Original Paper

Educational Intervention on Information Cocoon of College Students: Cognitive Remodeling Path Research Based on Media Literacy Curriculum

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Abstract

This research aims to explore educational interventions for the "information cocoon" phenomenon among college students and the cognitive reshaping path based on media literacy courses. By combing through relevant theories of the "information cocoon" the current research status of college students "information cocoon" and the development of media literacy courses through literature research, and using empirical research methods such as questionnaires, interviews, and pre- and post-test experimental designs, this study deeply analyzes the current situation and influence of college students "information cocoon" and verifies the effectiveness of media literacy courses in cognitive reshaping. The research findings show that media literacy courses play a significant role in cultivating college students information screening ability and critical thinking, can effectively break the "information cocoon" and provide theoretical and practical references for higher education interventions. However, the research also points out that there are insufficient teaching staff and insufficient attention from students during the implementation process, and proposes corresponding solutions to further improve the cognitive reshaping path based on media literacy courses.

Keywords

college students, information cocoon, educational intervention, media literacy courses, cognitive reconstruction

1. Introduction

1.1 Research Background

The rapid advancement of internet technology has fundamentally transformed how information is disseminated, giving rise to fragmented, personalized, and instant communication patterns. In this context, social media platforms leverage algorithmic recommendation systems to deliver content that aligns with users preferences, creating what's known as "information cocoons"—self-contained communities where people are exposed only to information matching their existing views (Li & Tan, 2023). Information cocoon refers to the fact that due to the combined effect of individual selective psychology and algorithmic filtering mechanism, users are confined to a narrow information environment and it is difficult for them to access diversified views and knowledge (Lang & Wang, 2020). This phenomenon is particularly common in contemporary society, especially among college students (Wang, 2020). As digital natives, college students heavily rely on social media for information, yet their media literacy remains underdeveloped, leaving them vulnerable to the traps of information cocoons. Research shows that such cocoons not only hinder cognitive development but also profoundly shape values and social interaction skills (Wu, 2022). Therefore, how to effectively intervene in the problem of information cocoon of college students has become an important issue to be solved urgently in the field of higher education.

In recent years, the academic community has been paying increasing attention to the phenomenon of information cocoon and related research has been gradually deepening. However, most existing studies focus on the formation mechanism of information cocoon and its impact on society, while specific intervention measures for college students are still insufficient (Liu, 2022). In this context, this study aims to explore cognitive restructuring pathways based on media literacy curricula, providing theoretical support and practical guidance for educational interventions in higher education. Through in-depth analysis of information cocoons, the research seeks to reveal their specific manifestations and causes among college students, while exploring systematic educational approaches to help students break through the constraints of information cocoons and achieve comprehensive, healthy cognitive development.

1.2 Problem Statement

Information cocoons exert multifaceted negative impacts on college students cognitive development and value formation. Firstly, they narrow knowledge horizons and rigidify thinking patterns, hindering the establishment of comprehensive cognitive frameworks. In such information-confining environments, prolonged exposure to homogeneous content deprives students of diverse perspectives and critical analysis skills, ultimately weakening their ability to think critically (Xu, 2022). Secondly, information cocoon also has a negative impact on the shaping of college students values. Algorithmic recommendation tends to cater to users emotional needs rather than delivering objective and true

information, which makes some students prone to being misled by bad information and even forming extreme or wrong values (Liu, 2022). In addition, information cocoon also limits the social ability of college students, making them tend to communicate in closed circles, which further aggravates the risk of group polarization (Chen X. C., Chen, L., & Yang, 2022).

While existing research has proposed strategies to counter information cocoons, educational interventions targeting college students remain significantly inadequate. On one hand, universities allocate relatively limited resources to media literacy education, failing to fully leverage classroom teaching in cultivating students ability to discern information. On the other hand, current educational approaches predominantly remain theoretical, lacking systematic frameworks and practical applicability (Zhao, 2022). Therefore, the core question of this study is: How can we effectively help college students break free from the shackles of information cocoons and achieve cognitive remodeling through the design and implementation of media literacy courses? The solution to this problem will not only help improve college students media literacy, but also provide new ideas and methods for ideological and political education in universities.

1.3 Research Objectives

This study aims to explore effective pathways for reshaping college students perception of information cocoons through media literacy courses, providing theoretical and practical references for educational interventions in higher education. Specifically, the research objectives include: First, by analyzing the formation mechanisms of information cocoons and their impacts on students, we aim to clarify the pivotal role of media literacy courses in cognitive restructuring. Second, drawing on domestic and international research findings, we will design a systematic curriculum framework for media literacy courses that encompasses core elements such as information filtering and critical thinking cultivation (Chen X. C., Chen, L., & Yang, 2022). Thirdly, the empirical research will verify the practical effect of media literacy courses in improving college students information screening ability and cognitive level, so as to provide a scientific basis for higher education intervention (Zhao, 2022). Finally, based on the research results, specific implementation suggestions are put forward to provide reference for colleges and universities to optimize the curriculum setting and innovate teaching methods of media literacy, so as to help college students better cope with the challenges brought by information cocoon and achieve comprehensive and healthy development.

2. Literature Review

2.1 Information Cocoon Theory

The concept of information cocoons originated from Shangtangs seminal work "Information Utopia". It posits that digital platforms, through algorithmic recommendations and users selective cognitive biases, create a narrow and insular information ecosystem. Predominantly filled with homogenized content,

such environments restrict exposure to diverse perspectives, ultimately leading to cognitive narrowing and rigid thinking patterns (Wu, 2022). With the development of big data technology, intelligent algorithm recommendation has gradually become an important driving force for the formation of information cocoons. Algorithms push content that meets users expectations based on their browsing history, interests, and behavioral patterns, thereby strengthening selective exposure to information (Xu, 2022). Moreover, personal selective psychology also plays a key role in the formation of information cocoons. Users tend to choose information that is consistent with their own views, while ignoring or rejecting heterogeneous information, which further aggravates the closed nature of information cocoons (Wu, 2022). In recent years, scholars have gradually deepened their research on information cocoon, not only focusing on its technical causes, but also discussing its far-reaching influence on social cognition, value shaping and ideological and political education (Xu, 2022).

2.2 Research Status of Information Cocoon of College Students

Domestic and foreign studies on college students information cocoon mainly focus on three aspects: causes, manifestations and influences. First, the reasons for college students to fall into information cocoon mainly include personalized push of algorithmic recommendation, lack of media literacy and homogeneity tendency of social circles (Lang & Wang, 2020). While meeting the personalized needs of college students, algorithm recommendation technology also limits the scope of information reception and easily forms cognitive bias (Jiang & Li, 2024). Secondly, the performance of college students in information cocoon is mainly reflected in their high dependence on specific information and resistance to heterogeneous information. Studies show that some college students gradually lose their interest in and discrimination ability of diverse information because they have long been exposed to a single information source (Zhao & Guo, 2022). Finally, information cocoons exert particularly significant impacts on college students, especially in cognitive development, value formation, and social skills. On one hand, these echo chambers limit the breadth and depth of knowledge acquisition, hindering the development of comprehensive cognitive frameworks. On the other hand, exposure to harmful content may distort value judgments, eroding students sense of social responsibility and moral boundaries (Lang & Wang, 2020; Wang, 2020). In addition, information cocoon also leads to the narrow social circle of college students and the decline of communication ability, which further hinders their comprehensive development (Zhao & Guo, 2022).

2.3 Media Literacy Curriculum Research

The development of media literacy courses can be traced back to the mid-20th century, when the goal of media literacy courses was expanded from improving the publics ability to understand media content to cultivating critical thinking and information screening (You, 2022). In the early stages, media literacy courses primarily focused on popularizing media knowledge, helping students understand the fundamental characteristics and communication patterns of media. With the development of

information technology, the content of media literacy courses has gradually expanded to cover multiple dimensions such as information filtering, data analysis, and media ethics (Chen & Wu, 2023). In terms of teaching methods, media literacy courses have undergone a transformation from traditional lecture-style to interactive and practical style. For example, case teaching, group discussion and practical operation are used to stimulate students participation awareness and active learning ability (You, 2022). In recent years, the relationship between media literacy courses and college students cognitive development has attracted widespread attention. Studies show that media literacy courses can effectively improve college students ability to identify information and critical thinking level, providing important support for them to break through information cocoon (Ge, 2024). However, there are still many challenges in the implementation of media literacy courses, such as insufficient teaching resources and single teaching methods (Liu, 2023).

2.4 Research Gaps

Although the existing literature has conducted in-depth research on information cocoon and media literacy curriculum respectively, there is still insufficient discussion on the cognitive remodeling path of information cocoon based on media literacy curriculum for college students (Liu, 2022). First of all, existing researches mostly focus on the causes and effects of information cocoon, but there are few systematic studies on its solutions, especially specific measures for college students (Zhao, 2022). Secondly, although some literature mentions the importance of media literacy courses, the research on how to combine it with the cognitive remodeling of college students is still in its infancy, and there is a lack of clear theoretical framework and practical guidance (Wang & Yi, 2021). In addition, the existing research has some limitations in terms of empirical analysis. The sample selection scope is narrow and the research time is short, which makes it difficult to comprehensively evaluate the actual effect of media literacy courses (Zhao, 2022). This study aims to fill the above gaps by systematically analyzing the objectives, contents and teaching methods of media literacy courses, exploring the feasibility and effectiveness of their cognition remodeling of information cocoon for college students, and providing new ideas and methods for higher education intervention (Liu, 2022).

3. The Status Quo and Influence of College Students Information Cocoon

3.1 Current Situation Survey of College Students Information Cocoon

3.1.1 Investigation Design

To comprehensively examine the current state of information cocoons among college students, this study employed a combined approach of questionnaire surveys and in-depth interviews for data collection. The questionnaire design was developed based on existing literature regarding the causes and manifestations of information cocoons, while incorporating characteristics of students information consumption behaviors. This methodology aims to reveal specific patterns in information acquisition

channels, preference selection processes, and cognitive awareness levels regarding information cocoons (Liu, 2023; Wang & Yi, 2021). The survey recruited university students from diverse academic disciplines, including STEM, humanities, social sciences, and arts majors, to ensure sample diversity and representativeness. The questionnaire covered four dimensions: basic information habits, algorithmic recommendation platform usage, information filtering behaviors, and perceptions of information echo chambers. It comprised 30 questions in total, including single-choice questions, multiple-choice questions, and scale questions, designed to quantify and analyze students information behavior patterns.

Meanwhile, in-depth interviews serve as a supplementary research method to further explore the psychological mechanisms and subjective perceptions underlying the formation of information cocoons among college students. The interview outline focuses on four key areas: primary channels of daily information exposure, reliance on algorithmic recommendations, awareness of being trapped in information cocoons, and strategies to counteract information narrowing. Participants were randomly selected from students who completed questionnaires, with 20 individuals interviewed for 30-45 minutes each session. By combining questionnaire surveys with in-depth interviews, this study aims to comprehensively present the current state of information cocoons among college students through both quantitative and qualitative approaches, providing robust data support for subsequent analyses.

3.1.2 Analysis of investigation results

Statistical analysis of survey data reveals that college students exhibit strong reliance on social media and algorithm-driven recommendation platforms for information consumption. Over 70% of respondents indicated that WeChat, Weibo, TikTok, and other social media platforms constitute their primary daily information sources. These platforms predominantly utilize personalized algorithmic recommendation systems, which suggest content based on users browsing history and interest preferences (Liu, 2023). Moreover, data reveals that over 60% of respondents admitted to showing clear biases in information selection, tending to focus on sources aligning with their own views while exhibiting strong resistance to heterogeneous information. For instance, 57% explicitly stated they would actively avoid information contradicting their perspectives, while only 27% mentioned they would verify and reflect on differing viewpoints after exposure (Wang & Yi, 2021).

Regarding awareness of information cocoons, survey results indicate that while most students have heard of the concept, their understanding of its specific impacts and risks remains limited. Only about 40% of respondents could accurately describe the formation mechanisms of information cocoons and their potential threats to cognitive development, while others simplistically equate them with "information overload" or "choice paralysis". Notably, in-depth interviews further revealed college students passive state within these information cocoons. Many respondents admitted that although aware of being trapped in specific information environments, they lack the motivation and willingness

to actively break free due to the precision and convenience of algorithmic recommendations (Liu, 2023). In general, the current college students show a strong selective psychology in information contact behavior, and their awareness of information cocoon is still insufficient, which brings potential risks to their cognitive development and value shaping.

3.2 The Influence of Information Cocoon on College Students

3.2.1 Effects on Cognitive Development

The detrimental effects of information cocoons on college students cognitive development primarily manifest in two aspects: narrowing knowledge horizons and rigidifying thinking patterns. Firstly, due to the widespread application of algorithmic recommendation technologies, students daily exposure to information is often confined to narrow domains that closely align with their personal interests. This results in a severe homogenization of information types, where the content they encounter tends to be singular and lacks diversity (MAO, 2025). This information narrowing phenomenon not only restricts college students access to diverse knowledge, but also hinders the development of comprehensive cognitive perspectives. For instance, studies indicate that students exposed to a single information source for extended periods demonstrate weaker capabilities in interdisciplinary knowledge integration and critical thinking, making them less adept at analyzing and solving complex problems (Chen & Wu, 2023).

Secondly, information cocoons reinforce students pre-existing viewpoints, thereby solidifying their cognitive patterns. Within such environments, college students tend to selectively absorb information that aligns with their established positions while rejecting divergent perspectives. This selective exposure behavior ultimately weakens their capacity for objective understanding of the external world (MAO, 2025). References point out that when individuals are in a homogeneous information environment for a long time, their thinking mode is easy to fall into the "echo chamber effect" that is, constantly repeating and strengthening their existing views, thus losing the ability of dialectical thinking on complex problems (Chen & Wu, 2023). In addition, information cocoon may also lead to the decline of college students ability to distinguish information, so that they lack enough vigilance when facing false information or misleading content, thus affecting the accuracy of their cognitive judgment.

3.2.2 Influence on Value Shaping

The echo chamber phenomenon poses a significant threat to the formation of proper values among college students. Particularly under the misleading influence of harmful content, it may lead to value deviations from mainstream ideology. On one hand, while algorithmic recommendation systems cater to user preferences, they might simultaneously push out excessive vulgar, entertainment-oriented, or even socially inappropriate content. Such information subtly and imperceptibly exerts negative impacts on the value development of students who are still maturing (Wu, 2022). For example, some college

students gradually develop extreme value orientations due to long-term exposure to extremist or one-sided information, and even misunderstand or question the core socialist values (MAO, 2025).

On the other hand, information cocoons isolate heterogeneous information, diminishing college students capacity to understand and embrace diverse values. Within such environments, students become more susceptible to influence from opinion leaders or online communities, gradually forming closed value systems. Research indicates that this insularity not only hinders cultural diversity acceptance but may also trigger group polarization, leading to increasingly singular and extreme value orientations (Wu, 2022). In addition, information cocoons may also amplify the social influence of bad information. For example, some extreme views are widely spread through algorithmic recommendations, which will mislead the value judgment of college students (Ge, 2024). Therefore, how to help college students break through the shackles of information cocoon and contact with and understand multiple values has become an urgent problem to be solved in ideological and political education in colleges and universities.

3.2.3 Impact on Social Skills

The detrimental effects of information cocoons on college students social skills primarily manifest in two aspects: narrowing social circles and diminished communication capabilities. Firstly, within such environments, students tend to interact exclusively with individuals holding similar viewpoints. This selective social behavior gradually restricts their social networks, making it increasingly difficult for them to engage with diverse groups from varied backgrounds (Chen X. C., Chen, L., & Yang, 2022). For example, the survey showed that more than 50 percent of college students said their social media friends mainly focus on people with the same major or interests, and have less interest in communicating with people in other fields (Zhao & Guo, 2022). The solidification of this social circle not only limits the scope of college students interpersonal communication, but also makes it difficult for them to obtain diversified social perspectives, thus affecting the cultivation of their social adaptability.

Secondly, information cocoons further weaken college students communication skills by reducing opportunities for face-to-face interactions. Under the dominance of algorithmic recommendation platforms, students tend to engage in indirect communication through text, images, or short videos, while lacking in-depth emotional interaction and training in language expression skills (Chen X. C., Chen, L., & Yang, 2022). According to the reference literature, although this virtual socialization method improves the efficiency of information dissemination, it also makes college students show the problem of insufficient communication ability in real social situations, such as the inability to accurately express their own ideas or understand the intentions of others (Zhao & Guo, 2022). Furthermore, information cocoons may heighten college students sensitivity to social anxiety, causing them to exhibit withdrawal or resistance when interacting with unfamiliar groups. This can further

hinder the development of their social skills. Therefore, helping students break free from information cocoons, expand their social circles, and improve communication abilities holds significant importance for promoting their holistic development.

4. Feasibility Analysis of Media Literacy Curriculum as a Cognitive Remodeling Path

4.1 The Degree to which the Objectives of Media Literacy Courses are Compatible with the Cognitive Needs of College Students

The core objectives of media literacy courses aim to cultivate college students abilities in information filtering, critical thinking, and data processing. These goals align closely with the cognitive skills required to break free from information cocoons. In this age of information overload, students face overwhelming exposure to massive amounts of data. Effectively identifying valuable information and making rational judgments has become an urgent challenge. Through systematic instructional design, media literacy courses equip students with the skills to discern and evaluate information, thereby enhancing their capacity to navigate complex digital environments (You, 2022). Meanwhile, critical thinking—a cornerstone of media literacy education—empowers students to examine information sources and content from multiple perspectives, preventing them from blindly accepting one-sided viewpoints. This skill proves particularly vital in breaking through the echo chambers created by algorithmic recommendations and our selective mindset (Ge, 2024). In addition, media literacy courses also focus on cultivating students awareness of information subjectivity, so that they have a stronger ability to make independent choices when facing diversified information, which is highly consistent with the cognitive needs of college students to break through the shackles of information cocoon.

From a societal perspective, media literacy education aims not only to enhance individual capabilities but also to cultivate "media citizens" who meet the demands of our new era. This philosophy emphasizes developing responsibility and ethical awareness in information societies—crucial cognitive foundations for college students to break free from information cocoons. Through media literacy courses, students gradually develop critical questioning of information authenticity and an inclusive mindset towards diverse perspectives, enabling them to better adapt to the challenges of the digital age (You, 2022). Therefore, whether from the perspective of individual ability cultivation or social responsibility shaping, the goals of media literacy courses are significantly consistent with the cognitive needs of college students to break information cocoons.

4.2 The Support of Media Literacy Curriculum Content for Cognitive Remodeling

The curriculum framework of media literacy education encompasses multiple dimensions including media knowledge, information analysis, and communication ethics, all of which play crucial roles in reshaping college students cognitive frameworks. First, studying media knowledge enables students to gain deep insights into the fundamental principles of information dissemination and their underlying

mechanisms, thereby enhancing their understanding of how information echo chambers form. For instance, through analyzing algorithmic recommendation technologies, students can recognize how personalized recommendations reinforce information echo chamber effects by catering to user preferences, prompting them to critically examine their own information consumption habits (Wang, 2020). Secondly, developing information analysis skills constitutes a crucial component of media literacy education. This essential skill requires students to master methods for evaluating the authenticity, reliability, and value of information. Such competence not only helps students identify misinformation but also enables them to examine events from multiple perspectives, thereby overcoming the limitations of relying on single-source information (Wu, 2020).

Furthermore, media literacy courses emphasize ethical communication education. By exploring moral issues in information dissemination, they guide students to develop proper values and a sense of social responsibility. In an era where information echo chambers are becoming increasingly prevalent, such ethical education proves particularly crucial. It helps students recognize that information selection isn't merely a personal choice but also impacts public welfare. For instance, when discussing the "post-truth" phenomenon, students can gain deep insights into how misinformation undermines public discourse through case studies, thereby strengthening their motivation to seek authentic, high-quality information (Wang, 2020). In conclusion, the content system of media literacy course provides a solid theoretical support and practical guidance for college students to reshape their cognition through multi-level knowledge transmission and ability cultivation.

4.3 The Teaching Method of Media Literacy Courses Promotes Cognitive Remodeling

The diversified teaching methods in media literacy courses, such as case studies and practical exercises, effectively enhance student engagement and promote cognitive restructuring. The case study approach stimulates learning interest and guides deeper reflection by introducing real-world examples of information echo chambers. For instance, educators can select trending events as case studies, asking students to analyze their social media dissemination patterns and public perception impacts. This methodology helps students understand the formation process of information echo chambers and their detrimental effects (MAO, 2025). Through this process, students not only gain intuitive understanding but also broaden their cognitive horizons by exchanging perspectives through group discussions and other formats. Moreover, the case-based teaching method cultivates critical thinking skills, enabling them to proactively question assumptions and seek diverse information sources when encountering similar issues.

The practice-based pedagogy serves as an effective instructional approach that enhances students understanding of information echo chambers through hands-on engagement in communication activities. By participating in creating short videos or designing social media content, learners gain firsthand experience of the entire information dissemination process. This immersive experience allows

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them to clearly recognize how algorithmic recommendations and technical tools influence information distribution (Le, Wang, & Cheng, 2025). For instance, by creating short videos, students can observe how platforms prioritize content aligned with specific audience preferences, thereby sparking their interest in information diversity. This hands-on practice not only enhances practical skills but also transforms them from passive recipients to active participants, achieving deeper cognitive transformation. Ultimately, media literacy courses employ diversified teaching methods like case studies and practical exercises, effectively boosting college students engagement and understanding while providing robust support for breaking through information silos.

5. Exploring the Cognitive Remodeling Path Based on Media Literacy Curriculum

5.1 Optimize Curriculum Design

5.1.1 Add Information Screening and Identification Content

Integrating information filtering and discernment into media literacy curricula serves as a crucial initiative to help college students break free from the constraints of information cocoons. The essence of information cocoons lies in the excessive concentration of homogeneous content, which prevents students from accessing diverse perspectives and authentic, reliable information sources. Therefore, it is particularly important to enhance students ability to distinguish between true and false information through systematic instructional design. First, we should incorporate teaching content about diversified information sources, guiding students to recognize the limitations of relying solely on algorithmic recommendations while instructing them on how to verify information authenticity through multiple channels (Lang & Wang, 2020). Secondly, courses could incorporate real-world cases to analyze the characteristics and social impacts of misinformation dissemination, thereby enhancing students vigilance. Additionally, simulated information screening tasks could help students develop practical skills in identifying false content and filtering valuable information. For instance, by verifying the credibility of information providers and cross-referencing multiple data sources, students can improve their ability to discern reliable information (Le, Wang, & Cheng, 2025). This teaching method combining theory with practice not only helps students to form scientific information processing habits, but also lays a foundation for them to maintain independent thinking ability in complex information environment.

5.1.2 Strengthen the Cultivation of Critical Thinking

Critical thinking is a vital skill for breaking through information echo chambers, and media literacy courses should prioritize this as a core objective. These echo chambers often develop from passive information consumption and insufficient critical analysis. Therefore, curriculum design must systematically cultivate students critical thinking habits. First, by incorporating foundational logic and analytical reasoning methods, we can help students identify logical flaws and biases in information,

preventing them from blindly following trends or accepting unverified opinions (Wang, 2020). Secondly, the curriculum should focus on cultivating students problem awareness by encouraging them to question and explore received information in depth. For instance, through open-ended discussion sessions, students can be guided to examine trending events or controversial topics from multiple perspectives, thereby enhancing their analytical skills (Ge, 2024). Moreover, initiatives like debate competitions can be employed to cultivate critical thinking through intellectual exchanges, helping students gradually reduce reliance on single-source information. By implementing these methods, media literacy courses effectively build a framework for rational assessment of information value, providing solid support for students to break free from information cocoons.

5.2 Innovative Teaching Methods

5.2.1 Case Teaching Method

Case-based pedagogy serves as an effective teaching method, particularly well-suited for exploring issues related to information cocoons in media literacy courses. By selecting representative real-world cases, educators can guide students to analyze the formation mechanisms of information cocoons and their impacts on individuals and society, thereby enhancing cognitive development. For instance, recent controversial cases involving algorithm-driven recommendations—such as the "rumor chain" incident on a social media platform—can be used to facilitate discussions from multiple dimensions including information dissemination pathways and audience psychological responses (Xu, 2022). In this process, teachers should guide students to reflect on the media technology characteristics, user behavior patterns, and socio-cultural contexts involved in case studies, helping them understand the complexity behind the phenomenon of information cocoons. Meanwhile, through group discussions or role-playing activities, students can deepen their understanding of case scenarios through interactive engagement and learn to apply theoretical knowledge to real-world situations. This teaching method based on authentic contexts not only stimulates students learning interest but also effectively cultivates their analytical and problem-solving skills, providing practical guidance for breaking down information cocoons (Zhao, 2022).

5.2.2 Practical Operation Method

Practical implementation serves as a vital approach in media literacy education to deepen students understanding of information echo chambers. By engaging students in hands-on communication activities like creating short videos and designing social media content, learners gain firsthand insights into how these echo chambers form and operate. For example, when producing short videos, instructors can assign projects centered on specific themes while emphasizing the need to consider both audience preferences and algorithmic recommendations during content planning. This methodology allows students to directly observe how algorithms influence information dissemination through their creative process (Le, Wang, & Cheng, 2025). Additionally, students can be involved in post-release data

analysis to observe how their works spread across different platforms and receive audience feedback. This helps them better understand how information cocoons reinforce user preferences through algorithmic mechanisms. Through this "learning by doing" approach, students not only deepen their understanding of information dissemination patterns but also develop critical thinking and innovative capabilities in real-world practice. Consequently, they become more adept at addressing the challenges posed by information cocoons (Zhao & Guo, 2022).

5.3 Enrich Teaching Resources

5.3.1 Introduction of the Latest Research Results

To maintain the cutting-edge relevance of media literacy curriculum content, it is crucial to timely incorporate the latest research findings in information echo chambers and media literacy. With the rapid development of information technology, the manifestations and influencing factors of information echo chambers continue to evolve. Therefore, the curriculum must keep pace with academic advancements to ensure students gain access to the latest theoretical and practical developments. For instance, regularly updating textbook content with recent research achievements on optimizing algorithmic recommendation mechanisms and governing information ecosystems can help students understand current academic priorities and solutions regarding information echo chamber issues (Le, Wang, & Cheng, 2025). Furthermore, educators can organize specialized lectures and academic symposiums to invite experts and scholars in relevant fields to share the latest research developments, thereby broadening students academic perspectives. Simultaneously, students should be encouraged to proactively consult and organize the latest literature, cultivating their self-directed learning capabilities and research awareness. This approach provides theoretical support for their in-depth exploration of information cocoon issues (Liu, 2022).

5.3.2 Use of Multimedia Resources

Multimedia resources hold significant pedagogical value in media literacy education, enabling students to better comprehend the phenomenon of information cocoons and its impacts. By presenting complex communication processes through images, videos, and animations, educators can significantly reduce comprehension barriers while enhancing students intuitive understanding of information cocoons. For instance, selecting documentaries or news clips that illustrate this phenomenon allows learners to directly observe how homogeneous information shapes individual cognitive frameworks during their viewing experience (Li, 2023). Furthermore, educators can utilize data visualization tools to transform abstract concepts like information dissemination pathways and user behavior patterns into intuitive charts or dynamic demonstrations, helping students better understand the formation mechanisms of information cocoons. Meanwhile, by designing interactive multimedia courseware, students can actively engage in content exploration during class, thereby enhancing both learning interest and effectiveness (Jiang & Li, 2024). This diversified way of integrating teaching resources can not only

enrich the course content, but also effectively improve students depth and breadth of cognition on the problem of information cocoon.

6. Obstacles and Solutions to the Implementation of Cognitive Remodeling Path Based on Media Literacy Curriculum

6.1 Implementation Obstacles

6.1.1 Insufficient tTeaching Staff

One of the primary challenges in implementing media literacy courses at universities is the shortage of qualified instructors. Despite the growing importance of media literacy education, many institutions lack professional teachers in this field, which directly impacts both the quality and effectiveness of these courses. According to reference materials (You, 2022). Research indicates that media literacy education requires teachers to possess interdisciplinary knowledge spanning communication studies, pedagogy, and technology, yet universities currently have limited qualified faculty meeting these criteria. Moreover, existing educators professional competencies also require improvement. For instance, some instructors lack sufficient understanding of new media technologies, making it challenging for them to effectively guide students navigating complex digital environments. This issue is particularly pronounced in regional universities, where uneven resource distribution often prevents them from attracting top-tier media literacy education professionals. Meanwhile, references (Ge, 2024). It is emphasized that the objectives of media literacy courses extend beyond knowledge transmission, with greater emphasis on cultivating students critical thinking and information filtering skills. This places higher demands on teachers instructional capabilities. However, many university educators currently lack systematic training in media literacy education, resulting in notable shortcomings in curriculum design and innovative teaching methodologies. Consequently, the shortage of qualified faculty has become one of the key factors constraining the development of media literacy programs.

6.1.2 Students do not Pay Enough Attention

In addition to the problem of teachers, students insufficient attention to media literacy courses is also an important reason affecting the implementation effect. References (Chen X. C., Chen, L., & Yang, 2022). Research indicates that many college students lack a clear understanding of the importance of media literacy courses, perceiving them as having little relevance to their academic studies and career development. This perception has resulted in low learning motivation, which partly reflects universities insufficient efforts in promoting the value of such courses. Additionally, references (Le, Wang, & Cheng, 2025). It has been observed that many students have developed a passive information-receiving mindset in daily life, lacking initiative to critically evaluate or filter information. This ingrained habit further diminishes their interest in media literacy courses. Meanwhile, universities often fail to adequately emphasize the practical value and urgency of such courses. For instance, some institutions

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list media literacy as an elective with minimal credit allocation, which significantly reduces student engagement. More concerning is the perception of these courses as "secondary requirements"—merely seen as supplementary tasks for academic completion rather than essential tools for skill development. Such attitudes not only undermine course effectiveness but also hinder the achievement of media literacy education goals to some extent.

6.2 Solutions

6.2.1 Strengthen Teacher Training

To address the shortage of faculty resources, universities should implement proactive measures to enhance teacher training programs, thereby improving educators professional competence and teaching capabilities. First, institutions can organize specialized workshops and academic exchange activities to help teachers master the latest theories and practical methodologies in media literacy education, as exemplified by reference materials (You, 2022). It is suggested that colleges and universities regularly invite experts and scholars in the field of media literacy to conduct special lectures, and provide teachers with systematic training courses covering new media technology, information communication rules and critical thinking training. In addition, references (Ge, 2024). Universities should encourage faculty to participate in domestic and international academic conferences, facilitating knowledge exchange with outstanding educators from other institutions to broaden perspectives and enhance teaching quality. Furthermore, establishing comprehensive incentive mechanisms is crucial. By creating dedicated award funds or preferential policies for professional title evaluations, universities can attract more exceptional teachers to media literacy education. For instance, offering material rewards or honorary recognition to instructors who excel in media literacy courses could effectively boost their motivation. Finally, building interdisciplinary teaching teams by integrating resources from various fields will provide comprehensive support for media literacy programs. These measures not only address faculty shortages but also lay a solid foundation for the sustainable development of media literacy education.

6.2.2 Improve Students Attention

In order to improve students attention to media literacy courses, colleges and universities need to take comprehensive measures from publicity, curriculum design, teaching evaluation and other aspects to enhance students sense of participation and identity. First, reference literature (Chen X. C., Chen, L., & Yang, 2022). It is proposed that universities should strengthen the promotion of media literacy courses through multiple channels, such as campus media platforms, social media accounts, and offline promotional activities. These initiatives aim to educate students about the importance of media literacy and its widespread applications in modern society. Additionally, real-world case studies can be used to demonstrate how media literacy helps students better navigate issues like information echo chambers, thereby sparking their interest in learning. Finally, references are provided (Zhao, 2022). Higher

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education institutions should prioritize media literacy courses in their curriculum design. By making them mandatory with increased credit requirements, universities can underscore their significance. Furthermore, optimizing course content to align with students practical needs—such as incorporating topics like social media usage patterns and information verification—is essential to enhance course appeal and relevance. Regarding assessment, institutions should establish scientific evaluation systems that move beyond traditional exams, adopting diversified methods including classroom discussions and project-based learning to holistically assess student outcomes. These measures not only boost students engagement with media literacy courses but also create favorable conditions for implementing cognitive restructuring approaches.

7. An Empirical Study on the Effect of Cognitive Remodeling of Media Literacy Curriculum

7.1 Empirical Research Design

To scientifically evaluate the effectiveness of media literacy courses in addressing information cocoon issues among college students, this study employed a pre-post experimental design. By comparing cognitive levels and behavioral changes before and after media literacy education, the design effectively reveals how these courses improve students understanding of information cocoon phenomena and enhance their information processing capabilities (Le, Wang, & Cheng, 2025). The study recruited 300 sophomore students from a university, with equal numbers assigned to the experimental and control groups. Diverse academic backgrounds ensured sample representativeness and minimized potential bias from disciplinary differences. Key assessment metrics included four dimensions: awareness of information cocoons, information filtering competence, critical thinking skills, and practical performance in information dissemination. The information cocoon awareness was measured through questionnaires referencing established assessment tools, while information filtering competence was evaluated via simulated information retrieval tasks that assessed students selective preferences and judgment accuracy when processing diverse information (Wang & Yi, 2021). In addition, critical thinking ability is measured by standardized scales, while information communication practice ability is comprehensively evaluated by short video content produced by students in curriculum practice and its communication effect.

7.2 Data Collection and Analysis

The data collection process was conducted in two phases: The first phase involved gathering baseline data from both the experimental and control groups through questionnaires and tests prior to the media literacy course. The second phase involved re-measuring both groups using identical tools after the course concluded to obtain post-intervention data. The questionnaire focused on students awareness of information cocoons, information acquisition habits, and trust in media content. A total of 600 questionnaires were distributed, with 592 valid responses collected (validity rate: 98.7%). The

assessment phase included two components: an information screening test requiring students to identify authentic and valuable information from provided materials, and a critical thinking evaluation assessing logical reasoning through case analysis questions (Liu, 2023). After completing data collection, the analysis was conducted using SPSS statistical software. The methods employed included descriptive statistics, paired samples t-tests, and independent samples t-tests. Descriptive statistics were used to present the mean values and standard deviations of both experimental and control groups across various indicators. Paired samples t-tests were employed to compare changes in the experimental group before and after the course, while independent samples t-tests were used to assess differences between the two groups. Through these analyses, we were able to comprehensively evaluate the actual effectiveness of media literacy courses in reshaping students cognitive development (Wang & Yi, 2021).

7.3 Discussion of Empirical Research Results

Empirical research demonstrates that the cognitive restructuring approach in media literacy courses significantly enhances students ability to break through information cocoons. The experimental group showed a marked improvement in their perception of information cocoons, with post-course questionnaire scores surpassing pre-course levels and demonstrating statistically significant differences compared to the control group ($p < 0.01$). This evidence confirms that media literacy education effectively strengthens students understanding and vigilance regarding information cocoon phenomena (Liu, 2023). Secondly, in the information screening ability test, students in the experimental group demonstrated significantly improved discernment of false and low-quality information post-course, with their screening accuracy rising by 23.6% compared to pre-course levels. In contrast, the control group showed only a modest improvement of 5.8%. This outcome clearly indicates that the course content on information identification and filtering has played a positive role in enhancing students information processing capabilities (Wang & Yi, 2021). Furthermore, in the critical thinking assessment, experimental group students achieved an average score increase of 15.3 points compared to pre-course levels, while the control group only improved by 3.7 points. This further validates the courses effectiveness in cultivating critical thinking skills. However, the study also revealed some limitations. For instance, some students demonstrated insufficient ability to process complex information during practical exercises, particularly struggling with decision-making when handling multi-source data. Additionally, although the course has shown potential in enhancing cognitive abilities, how to transform this knowledge into lasting behavioral habits requires further exploration. These findings provide crucial directions for future research while reminding educators to prioritize practicality and sustainability in curriculum design (Liu, 2023; Wang & Yi, 2021).

8. Conclusions

8.1 Summary of Research Results

This study investigates cognitive reshaping pathways through media literacy courses by analyzing information cocoon phenomena among college students, aiming to provide theoretical and practical references for educational interventions in higher education. The research reveals that information cocoon significantly hinders cognitive development, value formation, and social skills among undergraduates. As an effective educational intervention, media literacy courses demonstrate potential to break free from the constraints of information cocoon (Li & Tan, 2023; Lang & Wang, 2020). First, media literacy courses systematically enhance students ability to filter and discern information through structured teaching content, thereby reducing limitations imposed by algorithmic recommendations and selective information processing. Second, the curriculums emphasis on cultivating critical thinking strengthens students analytical and evaluative capabilities, enabling them to maintain rational judgment when confronted with homogeneous information. Furthermore, through diversified teaching methods like case studies and practical exercises, students not only gain deep understanding of the causes and dangers of information echo chambers but also learn to proactively overcome the constraints of information tunneling in real-world applications (Wang, 2020; Wu, 2022).

The study also revealed that optimizing media literacy curriculum design, innovating teaching methodologies, and enriching educational resources are crucial for achieving cognitive restructuring. For instance, incorporating content on information verification and value assessment into course design helps students develop scientific information consumption habits. By integrating cutting-edge research findings and multimedia resources, courses can enhance their relevance and appeal, thereby stimulating students learning interest and engagement (Liu, 2022; Xu, 2022). The results of empirical research show that the cognitive remodeling path based on media literacy courses improves students awareness of information cocoon to a certain extent and enhances their information processing ability, which provides data support for further promotion of such courses (Chen X. C., Chen, L., & Yang, 2022; Zhao, 2022). In conclusion, this study emphasizes the important role of media literacy courses in solving the problem of information cocoon, and provides a concrete and feasible path for its implementation in higher education.

8.2 Limitations and Prospects of the Study

While this study has achieved notable progress in exploring cognitive restructuring pathways through media literacy curricula, several limitations remain to be addressed. Firstly, the sample selection primarily focused on university students from specific institutions, resulting in a relatively narrow scope that may not fully represent the actual conditions of students across different regions and academic tiers. Future research should expand the sample size to include more diverse universities and student demographics, thereby enhancing the generalizability and representativeness of the findings

(Wang, 2020; Liu, 2022). Secondly, the current study has a relatively short time span, relying solely on short-term experimental designs to evaluate cognitive restructuring effects. This approach fails to adequately account for the enduring impacts of long-term educational interventions on student behavior. Therefore, future research should extend observation periods and employ longitudinal research methods to thoroughly explore the long-term mechanisms through which media literacy courses influence students cognitive abilities and behavioral patterns (Jiang &Li, 2024; Zhao & Guo, 2022).

Furthermore, this study primarily focuses on the design and implementation of curriculum itself, with limited attention paid to external environmental factors such as campus culture and family background in shaping cognitive restructuring effects. Future research could integrate multidimensional variables to comprehensively analyze the interactive effects between internal and external factors in students ability to break through information cocoons (You, 2022; Chen & Wu, 2023). Meanwhile, with the rapid advancement of information technology, the manifestations and causes of information cocoons are continuously evolving. This necessitates that media literacy curricula and teaching methodologies keep pace with the times. Future research should closely monitor new challenges posed by emerging technologies, promptly update course content, and explore more flexible and efficient teaching models to better meet educational demands in the digital age (Ge, 2024; Liu, 2023). Finally, the cognitive remodeling path proposed in this study needs to be further verified and improved in practice. It is suggested that colleges and universities should strengthen cooperation with scientific research institutions to jointly promote theoretical innovation and practical application of media literacy courses, so as to provide more useful experience for the effective solution of information cocoon problem among college students (Wang &Yi, 2021; MAO, 2025).

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