

Study on the Change of College Students' Attitude Towards E-sports through Social Media in the Era of New Media based on Cognitive Mediation Model

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Abstract: Under the cognitive mediation model's framework, this study delves into the manner in which college students engage with esports via social media platforms. This engagement not only enhances their understanding of esports but also fosters a favorable shift in their attitudes. The model underscores a positive interplay between motivation, news attention, the capacity for information elaboration, and interpersonal communication. Specifically, meticulous attention to news, precise information exposition, and robust social interaction form the cornerstone of college students' esports cognition. The research initially focuses on students' initial perceptions and attitudes towards esports, subsequently delving into the multifaceted factors influencing these attitudes and their underlying mechanisms. Based on these insights, the study proposes targeted suggestions for optimizing esports publicity strategies on social media platforms, aiming to bolster the robust development of China's esports industry. We are confident that these efforts will further propagate positive esports culture and foster a more comprehensive and accepting understanding of esports across various sectors of society.

Keywords: Cognitive Mediation Models; Social Media; Esports; College Students' Attitudes.

1. Introduction

Firstly, the Cognitive Mediation Model (CMM) [1] posits that diverse motivations propel individuals to focus on and actively engage with news information. Subsequently, this journalistic attention influences the extent of knowledge acquisition from media sources in two distinct manners: firstly, through direct knowledge gain, and secondly, via an indirect route mediated by the exposition of news content. The original cognitive mediation framework underscores the pivotal role of cognitive processes in shaping knowledge acquisition, emphasizing not only the direct assimilation of information but also the intricate interplay between media exposure and the elaboration of news content.

2. Literature Review

2.1. Cognitive Mediation Models

Specifically, the Cognitive Mediation Model (CMM) posits that individuals seek information to stay abreast of societal issues and satisfy their informational needs pertaining to the external environment [2-3]. Once engaged, they meticulously process media content to comprehend and accumulate new knowledge (Eveland, 2001). Building upon recent CMM research [4-6], this paper delves deeper into the cognitive mediation process, extending its scope to encompass higher-order outcomes and intentional behaviors [7-9].

2.2. Media Attention, Refinement and Interpersonal Communication

Within the CMM framework, media attention signifies the cognitive effort directed towards specific media content [10]. Refinement, on the other hand, involves retrieving and integrating stored information (e.g., personal experiences or prior knowledge) with newly acquired data (Eveland, 2001). Consistent with CMM, individuals tend to engage in thorough

elaboration after capturing media attention, refining and assimilating new information into their existing knowledge base. Existing literature establishes a connection between media attention and refinement [11], extending from political to non-political realms, including the realm of esports. Given the complexity of esports information, we hypothesize a positive correlation between esports media attention and refinement.

Moreover, CMM posits interpersonal communication as an alternative pathway for information processing [12]. This can be conceptualized as a two-step flow, where individuals who consume media content subsequently disseminate it within their social networks [13]. Agenda-setting theory further explains how media attention can elevate the salience of a topic in interpersonal discussions. In the case of esports, media attention may stimulate interpersonal conversations about the topic.

Social media, in particular, presents unique features that can amplify learning outcomes. As an interactive platform, it encourages active discussions and contrasts with traditional media's passive, one-way communication mode. Social media users, as active participants in information exchanges, not only process information individually but also engage in collaborative elaboration.

2.3. Elaboration and interpersonal Communication are the Forerunners of Knowledge

The CMM research underscores the significance of both elaboration and interpersonal communication in fostering knowledge acquisition. Recent investigations have underscored interpersonal communication as a structured approach to information processing, directing individuals' mental efforts towards contemplating mass media content. Lee and colleagues discovered that intricate processing and interpersonal discourse on breast cancer information enriched

individuals' factual understanding. Similarly, Yang et al. revealed that participants who indulged in elaboration and interpersonal exchanges enhanced their grasp of nanotechnology knowledge.

Distinct from traditional media, which adheres to rigorous editing and filtering, social media presents a more intricate and demanding informational landscape. On these platforms, individuals may be inundated with an abundance of information, leading to inefficient processing. Furthermore, the prevalence of user-generated content, often inaccurate or misleading, can impede knowledge acquisition. Navigating this intricate digital terrain can be perplexing, overwhelming, and frustrating for many, particularly when seeking negative information, which may hinder knowledge attainment.

In our study, we focus on knowledge pertaining to esports. If individuals engage in elaboration and interpersonal communication to decipher esports information sourced from diverse media platforms, they stand to gain a diverse and comprehensive understanding of this domain.

3. Research Hypothesis

H1: We suggest that media attention to esports is positively correlated with refinement

H2: Media attention to esports is positively correlated with networking

H3: Refinement is positively correlated with esports knowledge.

H4: Interpersonal communication is positively correlated with esports knowledge. RQ1: Does the extended CMM differ between men and women?

RQ1: Does the extended CMM differ between men and women?

4. Method

4.1. Data

Before that, I made a questionnaire by using a small program called Questionnaire Star and posted it on social media for investigation and data collection. In the process of investigation, we adopted the method of convenient sampling and collected information from a total of 410 people through social media. Of the participants, 49.76% (n= 204) were female and 50.24% (n=206) were male.

Of all participants, 0.73% (n=3) were under 18 years of age, 86.34% (n=354) were between 18 and 25 years of age, 10.73% (n=44) were between 26 and 35 years of age, and 2.2% (n=9) were over 35 years of age. At the same time, 45.12% (n=185) of the participants were students, and the rest had started work.

4.2. Measures

4.2.1. Research Variables

Media attention

To assess media attention, we utilized a questionnaire adapted from Eveland's [14-15] work, which encompassed four projects. This instrument inquired about individuals' attention levels towards esports-related information across various media platforms, including outdoor advertising, television, the internet, and social media. We calculated a media attention score by averaging these responses, where a higher score signified a greater level of attention paid to such information (M = 3.950, SD = 0.609, McDonald's ω = 0.766).

Elaboration

Information gathering in this section draws on the 7-point scale of Beaudoin, C. E. and Thorson (1 = strongly disagree,

7 = strongly disagree). The higher the score, the higher the refinement (M = 5.070, SD = 1.355, McDonald's ω = 0.741).

Interpersonal communication

In this section of the study, to assess the level of interpersonal communication regarding esports-related issues, we adopted the methodology outlined by Ho et al.. This approach involved compiling data from three distinct items, each pertaining to the frequency of discussions surrounding esports. By averaging these three measures, we derived a composite score, where a higher numerical value indicates a more pronounced frequency of interpersonal exchanges on matters related to esports. Specifically, the mean score for this metric was 3.707, accompanied by a standard deviation of 0.907, demonstrating a degree of variability among respondents. Furthermore, the reliability of this measure was validated using McDonald's ω coefficient, yielding a value of 0.753, indicating an acceptable level of internal consistency.

Knowledge

Information on relevant knowledge was collected using four questions adapted from official data and certification. Participants were asked to answer whether a given question was correct or not. Finally, the scores for all questions were calculated as a measure of esports related knowledge (M = 1.78, SD = 0.412, McDonald's ω = 0.704).

Policy support

In the relevant policies to support this project, a 7-point scale was adopted for measurement, among which 3 projects were adapted from Chang et al. Participants were asked to indicate their level of support for the following statement: (a) "I believe it is right for the government to take action to develop the esports industry." (b) "Government efforts to develop the e-sports industry should be worthy of support."; (c) "I am in favor of the government accelerating the development of the esports industry." (M = 5.31, SD = 1.153, McDonald's ω = 0.725).

Analytical approach

In this research, the technique of linear regression analysis was employed. Prior to conducting the regression, we utilized box plots as a means to identify any anomalous data points. Additionally, scatter plots were leveraged to visually illustrate the correlation between the variables X and Y. Following the regression analysis, we observed and depicted the normality of the resulting residuals through the utilization of normal graphs. Alternatively, scatter plots were also applied to discern and exhibit the presence of heteroscedasticity in the regression model, which indicates a lack of constant variance when the residuals do not exhibit a uniform dispersion across the range of X values.

5. Results

5.1. Hypotheses TESTING

H1:

The table presented below demonstrates the use of linear regression analysis, where the level of attention given to esports related information across outdoor advertising, television, internet, and social media serves as the independent variable, while the statement "When I read or watch news, I will carefully analyze e-sports" acts as the dependent variable. Upon analyzing the data, the model's R-squared value of 0.020 signifies limited explanatory power of the independent variable on the dependent variable. Furthermore, the F-test fails to achieve statistical significance (F=1.986, p=0.162>0.05), suggesting that the independent

variable does not significantly influence the dependent variable. Consequently, the H1 hypothesis is rejected, concluding that the extent of college students' attention to e-sports on the internet and social media does not directly

correlate with their level of analysis when encountering e-sports news. However, this finding does not conclusively reflect a shift in college students' overall stance towards e-sports.

Table 1. Linear regression analysis results1 (n=100)

	Non-standard coefficient		Standardization coefficient		t	p	collinearity diagnosis	
	B	Standard error	Beta				VIF	tolerance
Constant	3.850	0.876	-	-	4.396	0.000**	-	-
Media attention	0.309	0.219	0.141	-	1.409	0.162	1.000	1.000
R 2	0.020							
Adjust R 2	0.010							
F	F (1,98)=1.986,p=0.162							
The D-W value	1.826							
Dependent variable: When I read or watch the news, I carefully analyze information about esports								
* p<0.05 ** p<0.01								

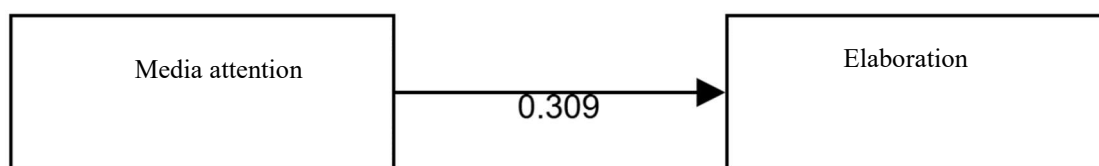


Figure 1. Model result graph1

H2:

The subsequent table reveals an analysis where the degree of attention towards e-sports information serves as the independent variable, and the frequency of discussions acts as the dependent variable. Notably, the R-squared value of 0.058 implies that the attention level accounts for approximately 5.8% of the variation in discussion frequency. The F-test, with a value of 6.014 and a p-value less than 0.05, confirms that the

attention degree significantly impacts the frequency of discussions. The positive regression coefficient of 0.384 (p<0.05) further underscores this relationship, indicating a direct and meaningful association. Consequently, the H2 hypothesis is upheld, suggesting that heightened attention towards e-sports information fosters increased discussions on the topic, which may, in turn, shape attitudes towards e-sports.

Table 2. Linear regression analysis results2 (n=100)

	Non-standard coefficient		Standardization coefficient		t	p	collinearity diagnosis	
	B	Standard error	Beta				VIF	tolerance
Constant	2.104	0.625	-	-	3.366	0.001**	-	-
Media attention	0.384	0.156	0.240	-	2.452	0.016*	1.000	1.000
R 2	0.058							
Adjust R 2	0.048							
F	F (1,98)= 6.014, p=0.016							
The D-W value	1.811							
Dependent variable: Frequency of discussing esports related issues with family members/roommates in daily life								
* p<0.05 ** p<0.01								

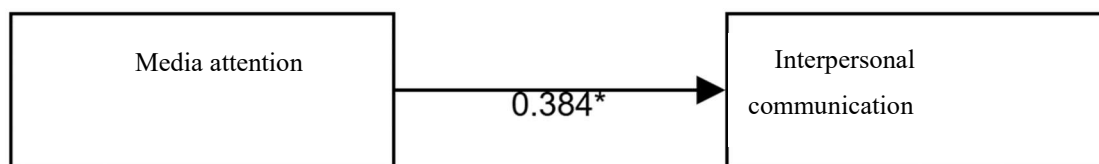


Figure 2. Model result graph2

H3:

The table presented below showcases a linear regression analysis, where the act of carefully analyzing e-sports information encountered while reading or watching news on social media is designated as the independent variable, and the subsequent accumulation of relevant e-sports knowledge serves as the dependent variable. The analysis reveals that the

depth of analysis conducted on social media contributes to explaining 12.0% of the variation in e-sports knowledge. Notably, the F-test yields a significant result (p<0.05), suggesting that this analytical behavior has a pronounced impact on enhancing one's understanding of e-sports. The positive regression coefficient of 0.091 (p<0.01) underscores this finding, indicating a direct and meaningful relationship.

Consequently, the H3 hypothesis stands validated, confirming that the analysis of e-sports information on social media fosters the accumulation of knowledge, deepens

comprehension, and potentially influences attitudes towards e-sports.

Table 3. Linear regression analysis results3 (n=100)

	Non-standard coefficient		Standardization coefficient	t	p	collinearity diagnosis		
	B	Standard error	Beta			VIF	tolerance	
Constant	1.255	0.199	-	6.294	0.000**	-	-	
How often esports related issues are discussed with family members/roommates in their daily lives	0.068		0.037	0.190	1.836	0.069	1.144	0.874
How often do you discuss issues related to esports with classmates/colleagues in your daily life	0.034		0.040	0.084	0.836	0.405	1.086	0.920
How often do you discuss issues related to esports with friends in your daily life	0.062		0.041	0.156	1.506	0.135	1.138	0.879
R 2	0.099							
Adjust R 2	0.071							
F	F (3,96)=3.531,p=0.018							
The D-W value	1.797							
Dependent variable: e.g.(E-sports, as early as 2003, has been listed as an official sports competition by the State General Administration of Sports, in 2018, it was included as a performance event by the Jakarta Asian Games, and determined to become an official competition event of the Hangzhou Asian Games.)								
* p<0.05 ** p<0.01								

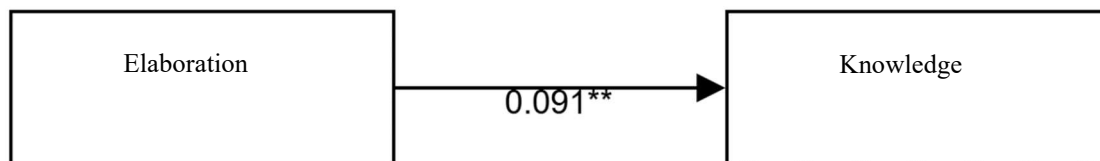


Figure 3. Model result graph3

H4:

Upon conducting a linear regression analysis, the subsequent table underscores a notable association between the frequency of daily discussions on e-sports among college students (independent variable) and their level of comprehension regarding e-sports-related knowledge (dependent variable). The R-squared value of 0.067 signifies that these discussions account for approximately 6.7% of the variance in knowledge acquisition. Further validation comes from the significant F-test result (F=7.024, p<0.05), confirming that the frequency of discussions has a tangible

impact on enhancing e-sports knowledge. Specifically, the positive regression coefficient of 0.093 (p<0.01) highlights the role of frequent discussions in fostering the growth of e-sports knowledge. Thus, the H4 hypothesis holds true: Engaging in discussions with e-sports enthusiasts fosters a deeper understanding among college students, with an increase in understanding paralleling the frequency of discussions. Notably, these interactions extend beyond face-to-face encounters, with social media emerging as a primary medium of communication. Ultimately, this enhanced understanding may lead to shifts in college students' attitudes towards e-sports.

Table 4. Linear regression analysis results4 (n=100)

	Non-standard coefficient		Standardization coefficient	t	p	collinearity diagnosis	
	B	Standard error	Beta			VIF	tolerance
Constant	1.524	0.131	-	11.620	0.000**	-	-
Interpersonal communication	0.093	0.035	0.259	2.650	0.009**	1.000	1.000
R 2	0.067						
Adjust R 2	0.057						
F	F (1,98)=7.024,p=0.009						
The D-W value	1.751						
Dependent variable: e.g.(E-sports, as early as 2003, has been listed as an official sports competition by the State General Administration of Sports, in 2018, it was included as a performance event by the Jakarta Asian Games, and determined to become an official competition event of the Hangzhou Asian Games.)							
* p<0.05 ** p<0.01							

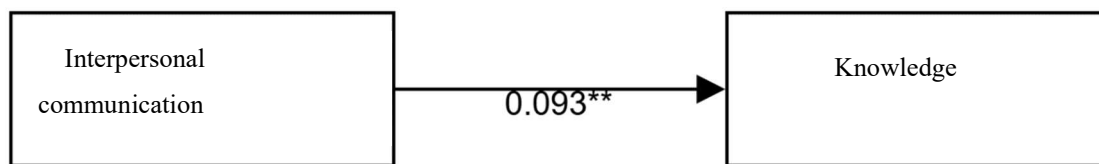


Figure 4. Model result graph4

Multi group analysis

To delve into our research query, I employed Chi-square analysis as a tool to examine potential variations within the expanded CMM model across gender lines. The analysis yielded intriguing findings, revealing that there were no statistically significant disparities between male and female participants in any of the examined projects within the framework of the extended CMM model.

6. Conclusion, Contributions, and Limitations

This article delves into the mechanisms of media attention and interpersonal communication in catalyzing cognitive and behavioral shifts within the esports landscape, specifically focusing on shifts in attitudes towards policy support. The research highlights that media coverage of esports fosters not only surface-level awareness but also a nuanced understanding of the domain, thereby bolstering personal cognition and fostering policy advocacy. Notably, despite historical models like CMM indicating gender disparities, this study reveals that in the context of esports policy support, such differences are insignificant. With nearly half of women engaging in video gaming and the female esports audience expanding, the industry's efforts to amplify women's visibility challenge stereotypes and signify the evolution of esports towards gender parity [16]. Hence, exposure emerges as a pivotal link between media attention and knowledge acquisition [17]. Moreover, individuals actively seek media updates on esports to enrich their understanding, while enthusiasts engage in hands-on activities to deepen their expertise, emphasizing the importance of practical experience in enhancing knowledge bases [18].

Prior research underscores that interpersonal communication often yields emotional gains (such as encouragement and social backing) over pure knowledge acquisition. Delving deeper, this mode of communication emerges as crucial in disseminating esports knowledge and fostering policy-favorable attitudes. Beyond media exposure, individuals engage in social exchanges, experience sharing, and emotional reinforcement, thereby enhancing their comprehension and connection to esports. This social interplay not only addresses emotional necessities but also acts as a conduit for knowledge transmission and policy advocacy, emphasizing its multifaceted benefits.

Theoretically, this study reinforces the significance of interpersonal communication within the CMM framework as a vital information processing avenue. It extends the CMM model's applicability to the realm of esports, introducing the novel research dimension of policy support. Furthermore, it offers empirical reinforcement to the O-S-R-O-R framework, which endeavors to comprehensively depict the intricate cognitive mediation pathways in CMM [19]. While abstaining from direct exploration of risk perception, this work paves the way for future investigations to delve into this

and other related avenues.

Practically, this study's findings offer insightful guidance for governments, enterprises, and esports professionals. By bolstering media outreach, fostering interpersonal engagement, and enhancing public awareness of esports, it promotes more effective policy implementation and fosters the industry's healthy growth. Additionally, it presents a valuable approach for examining other burgeoning cultural phenomena. Regarding limitations, two primary aspects are noted. Firstly, the exclusive reliance on the cognitive mediation model as the theoretical lens may overlook the influence of alternative theories (e.g., social identity, uses and gratifications), thereby constraining the study's comprehensiveness. Secondly, the study may not fully account for variations across social media platforms (e.g., Weibo, WeChat, TikTok), where differences in esports content, interaction modes, and user demographics could potentially impact college students' attitudes towards esports.

References

- [1] Eveland, W. P. (2001). The cognitive mediation model of learning from the news: Evidence from nonelection, offyear election, and presidential election contexts. *Communication Research*, 28(5), 571–601.
- [2] Eveland, W. P., Jr., Shah, D. V., & Kwak, N. (2003). Assessing causality in the cognitive mediation model: A panel study of motivations, information processing, and learning during campaign 2000. *Communication Research*, 30 (4), 359–386.
- [3] Ho, S. S., & Chuah, A. S. (2022). Thinking, not talking, predicts knowledge level: Effects of media attention and reflective integration on public knowledge of nuclear energy. *Public Understanding of Science*, 31(5), 572–589.
- [4] Li, L., & Bautista, J. R. (2021). Elaboration, cancer worry, and risk perception mediate the association between news attention on the internet and intention to uptake HPV vaccination: Extending the cognitive mediation model. *International Journal of Communication*, 15, 22.
- [5] Liu, Y., Zhou, S., & Zhang, H. (2020). Second screening use and its effect on political involvement in China: An integrated communication mediation model. *Computers in Human Behavior*, 105, 106201.
- [6] Yang, X., Chuah, A. S., Lee, E. W., & Ho, S. S. (2017). Extending the cognitive mediation model: Examining factors associated with perceived familiarity and factual knowledge of nanotechnology. *Mass Communication and Society*, 20(3), 403–426.
- [7] Ho, S. S., Yang, X., Thanwarani, A., & Chan, J. M. (2017). Examining public acquisition of science knowledge from social media in Singapore: An extension of the cognitive mediation model. *Asian Journal of Communication*, 27 (2), 193–212.
- [8] Ho, S. S., & Yang, X. (2018). Communication, cognitive processing, and public knowledge about climate change. *Asian Journal of Communication*, 28(5), 449–467.
- [9] King, A. J., Jensen, J. D., Carcioppolo, N., Krakow, M. M., & Sun, Y. (2015). Comparing theories of media learning: Cognitive mediation, information utility, and knowledge

- acquisition from cancer news. *Mass Communication and Society*, 18(6), 753–775.
- [10] Yang, X., Chuah, A. S., Lee, E. W., & Ho, S. S. (2017). Extending the cognitive mediation model: Examining factors associated with perceived familiarity and factual knowledge of nanotechnology. *Mass Communication and Society*, 20(3), 403–426.
- [11] Beaudoin, C. E., & Thorson, E. (2004). Social capital in rural and urban communities: Testing differences in media effects and models. *Journalism & Mass Communication Quarterly*, 81(2), 378–399.
- [12] Ho, S. S., Yang, X., Thanwarani, A., & Chan, J. M. (2017). Examining public acquisition of science knowledge from social media in Singapore: An extension of the cognitive mediation model. *Asian Journal of Communication*, 27 (2), 193–212.
- [13] Lee, E. W., Shin, M., Kawaja, A., & Ho, S. S. (2016). The augmented cognitive mediation model: Examining antecedents of factual and structural breast cancer knowledge among Singaporean women. *Journal of Health Communication*, 21(5), 583–592.
- [14] Eveland, W. P. (2002). News information processing as mediator of the relationship between motivations and political knowledge. *Journalism & Mass Communication Quarterly*, 79(1), 26–40.
- [15] Eveland, P. W., Jr., (2004). The effect of political discussion in producing informed citizens: The roles of information, motivation, and elaboration. *Political Communication*, 21(2), 177–193.
- [16] Hilbert, J. (2019). Gaming and gender: How inclusive are esports. *The Sports Integrity Initiative*. Valentine, R. (2018). Esports' urgent need for visible gender diversity. *Gamesindustry*.
- [17] Chang, L., Jacobson, T. L., & Zhang, W. (2013). A communicative action approach to evaluating citizen support for a government's smoking policies. *Journal of Communication*, 63(6), 1153–1174.
- [18] Craik, F. I., & Tulving, E. (1975). Depth of processing and the retention of words in episodic memory. *Journal of Experimental Psychology: General*, 104(3), 268–294.
- [19] Shah, D. V., Cho, J., Nah, S., Gotlieb, M. R., Hwang, H., Lee, N. J., Scholl, R. M., & McLeod, D. M. (2007). Campaign ads, online messaging, and participation: Extending the communication mediation model. *Journal of Communication*, 57(4), 676–703.