Scientific
Research
Publishing

Social Media Use Effects on Self-Cognition and Behavior Patterns under the Network Environment

Ruizi Tang[1], Ruiyang Shi[2], Yixiao Zhao[3], Yuer Chen[4], Boao Hua[2]

[1]European Language Institute, Dalian University of Foreign Languages, Shenyang, China
[2]School of Finance, Zhejiang University of Finance and Economics, Hangzhou, China
[3]School of Journalism and Communication, Dalian University of Foreign Languages, Dalian, China
[4]Business School, Dalian University of Foreign Languages, Dalian, China
Email: 1437973595@qq.com

Abstract

With the rapid development of science and technology and the popularity of the Internet, social media has become an indispensable part of people's daily lives. Whether sharing life with friends or getting news information, social media has deeply penetrated into our social life, constantly affecting our cognition of society and self. Based on cluster analysis, Maslow's hierarchy of needs theory and agenda-setting theory, this paper adopts a questionnaire survey method to sample users of nine platforms, including WeChat, Today' Headlines, Weibo, QQ, TikTok, bilibili, Zhihu, Baidu Post Bar and Tianya Community. A total of 350 valid samples were collected, and the influence mechanism of social cognition and happiness was analyzed, revealing the potential effects of the content and form of social media on users' cognition and emotions. Finally, the author puts forward some suggestions from different angles and puts forward the shortcomings of this study to provide a reference for later researchers.

Keywords

Social Media, Social Cognition, Questionnaire Survey

1. Introduction

1.1. Research Background

1.1.1. Social Media and the Concept of Use

Social media refers to a kind of online platform that allows users to create, share

and exchange all kinds of information, including but not limited to text, images, audio and video. This kind of platform has a wide influence in the international scope, providing users with a free and open space for information dissemination and exchange. According to Zhang et al. (2021) research, social media has great influence on a global scale, providing users with a free and open space for information dissemination and exchange. Internationally, well-known social media include Facebook, Instagram and Snapchat. These platforms have a huge user base and become an important part of people's daily life. Take Facebook as an example, the platform has billions of users around the world, where people share their lives, get news information, and interact with others. Similarly, platforms such as Instagram and Snapchat have their own characteristics, which attract a large number of young users. The development of social media in China is similar to the global trend. Common social media include WeChat, Weibo and QQ. These platforms not only have extensive influence in China but also play an important role in the world. For example, WeChat is not only an instant messaging tool but also has the functions of payment and life service, which has become an indispensable part of China people's daily lives. Weibo is a social platform that brings together a large number of celebrities and grassroots netizens, where users can express their views, get current affairs information and interact with each other.

The use of social media refers to all kinds of activities on all kinds of social media platforms, including but not limited to browsing, posting, commenting, liking and other behaviors. The use of social media has become an indispensable part of modern people's daily lives, which not only changes people's communication methods but also has a far-reaching impact on social, economic and political fields. In China, the rapid development of social media platforms and the increasing usage rate make the influence of social media expand day by day. The diversification of social media platforms provides users with a variety of content and services. Users can choose the areas of concern, the information they subscribe to and the topics they participate in according to their own interests and needs. This way of personalized customization greatly meets people's information needs and social needs. At the same time, social media also provides a broad marketing channel for enterprises and businesses to help brand promotion and product sales.

1.1.2. Self-Awareness Forms the Concept

Self-cognition refers to the individual's understanding and cognition of himself, covering personality, ability, interests, values, and many other aspects. It is an important cornerstone of personal growth and development, which helps us to make wise decisions, set appropriate goals and better interact with others. In the process of self-cognition, it is very important to deeply understand one's own strengths and weaknesses. Everyone has their own unique strengths, and giving full play to his strengths is conducive to success in the workplace, life and interpersonal communication. At the same time, recognizing our own shortcomings

can inspire us to make efforts to improve and enhance our comprehensive quality. Self-cognition also includes the link to emotional management. Knowing and mastering our own emotional fluctuations and learning to adjust and control our emotions will help us better cope with the challenges and pressures in life. In addition, self-awareness involves the setting and planning of goals. Clear goals and practical plans can give us a better sense of direction on the road of life. Self-cognition is a comprehensive and multi-level process, covering individuals' cognition of personality, ability, interests and values. By constantly improving the level of self-cognition, we can make wise decisions in life and realize personal growth and development. In China, the importance of self-cognition has been paid more and more attention, and more and more people have begun to pay attention to and strive to improve their self-cognition ability. In addition, self-cognition is closely related to mental health. People with good self-awareness can better cope with the difficulties in life and maintain a positive attitude. However, people with insufficient self-awareness are easy to fall into psychological problems such as anxiety and depression. Therefore, cultivating self-awareness is of great significance to mental health.

1.2. Literature Review

1.2.1. Domestic Literature Review

Zhao (2019) explored the influence of smartphones on children's cognitive abilities and coping strategies through stratified cluster sampling. In this study, students from grade two to grade six in two primary schools in Jinan were randomly selected from two classes of each grade. A total of 500 questionnaires were distributed, and 486 questionnaires were effectively recovered, with a recovery rate and effective rate of 97.2% respectively. The research results show that the influence of smartphones on children's daily lives is increasingly significant. In view of the fact that children are new to society and imitation is the basis of their integration into society, children will unconsciously imitate the information transmitted and expressed by mobile media to a great extent. Therefore, it is necessary to pay attention to the influence of mobile media on children's cognitive ability. Wang and Wu (2021) clearly pointed out that the development of intelligent media has brought a brand-new scene for the construction of youth's value identity. Under the influence of this new communication power, the construction of youth's value identity faces a series of challenges: the recommendation of catering algorithm leads to the dissolution of subjective rationality, and the "de-authoritative" communication orientation leads to the confusion of value judgment orientation; The digital "panoramic prison" induces the suspicious mentality of value choice; The concealment of network circles leads to the psychological blindness of value identification. In order to meet these challenges, it is necessary to take the following measures: intelligent algorithm optimization and ethical constraints promote each other; Intelligent media literacy cultivation and value guidance optimization complement each other; Strengthen platform supervision and increase quality supply simultaneously. Through these means,

we can create an active, healthy and orderly intelligent media environment for the construction of youth's value identity. Qiu (2022) pointed out that the progress of intelligent media technology reshaped the traditional way of information dissemination and gradually evolved into a new field that influenced the values of young people. However, this change had also brought some challenges to the identification of youth values: the catering push of the algorithm may weaken the subjective initiative of youth value cognition; the Decentralized communication mode may weaken the authoritative position of mainstream values; The lack of gatekeepers may lead to the blindness of youth's value identification. Based on the above discussion, this paper discusses how teenagers can comprehensively enhance the endogenous motivation of young people's subject value identification from the following three aspects: adhering to mainstream values, correcting the legitimacy of intelligent media, and improving the network environment of the all-around supervision mechanism. Cao (2023), based on the mirror image theory, through semi-open in-depth interviews and questionnaires, made an in-depth study on the differences and dimensions of users' self-cognition under the AR selfie filter. The results show that there are significant differences in self-cognition between users of AR selfie filters and users of non-AR selfie filters. At the same time, there is a low correlation between "whether you have used an AR selfie filter" and "self-cognition". In the dimension of appearance conditions, there are differences in self-cognition between users of AR selfie filters and users of non-AR selfie filters. In addition, users of AR selfie filters find it more difficult to feel secure in social relationships. Bao (2023) deeply analyzed the 360-degree evaluation feedback method in practice, based on the theory of self-cognition and development. Relying on the actual data of an education group and comparing the historical data of three different schemes, he conducted an empirical study on the vertical and horizontal control tests to verify the impact of 360-degree evaluation feedback-related improvement measures on key performance indicators (KP18 performance improvement, competency improvement and trust in the organization). The results show that in the process of 360-degree evaluation feedback, behavioral objective description and optional statement, rather than questions with obvious attitude and value orientation, can produce positive improvement effects on the performance and ability of the assessed. Compared with the evaluation methods of value orientation, such as the traditional excellent middle difference scoring method, the evaluator can provide a more objective and constructive evaluation in the behavioral description. The research of Chen and Wei (2023) is based on the theory of protection motivation and takes privacy protection burnout and self-efficacy as intermediary and moderating variables respectively, and conducts a large-scale Questionnaire survey in 16 cities in China. The purpose of this study is to explore the mechanism of privacy paradox in an intelligent media environment and the differences in individual privacy protection behavior. The results show that privacy protection burnout plays a negative mediating role in the positive correlation between privacy invasion experience and privacy protection willingness; Self-efficacy po-

sitively moderates the inverted U-shaped relationship between privacy invasion experience and privacy protection burnout, while negatively moderates the positive correlation between privacy invasion experience and privacy protection willingness.

1.2.2. Review of Foreign Literature

Barry and Kim (2024) explored the relationship between parents' supervision of adolescent social media activities and adolescents' mental health and self-cognition. The results show that parental monitoring reported by teenagers has decreased in three aspects (namely, control, open communication and tracking). Open communication is positively related to teenagers' lower loneliness, while the control strategies reported by parents are related to teenagers' higher narcissism. However, parental monitoring has not moderated the relationship between adolescents' social media use and their mental health or self-cognition. The results reveal the potential benefits of open communication in teenagers' social media use, but it is still necessary to further explore the developmental role of parental monitoring in the relationship between social media use and adaptability. Moroney et al. (2023) used multiple mediation frameworks in their research. Social comparison frequency, accepting negative feedback and online risk self-expression each uniquely mediated the relationship between the use of digital media and the internalization and externalization of boys and girls. For substance use, dangerous self-expression mediates this association in both boys and girls, while negative feedback mediates substance use only in girls. Social comparison, negative feedback and measurable online behavior in the form of self-expression may be the key basis for the relationship between teenagers' digital media usage frequency and social-emotional development. Xu (2023) used a cross-sectional research design to investigate college students of different majors and ages. Data analysis used a questionnaire survey method to explore the current situation and influencing factors of college students' self-cognition under the application background of the artificial intelligence language model. The results show that college students generally have certain uncertainty and dependence on the use of the AI language model; The overall level of self-cognition is high, but there are some differences; The correlation between the artificial intelligence language model and self-cognition is influenced by gender, major and age. Gao et al. (2023) conducted an online questionnaire survey on 759 active users of social networking sites (WeChat friends circle, QQ space and Weibo) aged between 14 and 43. Correlation analysis and structural equation modeling are used to test the corresponding assumptions. The results show that the overall motivation intensity of users is positively correlated with happiness; Perceived social support and positive self-presentation have the intermediary function, while honest self-presentation and perceived social support have a chain intermediary function. Social motivation, information motivation and entertainment motivation indirectly affect users' happiness through three different interme-

diary paths.

Based on the above, it can be seen that there are few studies on the influence of social media usage on self-cognition, so this paper aims to deeply study the influence mechanism of social media usage on users' self-cognition, explore the influence of social media usage on self-cognition, and help to better understand people's psychological changes under the network environment, thus providing a theoretical basis for guiding people to use social media reasonably.

2. Descriptive Statistic

As shown in the following table (see Table 1), the average length of time spent surfing the Internet by mobile phone yesterday was 6.59, and the average length of time spent surfing the Internet by mobile phone last week was 7.25. The average length of using WeChat yesterday was 4.71, and the average length of using WeChat last week was 7.25. Yesterday, the average headline used today was 1.80, and last week, the average headline used today was 2.94. The average duration of using Weibo yesterday was 2.32, and the average duration of using Weibo last week was 4.07. The average length of using QQ yesterday was 2.17, and the average length of using QQ last week was 3.99. The average duration of using TikTok yesterday was 4.06, and the average duration of using TikTok last week was 5.79. The average length of using Bilibili yesterday was 2.57, and the average length of using Bilibili last week was 3.92. The average length of using Zhihu yesterday was 1.76, and the average length of using Zhihu last week was 2.51. Yesterday, the average duration of using Baidu Post Bar was 1.69; The average duration of using Baidu Post Bar last week was 2.18; The average length of using Tianya Community Forum yesterday was 1.59. The average feeling of life happiness is 2.10, 48.6% of people feel that life is relatively happy, 21.4% people feel that life is very happy, and the overall happiness perception is high; The average value of regional news is 2.02, which is generally biased towards domestic and international news. The average age is 26.38, mainly young people; The average education level is 4.36, and most of them are in junior college and undergraduate education. The average political outlook is 1.82, and most of them are the masses and Communist Youth League members.

3. The Analysis of the Survey Results

3.1. Keyword Co-Occurrence Analysis

Keyword co-occurrence analysis is the direction and focus for researchers who have not seen different platforms. By analyzing keywords, we can understand the hot topics in different platform fields. In the process of bibliometrics analysis, the frequency of keywords can represent the hot areas that scholars pay attention to in a certain period. The higher the frequency, the higher the attention of scholars in related fields. In this paper, nine platforms such as WeChat, TikTok, Zhihu and Baidu Post Bar are visually analyzed by CiteSpace. Taking the literature and periodicals in the past three years as reference, it is difficult to analyze

Table 1. Descriptive statistics of variables.

Variable	Average length of time of using different medias		
	Indicator Description	Averge/mean value	Standard Deviation
Gender	Male = 1, female = 2	1.49	0.50
Age	One full year of life	26.38	14.35
Occupation	Studying at school = 1; Workers in agriculture, forestry, animal husbandry, fishing and other industries = 2; Soldiers, social groups or social organizations = 3; General staff of enterprises and companies = 4; General staff of party and government institutions = 5; Middle and senior managers of state-owned enterprises = 6; Young, small, junior and senior teachers = 7; University teachers or scholars in research institutions = 8; News media workers = 9; Lawyers and related industries = 10; Medical workers = 11; Professional and technical personnel = 12; Workers and factory workers = 13; Freelancer = 14; Retirement = 15; Unemployed = 16; Leading cadres of the party, government and institutions = 17; Self-employed or self-employed = 18; Middle and senior managers of enterprise companies = 19; Business service personnel = 20; Cultural and performing arts industries = 21; Other = 22	6.73	7.49
Unit	Central state-owned enterprises = 1; Local state-owned enterprises = 2; Party and government organs = 3; Institution = 4; Private enterprises = 5; Collective enterprises = 6; Individual industrial and commercial households = 7; Other industries = 8; Hong Kong SAR, Macao SAR and Taiwan region and foreign-funded enterprises = 9	6.76	2.00
Degree of education	Primary school = 1; Junior high school = 2; High school (technical secondary school, technical school) = 3; Junior college = 4; Undergraduate course = 5; Master degree or above = 6; Primary school and below = 7	4.36	1.28
Political Status	The masses = 1; Communist Youth League member = 2; Communist party member = 3; Democratic parties = 4	1.82	0.70
How long did you use your mobile phone to surf the internet yesterday	0 - 30 minutes = 1; 30 minutes - 1 hour = 2; 1 - 1.5 hours = 3; 1.5 - 2 hours = 4; 2 - 2.5 hours = 5; 2.5 - 3 hours = 6; 3 to 3.5 hours = 7; 3.5 - 4 hours = 8; More than 4 hours = 9	6.59	2.64

Continued

How long did you use your mobile phone to surf the Internet last week?	0 days = 1; 1 day = 2; 2 days = 3; 3 days = 4; 4 days = 5; 5 days = 6; 6 days = 7; 7 days = 8	7.25	1.64
How long did you use WeChat yesterday?	0 - 30 minutes = 1; 30 minutes - 1 hour = 2; 1 - 1.5 hours = 3; 1.5 - 2 hours = 4; 2 - 2.5 hours = 5; 2.5 - 3 hours = 6; 3 to 3.5 hours = 7; 3.5 - 4 hours = 8; More than 4 hours = 9	4.71	2.72
How long did you use WeChat last week?	0 days = 1; 1 day = 2; 2 days = 3; 3 days = 4; 4 days = 5; 5 days = 6; 6 days = 7; 7 days = 8	7.25	1.68
How long did you use today's headlines (or interesting headlines) yesterday?	0 - 30 minutes = 1; 30 minutes - 1 hour = 2; 1 - 1.5 hours = 3; 1.5 - 2 hours = 4; 2 - 2.5 hours = 5; 2.5 - 3 hours = 6; 3 to 3.5 hours = 7; 3.5 - 4 hours = 8; More than 4 hours = 9	1.80	1.67
How long did you use today's headlines (or interesting headlines) last week?	0 days = 1; 1 day = 2; 2 days = 3; 3 days = 4; 4 days = 5; 5 days = 6; 6 days = 7; 7 days = 8	2.94	2.50
I used Weibo for a long time yesterday.	0 - 30 minutes = 1; 30 minutes - 1 hour = 2; 1 - 1.5 hours = 3; 1.5 - 2 hours = 4; 2 - 2.5 hours = 5; 2.5 - 3 hours = 6; 3 to 3.5 hours = 7; 3.5 - 4 hours = 8; More than 4 hours = 9	2.32	2.03
Last week, I used Weibo for a long time.	0 days = 1; 1 day = 2; 2 days = 3; 3 days = 4; 4 days = 5; 5 days = 6; 6 days = 7; 7 days = 8	4.07	2.82
How long did you use QQ yesterday	0 - 30 minutes = 1; 30 minutes - 1 hour = 2; 1 - 1.5 hours = 3; 1.5 - 2 hours = 4; 2 - 2.5 hours = 5; 2.5 - 3 hours = 6; 3 to 3.5 hours = 7; 3.5 - 4 hours = 8; More than 4 hours = 9	2.17	2.08
How long you used QQ last week	0 days = 1; 1 day = 2; 2 days = 3; 3 days = 4; 4 days = 5; 5 days = 6; 6 days = 7; 7 days = 8	3.99	2.79
How long did you use TikTok (or Aauto Quicker, watermelon, volcano, etc.) yesterday?	0 - 30 minutes = 1; 30 minutes - 1 hour = 2; 1 - 1.5 hours = 3; 1.5 - 2 hours = 4; 2 - 2.5 hours = 5; 2.5 - 3 hours = 6; 3 to 3.5 hours = 7; 3.5 - 4 hours = 8; More than 4 hours = 9	4.06	2.80
How long did you use TikTok (or Aauto Quicker, watermelon, volcano, etc.) last week?	0 days = 1; 1 day = 2; 2 days = 3; 3 days = 4; 4 days = 5; 5 days = 6; 6 days = 7; 7 days = 8	5.79	2.65
How long did you use bilibili yesterday?	0 - 30 minutes = 1; 30 minutes - 1 hour = 2; 1 - 1.5 hours = 3; 1.5 - 2 hours = 4; 2 - 2.5 hours = 5; 2.5 - 3 hours = 6; 3 to 3.5 hours = 7; 3.5 - 4 hours = 8; More than 4 hours = 9	2.57	2.26
How long did you use bilibili last week?	0 days = 1; 1 day = 2; 2 days = 3; 3 days = 4; 4 days = 5; 5 days = 6; 6 days = 7; 7 days = 8	3.92	2.73

Continued

I used Zhihu for a long time yesterday.	0 - 30 minutes = 1; 30 minutes - 1 hour = 2; 1 - 1.5 hours = 3; 1.5 - 2 hours = 4; 2 - 2.5 hours = 5; 2.5 - 3 hours = 6; 3 to 3.5 hours = 7; 3.5 - 4 hours = 8; More than 4 hours = 9	1.76	1.62
Last week, I used Zhihu for a long time.	0 days = 1; 1 day = 2; 2 days = 3; 3 days = 4; 4 days = 5; 5 days = 6; 6 days = 7; 7 days = 8	2.51	2.11
How long I used Baidu Post Bar yesterday?	0 - 30 minutes = 1; 30 minutes - 1 hour = 2; 1 - 1.5 hours = 3; 1.5 - 2 hours = 4; 2 - 2.5 hours = 5; 2.5 - 3 hours = 6; 3 to 3.5 hours = 7; 3.5 - 4 hours = 8; More than 4 hours = 9	1.69	1.58
How long did you use Baidu Post Bar last week?	0 days = 1; 1 day = 2; 2 days = 3; 3 days = 4; 4 days = 5; 5 days = 6; 6 days = 7; 7 days = 8	2.18	1.99
Yesterday, I used Tianya (or a powerful country) community forum for a long time.	0 - 30 minutes = 1; 30 minutes - 1 hour = 2; 1 - 1.5 hours = 3; 1.5 - 2 hours = 4; 2 - 2.5 hours = 5; 2.5 - 3 hours = 6; 3 to 3.5 hours = 7; 3.5 - 4 hours = 8; More than 4 hours = 9	1.59	1.48
Well-being	Can't say happiness is not happiness = 1; Relatively happy = 2; Very happy = 3; Less happy = 4; Very unhappy = 5	2.10	0.87
Which region do you often pay attention to?	Local news = 1; National news = 2; International news = 3	2.02	0.65

them directly except for Baidu Post Bar, because the number of literature and periodicals published in the past three years is too small. After comprehensive consideration, the literature and periodicals published in the past ten years are selected for analysis. In the visual analysis of CiteSpace, the size of the node or the size of the text represents the frequency of a keyword, and the larger the node or the larger the text represents the high frequency of the keyword in this period, which is the focus of scholars' research. In addition, the connection lines between different nodes represent the relevance of keywords between them.

1) WeChat

Through the visual analysis of 925 articles in CiteSpace with WeChat and cognition as keywords(see Figure 1), it is found that the research hotspots of WeChat platform from 2021 to 2023 mainly focus on new media communication strategies, social media, health communication, college students, the elderly and grounded theory. During the period of 2022, compared with other focus, the focus of college students and WeChat changed significantly, and it became a hot topic centered on digital divide and media use. By the end of 2023, keywords such as social adaptation and social support appeared.

2) Today's Headlines

Through the CiteSpace visual analysis of Today's Headlines in recent three years (see Figure 2), 438 academic journals and papers were retrieved from HowNet.

Figure 1. WeChat's frequency nodes and relevance to other keywords.

Figure 2. Today's headlines frequency nodes and relevance to other keywords.

From 2021 to 2023, the research hotspots of today's headlines mainly focused on new media and short video algorithms and algorithm recommendation. From the perspective of time, it is observed that the focus of the three time axes is today's headlines-operational status-meta-capital; Algorithm-communication mechanism-scientific and technological communication; Short video-algorithm risk-information entropy. By the end of 2023, science and technology communication is the focus issue in the timeline.

3) Weibo

Weibo was used as the key word in HowNet, and 717 articles were collected in recent three years (see **Figure 3**). The visual analysis of CiteSpace shows that
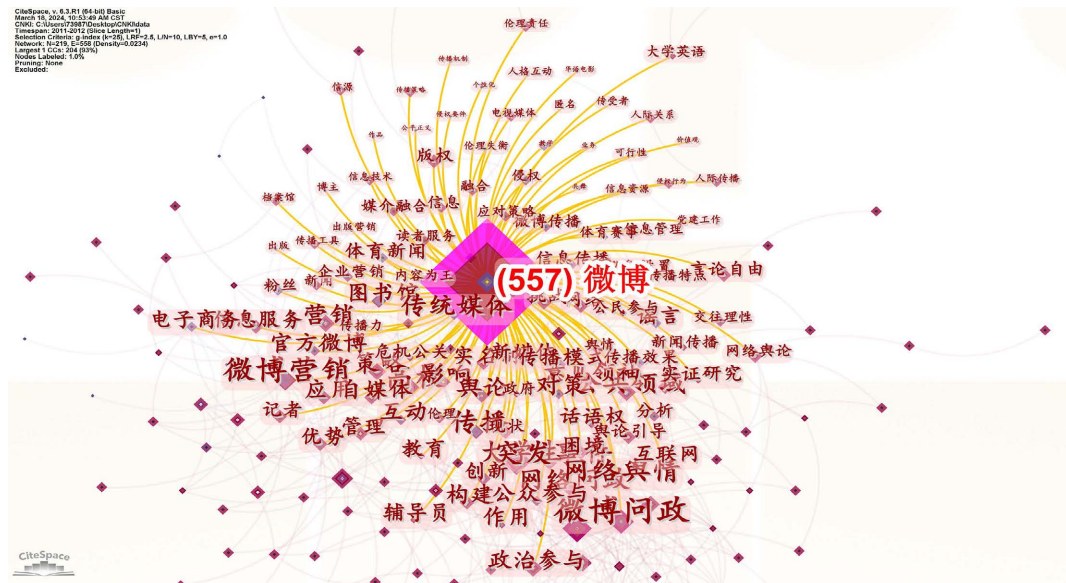
Figure 3. Weibo's frequency nodes and relevance to other keywords.

social media, Weibo, new media, communication effect, college students, media image and online public opinion are closely related to each other. From 2021 to 2023, the timeline changes mainly from social media, Weibo, communication effect, COVID-19 epidemic, media image and cognition to identity and emotional communication, information utility and health knowledge, popular science communication, collective memory and gender image, metaphor and subjectivity.

4) QQ

In HowNet, QQ was used as the key word for advanced search, and 456 articles were collected in recent three years (see **Figure 4**). The visual analysis results of CiteSpace are shown in the figure, among which online teaching, QQ group, online teaching, teaching mode, rain classroom, learning pass, flip classroom and Tencent classroom are the most frequent ones. In the keyword timeline diagram, the first co-occurrence of "college", "college physics" and "university" was mainly concentrated in 2021. This year is precisely because the epidemic prevention and control can't resume normal teaching, and most research topics based on online teaching have emerged. From the research topic keyword cloud class in recent 2022, it can be seen that the research in 2021 laid the foundation for the research in 2022.

5) TikTok

Using TikTok's use and cognition as keywords in HowNet, 529 academic documents have been collected in recent three years (see **Figure 5**). From the chart, it can be seen that in recent three years, TikTok, short video, communication effect and communication strategy have a high degree of concern, and the relationship between them is strong, and there are many nodes that serve as bridges between subgroups. Selecting words through the nodes is the focus of topics studied by scholars in recent three years. It should be paid attention to, for example,

Figure 4. QQ's frequency nodes and relevance to other keywords.

Figure 5. TikTok's frequency nodes and relevance to other keywords.

the above-mentioned topic words constantly extend to the research branches of city image, TikTok platform, self-presentation, health communication, media image, influencing factors, college students and so on. In the keyword timeline analysis, it is divided into eight branches. They are "self-identity-user-group polarization", "college students-new media-rural youth individuals-grounded theory-value co-creation-old people-fitness live broadcast", "use behavior-city image-local culture-content marketing-innovation diffusion-ice mound mound-self-media", "Tik Tok-purchase intention-cultural identity" and "self-presentation-communication strategy". "Healthy communication-content production-short video-willingness to use-media use-interactive mode", "social media-communication effect-secondary

communication-perceived value-information behavior" and "emotional communication-webcast-visual frame empathy". Among them, in 2023, fitness live broadcast and visual rhetoric appeared more frequently, followed by self-media, cultural identity, cancer patients and information behavior, and in recent three years, they appeared more frequently and had strong correlation.

6) Bilibili

In HowNet, the advanced search was conducted with the keyword "Billie Mile", and 681 academic documents were collected in the past three years (see Figure 6). From the chart, it can be seen that the relationship between Billie Mile, bilibili, profit model, business model, new media and short video in the past three years is relatively high, and the co-occurrence relationship is strong, and several nodes play a bridge role. The hot topics connected through this node are subculture, financial analysis, barrage, interactive video and short video. In the timeline analysis with the article title as the filtering standard, there are seven. Among them, it is limited by its features, communication effect, profit model, bilibili, new media, subculture and commerce, which were co-presented by other documents in 2021. They are performance evaluation, knowledge dissemination, online learning, virtual idol, interactive ceremony, national identity and business performance, online video, consumer behavior, eating and broadcasting, scientific communication, barrage, video website, short video, value co-creation and ritual interaction, and upmaster, profit model, barrage video and media integration. Among them, in 2023, the frequency of occurrence is more significant in scientific communication and marketing.

7) Zhihu

In recent three years, Zhihu was searched on HowNet, and 286 academic journals and papers were collected and processed in CiteSpace (see Figure 7). It can be intuitively concluded that the obvious keywords are Zhihu, knowledge payment, influencing factors, grounded theory and social media, which have a strong co-occurrence relationship and play a bridge role. Through these nodes, the question-and-answer community, business model, user behavior, emotional analysis, healthy communication, knowing about the community and value creation are the focus of scholars' attention. There are five screening criteria in the time axis analysis of article titles, namely "knowledge dissemination-information cocoon-information quality", "collaborative filtering-mainstream media-valuation", "business model-Zhihu-business value-content production", "AIDS-knowledge payment-power law distribution-knowledge adoption" and "healthy communication-question and answer community-emotional communication". In 2023, these related words showed that the keywords that appeared frequently were public communication, content production and text analysis.

8) Baidu Post Bar

After the keyword search with Baidu Post Bar as the core in HowNet (see Figure 8), the total number of academic journals and papers is small. After repeated debugging, the literature analysis of the past ten years from 2014 to 2023 was carried out. A total of 314 documents, found in CiteSpace, identity, new media,
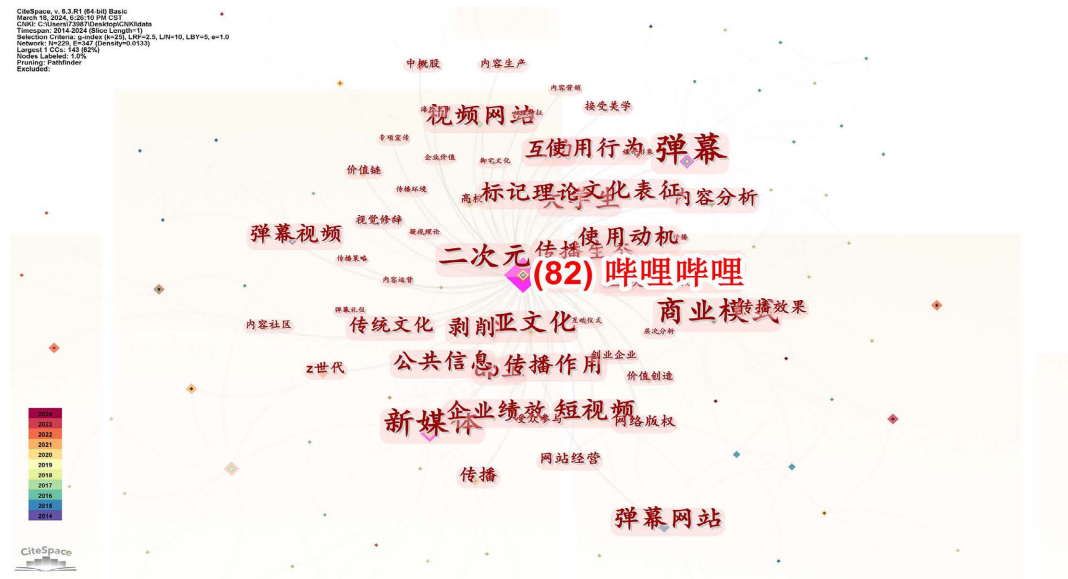
Figure 6. Bilibli's frequency nodes and relevance to other keywords.
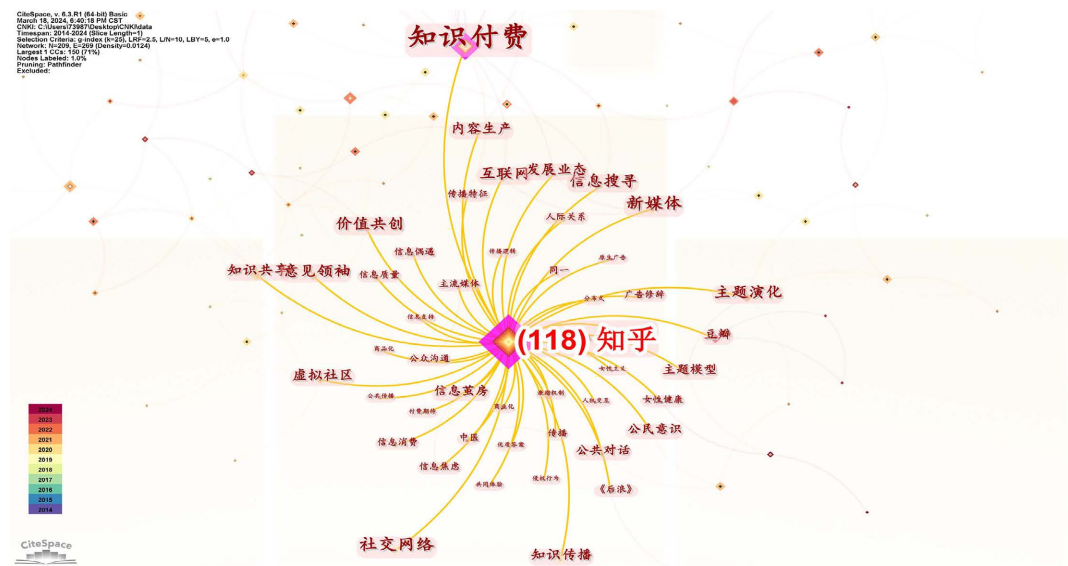
Figure 7. Zhihu's frequency nodes and relevance to other keywords.

virtual community, emotional analysis, web crawler are more significant and play a bridge role. In the analysis of literature topics, eight branches are displayed. From 2014 to 2023, it was found that in 2014-2023 (see **Figure 9**), the virtual community appeared in 2014 and the popularity slowed down after 2015; Starting from 2015, new media has become the focus of research field, which has slowed down after three years; Since 2017, identity, college students, media technology and online characteristics have become the research hotspots. From the research in recent five years, interaction, emotional analysis, influencing factors and web crawler have become the research topics derived from the study of Baidu Post Bar, which also shows the trend and direction of studying this hot spot.
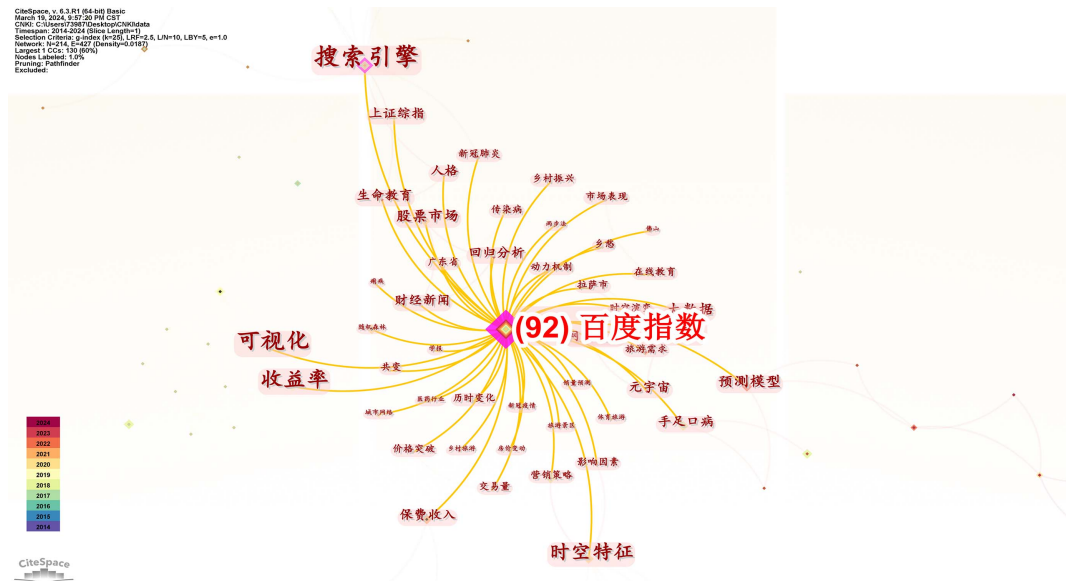
Figure 8. Baidu's frequency nodes and relevance to other keywords.

Figure 9. Top10 keywords.

9) Tianya

In recent three years, we have carried out advanced retrieval in HowNet with Tianya as the key word, and collected 551 documents, and made visual analysis on CiteSpace (see **Figure 10**). In the process of analysis, there are scattered research topics, all of which appear in a small number, and a few online games and rove have more frequency. However, there is no correlation between keywords and keywords, which shows that scholars are relatively independent in the process of analyzing the literature related to Tianya. It involves a wider range of fields and the correlation between them is not significant.

Figure 10. Tianya's frequency nodes and relevance to other keywords.

3.2. Cluster Analysis Method

This round of data contains many variables and indicators, and no pre-classification criteria or target variables are given. Therefore, the author chooses some related variables, including gender, age, occupation, education level, political outlook, happiness and so on, as the input of cluster analysis.

Cluster analysis is an unsupervised machine learning method, which can divide the objects in the data set into several relatively homogeneous subsets according to their characteristics or attributes, which is called clustering. The purpose of cluster analysis is to discover the internal structure and laws of data, as well as the similarities and differences between data objects. The advantage of cluster analysis is that it can handle a large amount of data, and it doesn't need to know the category or label of data in advance. The disadvantage of clustering analysis is that it needs to choose an appropriate clustering algorithm, clustering number, clustering standard and clustering evaluation method, and the clustering result may be affected by data quality, distribution and noise.

To group the data directly by cluster analysis, the author chooses the K-means algorithm, and divides them into K preset clusters according to the characteristics of the data, so that the data similarity within each cluster is high, while the data similarity between different clusters is low.

The author uses the following steps to realize the K-means algorithm:

Firstly, the data is preprocessed, and some non-numerical variables are converted into numerical variables, such as gender, occupation, unit, political outlook, etc., so as to calculate the distance. Then, the data is standardized, and the value of each variable is converted into a standard normal distribution with a mean value of 0 and a standard deviation of 1, so as to eliminate the influence of the dimensions and scales of different variables.

Secondly, K = 4 is chosen as the number of clusters, which is an empirical value and can be adjusted according to the actual situation. Then, four objects are randomly selected from the data as the initial clustering centers, which are denoted as C1, C2, C3 and C4 respectively.

Then, repeat the following process until the cluster center does not change or reaches the maximum number of iterations:

For each object in the data, the Euclidean distance between it and each cluster center is calculated, and then it is assigned to the nearest cluster to form four initial clusters, which are denoted as S1, S2, S3 and S4 respectively.

For each cluster, calculate the average of all the objects in it, and then use this average as the new cluster center to update C1, C2, C3 and C4.

Finally, four final clusters and their corresponding cluster centers are obtained, as shown below (see Figure 11).

S1 is a very special group, which contains only one object, and the values of all variables of this object are the largest, indicating that this object is a male studying at school, aged 23, with a master's degree or above, with a political outlook of Communist party member, Hong Kong SAR, Macao SAR and Taiwan region and foreign-funded enterprises. Yesterday and last week, he used various social media for more than 4 hours, and he was very happy and often paid attention to international news. This object may be an abnormal value of data or a real individual, which needs further verification and analysis.

S2, S3 and S4 are three similar groups, and the values of their cluster centers are very close, indicating that there is no obvious difference in their characteristics and attributes. The gender, age, occupation, unit, education level, political outlook, the length of time spent using various social media yesterday and last week, happiness, and the average value of news in which region they often pay attention to are all close to the average value of the whole data set, indicating that these three groups are an ordinary group with no particularly prominent or below-average characteristics. The target of these three groups may be a typical social media user. Their social media use behavior and psychological state are relatively normal and balanced, and there is no tendency to rely too much on or ignore social media.

Judging from the size of the cluster, the size of S2, S3 and S4 is about 1000, accounting for 99.9% of the whole data set, indicating that these three groups are a major group, while S1 has only one object, accounting for 0.1% of the whole data set, indicating that this group is a marginal group.

The gender, age, occupation, unit, education level, political outlook, the duration of using various social media yesterday and last week, happiness, and the

聚类	聚类中心	聚类大小
S1	(1.00, 23.11, 1.00, 4.00, 3.00, 2.00, 8.00, 8.00, 8.00, 8.00, 8.00, 8.00, 8.00, 8.00, 8.00, 8.00, 8.00, 8.00, 8.00, 8.00, 8.00, 8.00, 3.00, 2.00, 3.00)	1
S2	(1.48, 26.01, 6.64, 6.76, 4.36, 1.82, 6.59, 7.25, 4.71, 7.25, 1.80, 2.94, 2.32, 4.07, 2.17, 3.99, 4.06, 5.79, 2.57, 3.92, 1.76, 2.51, 1.69, 2.18, 1.59, 2.10, 2.02)	1000
S3	(1.50, 26.77, 6.83, 6.76, 4.36, 1.82, 6.59, 7.25, 4.71, 7.25, 1.80, 2.94, 2.32, 4.07, 2.17, 3.99, 4.06, 5.79, 2.57, 3.92, 1.76, 2.51, 1.69, 2.18, 1.59, 2.10, 2.02)	1000
S4	(1.51, 27.54, 6.99, 6.76, 4.36, 1.82, 6.59, 7.25, 4.71, 7.25, 1.80, 2.94, 2.32, 4.07, 2.17, 3.99, 4.06, 5.79, 2.57, 3.92, 1.76, 2.51, 1.69, 2.18, 1.59, 2.10, 2.02)	999

Figure 11. Four final clusters and their corresponding cluster centers.

news in which area you often pay attention to are all evenly distributed, without obvious deviation or concentration, indicating that the data set is a diverse and representative data set, which can be used to reflect the characteristics and behaviors of social media users.

The social media use behavior and psychological state of the objects in the data set are normal and balanced, and there is no phenomenon of over-reliance or neglect of social media, which shows that social media has not had a negative impact on the life and work of the objects, but has played a positive role, which can improve the life satisfaction and civic awareness of the objects.

The average length of time spent using various social media by the objects in the data set yesterday and last week is relatively high, which indicates that social media has become an important part of the objects' daily life and work, and can meet the various needs of the objects such as information acquisition, communication and entertainment.

The variables such as gender, age, occupation, unit, education level and political outlook of the objects in the data set have no obvious influence on social media use behavior and psychological state, indicating that social media is an equal and open platform without obvious social discrimination or estrangement.

3.3. Maslow's Hierarchy of Needs Theory Analysis

- In order to better study the influence of social media on social cognition, this paper uses Maslow's hierarchy of needs theory to analyze and discuss it. Maslow's hierarchy of needs theory divides people's needs into eight levels and stages, namely physiological needs, such as food, water, air, sleep and so on. Safety need means that people need stability, safety and protection. Belongingness and love needs, such as making friends and pursuing love; Esteem needs, such as respect for yourself and the reputation of others; Cognitive needs such as knowledge and understanding, curiosity, exploration, mea-

ning and predictability; Aesthetic needs, such as appreciating and looking for beauty, balance, form, etc. Self-actualization needs, such as people's pursuit of realizing their own abilities or potentials; Transcendence needs, for example, a person's motivation to transcend personal values. It constitutes a pyramid, and the closer it is to the top of the pyramid, the higher the quality of its demand, and the easier it is to produce happiness.

- The communication content and characteristics of each social platform are different. As a strong social platform, people will contact people who are relatively close to themselves, such as lovers, family members and friends. Therefore, the use of the WeChat platform will meet people's needs for belonging and love. According to the statistical data, the average duration of using WeChat in a single day and a week is 4.71 and 7.25, and the average frequency of use is high, which is closely related to life, thus bringing people a higher demand for belonging and love, and further improving their perception of love happiness. Weibo is the first scene where hot spots break out. Its "hot search" is real-time and timely, and comments can be made below. The gathering place of "eating melons in the front row" constantly meets people's needs for curiosity and exploration, that is, cognitive needs. According to statistical data, the average duration of using Weibo in a single day and a week is 2.32 and 4.07, which is slightly lower in a single day, but it is frequently used every week. TikTok is a new short video platform with rapid spread, and its infinite flow video mode brings people constant aesthetic stimulation. At the same time, people can also publish their daily lives on TikTok, record their beautiful lives, constantly meet people's aesthetic needs, and bring people the experience of looking for beauty and feeling nothing, thus satisfying people's happiness in feeling beauty.

- The content and operational characteristics of different platforms cater to people's different needs. In the long-term use of a social platform, it will be constantly influenced by its content and form, which will not only form different social cognition but also meet people's various needs, so that people can get different levels of happiness experience.

3.4. Theoretical Analysis of Agenda-Setting

Agenda setting is important for mass communication. Social function one of the effects. Agenda-setting theory holds that in public society there is a highly corresponding relationship between the understanding and judgment of important issues and the reporting activities of the media, that is, the problems reported by the media as "major events" are also reflected in the public consciousness as major events 3; The more emphasis given by the media, the higher the public's attention to this issue. According to this highly corresponding correlativity According to theory, mass communication has the function of forming the social agenda", and the media can endow various issues with different degrees. "significance, affecting the focus of public attention and the right social environment. In the new media era, the role of traditional media in agenda setting is weaken-

ing, while various social platforms play a new role in agenda setting. On the one hand, the function of this agenda setting makes people know the important information that the gatekeeper wants to convey; On the other hand, while conveying information, it constantly exerts a subtle influence on people's values and social cognition, thus impressing people's perception and judgment of life happiness. For example, TikTok has become the main pastime of young people, including middle-aged and even elderly people, and its constantly conveyed values will affect their attitude towards life. At present, some bloggers suggest that "lovers bloggers" should not be envied and sought after. They are biased towards the establishment of young people's concept of love in many aspects. Many seemingly sweet shots are interpreted in the context of facing the camera, and their authenticity and operability are low. In such a spread, many young people who have not yet established their love concept are easily biased by such a sweet appearance, thus forming an unrealistic and nihilistic love concept, and it is also easy for people to have more dissatisfaction when facing their feelings, which will further reduce their perception of love happiness. Therefore, the agenda-setting of social platforms has a great influence on people's cognition and happiness.

4. Research Conclusion and Shortcomings

The purpose of this paper is to explore the influence mechanism of social media usage on users' self-cognition. By questionnaire survey, we conducted a sample survey on users of nine platforms, including WeChat, Today Headline, Weibo, QQ, TikTok, bilibili, Zhihu, Baidu Post Bar and Tianya Community, and collected 350 valid samples.

Through questionnaire survey and cluster analysis, this paper discusses the influence of social media use on users' social cognition and happiness and finds that different social media platforms meet users' different levels of needs, thus bringing different levels of happiness. This paper also uses Maslow's hierarchy of needs theory and agenda-setting theory to theoretically analyze the influence mechanism of social media use on users' social cognition and happiness and reveals the potential role of social media content and form on users' cognition and emotion.

4.1. Research and Innovation

The innovation of this paper is mainly reflected in the following aspects: First, this paper adopts multiple social media platforms as the research object, covering different types of social media such as WeChat, Weibo, TikTok, and Billie Billie, which increases the breadth and depth of the research; Secondly, this paper uses the method of cluster analysis to group and classify the data, and finds different types of user groups and characteristics, which provides more detailed and rich data support for the research; Thirdly, combining Maslow's hierarchy of needs theory and agenda setting theory, this paper theoretically explains the influence mechanism of social media use on users' social cognition and happi-

ness from the perspectives of demand and cognition, and expands the research perspective and dimension.

4.2. Research Value

The value of this paper is mainly reflected in the following aspects: first, this paper provides a useful reference for understanding people's psychological changes and behavior patterns under the network environment, which is helpful in promoting people's mental health and social adaptation; Second, this paper provides theoretical basis and practical suggestions for guiding people to use social media reasonably and improving the communication effect and social benefits of social media; Third, this paper provides data support and theoretical guidance for the development and innovation of social media, as well as related policy formulation and supervision.

4.3. Research Limitations

The limitations of this paper are mainly reflected in the following aspects: First, the data source of this paper is mainly a questionnaire survey, which may be subjective and biased, and fails to fully reflect the real situation and motivation of users. The questionnaire design is relatively simple, involving only variables such as the time users use social media, the social support they feel and the frequency of social comparison, without considering the specific content, motivation, attitude and satisfaction of users using social media, which may ignore some important influencing factors and details. In future research, we can increase the content and dimension of the questionnaire, or adopt qualitative research methods such as in-depth interviews and focus groups to deeply understand the psychology and behavior of users; Second, the sample size and scope of this paper are limited, which may not represent all social media users and groups, and fail to take into account the individual differences and diversity of users; Third, there is a certain disconnect and mismatch between theoretical analysis and empirical analysis in this paper, which fails to fully verify and support theoretical assumptions and conclusions. The traditional analysis method only uses a structural equation model to analyze the data, and does not use the latest technologies such as data mining and text analysis, which may not fully tap the potential value and significance of social media data. In future research, we can try to use more advanced analysis tools and methods, such as artificial intelligence, machine learning, natural language processing, etc., to improve the accuracy and innovation of analysis.

4.4. Research Prospect

The prospect of this paper is mainly reflected in the following aspects: firstly, this paper hopes to adopt more data sources and methods, such as experiments, observations, interviews, etc., to improve the objectivity and effectiveness of data and enhance the credibility and persuasiveness of research; Secondly, this pa-

per hopes to expand the sample size and scope, covering more social media platforms and user groups, to improve the universality and representativeness of the research and increase the influence and reference value of the research; Thirdly, this paper hopes to strengthen the connection and coordination between theoretical analysis and empirical analysis, to improve the logic and consistency of research and enhance the depth and breadth of research.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

References

Bao, M. G. (2023). An Empirical Study on the Improvement of 360-Degree Evaluation Feedback Based on Self-Cognition and Development Theory. *China Personnel Science, 8,* 46-54.

Barry, C. T., & Kim, H. (2024). Parental Monitoring of Adolescent Social Media Use: Relations with Adolescent Mental Health and Self-Perception. *Current Psychology, 43,* 2473-2485. https://doi.org/10.1007/s12144-023-04434-2

Cao, R. Y. (2023). Self-Cognition and Differences under the AR Selfie Filter. *Southeast Communication, 11,* 126-129.

Chen, S. B., & Wei, J. (2023). The "Cost" of Self-Efficacy: A Study on the Paradox of Privacy Protection Behavior of Smart Media Users. *Modern Intelligence,* 1-20.

Gao, W., Wei, J., Li, Y. et al. (2023). Motivations for Social Network Site Use and Users' Well-Being: Mediation of Perceived Social Support, Positive Self-Presentation and Honest Self-Presentation. *Aslib Journal of Information Management, 75,* 171-191. https://doi.org/10.1108/AJIM-08-2021-0224

Moroney, E., Lee S. S., Ebbert, A. M. et al. (2023). Digital Media Use Frequency, Online Behaviors, and Risk for Negative Mental Health in Adolescents in High-Achieving Schools. *Clinical Child Psychology and Psychiatry, 28,* 237-254. https://doi.org/10.1177/13591045221108834

Qiu, J. W. (2022). The Influence of Intelligent Media on Young People's Value Identification and Its Countermeasures. *China Radio and Television Journal, 6,* 42-44.

Wang, K., & Wu, X. Q. (2021). The Construction of Youth's Value Identity in the Era of Intelligent Media. *Socialism with Chinese Characteristics Research, 2,* 89-95.

Xu, H. (2023). Research on Self-Cognition of College Students in the Background of AI Language Model Use. *Journal of Education and Educational Research, 4,* 157-161. https://doi.org/10.54097/jeer.v4i2.10848

Zhang, Y. L., Li, S., & Yu, G. L. (2021). The Relationship between Social Media Use and Miss Anxiety: A Meta-Analysis. *Journal of Psychology, 53,* 273-290.

Zhao, J. H. (2019). The Influence of Smart Phones on Children's Cognitive Ability and Its Countermeasures-Based on the Investigation of Two Primary Schools. *Young Reporter, 32,* 39-40.