling media literacy, information literacy, and digital literacy: A systematic meta-review of core concepts in media education. Journal of Media Literacy Education, 2022, 14(2): 1–19.