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The Impact of the "Information Cocoon" on the Perceptions of Chinese Youth and Ways to Improve Them

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Abstract: In the era of rapid development of information dissemination, people led by youth groups are affected by massive information input all the time; convenient technology lowers the threshold of information dissemination, the content of good and bad quality and precise information delivery make the information environment extremely complex and variable, and the situation of the youth groups whose cognition is not yet mature is worrying. The purpose of this paper is to analyze the causes and results of the influence of the information cocoon on the cognition of youth groups and to propose some solutions. Through literature collection and review, it elaborates on the technical, psychological, family environment, and mainstream thinking, explaining how the information cocoon lays the root of extremist thinking and uneven cognitive development at the adolescent stage.

Keywords: information cocoon, adolescent group, big data recommendation, group polarization, cognitive level

1. Introduction

With the development of the era of networking and informatization, media information dissemination channels have become more and more diversified, and the popularity of the Internet is also increasing. This phenomenon is especially evident in China, which has a large population base and a high Internet penetration rate. As of June 2023, with instant messaging, network video, short video, the main position of information dissemination, and China's user scale of 1.047 billion people, 1.044 billion people and 1.026 billion people, the user utilization rate has exceeded 95% [1]. Various types of online media applications continue to emerge in the public's field of vision, followed by the explosive growth of information. In the face of complex information data, people have to filter and browse. The continuous development of technology also provides convenience to meet people's needs, and personalized information recommendation services allow people to access more targeted content, but at the same time, they also provide a broader and multi-level space for the proliferation of the "information cocoon". As digital natives, youth groups are undoubtedly the most directly and smoothly affected by the "information cocoon". Due to the continuous inculcation of single-content and one-sided information, the cognitive level of this group has been profoundly and negatively affected. Therefore, in order to get out of this predicament, it is especially crucial for people to realize the existence and impact of the "information cocoon" and to take effective measures to control it.

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The concept of "information cocoon" was first proposed by Sunstein, and its meaning can be summarized as people in the face of massive amounts of information, they will choose to read and browse the content that matches their own interests and perceptions, while ignoring or rejecting other types of content. Over time, this leads to a fixed, homogenized information environment that is difficult to extricate themselves from, ultimately forming an "information cocoon"[2] . This concept is also a kind of testimony of the "echo chamber effect", that is, the individual exists in a closed, homogenized environment for a long time and is continuously subjected to its cognitive concepts of guidance, persuasion and reinforcement, ultimately leading to the convergence of their own concepts and the environment, as well as their own concepts being blurred and distorted by the environment and other negative situations. The emergence of their own concepts and the environment, as well as their own concepts are blurred, distorted by the environment and other negative situations, and they even agree with some distortions of the truth of the facts of the views [3]. It can be seen that the "information cocoon" will seriously affect the individual's value judgment standards, by blocking the logical thinking path of personal thinking, so that people are gradually trapped in a specific closed information space and long-term in the space of the mainstream values of the lure and manipulation, which is very unfavorable to the development of the individual.

Therefore, the theme of this paper is the impact of information cocoon on the cognition of Chinese adolescents and ways to improve it, which aims to make the public more aware of the prevalence and formation of information cocoon, to deepen the understanding of information cocoon through the analysis of its negative impacts, and to guide the adolescents to take precautionary measures to prevent the problem from occurring or to improve the way of cognition in time at the early stage of developing their own cognition of the world.

2. Conditions and reasons for the emergence of the "information cocoon" in the youth population

2.1. Advanced information technology

Today's "information cocoon" has become a very significant phenomenon largely due to the development of information technology. In the era of "traffic is king", most platforms have begun to use big data push technology in order to efficiently tap and cultivate the user volume, through the data summarization and projection to make the platform content as much as possible to cater to the user's interests and concerns, so as to increase the user's utilization rate and use of the length of time. However, the ensuing problem is that such precise information delivery limits the user's usage and browsing space to a certain extent. Although it can be very good to help users save information screening time, but also makes the user feel bound in a more narrow information space, resulting in the information space available for reception being continuously compressed or solidified. The Social Survey Center of China Youth Daily, together with the questionnaire network, conducted a survey on 1,501 respondents, the content of which was related to "big data + algorithms" [4]. The results show that 62.2% of the respondents bluntly said that such a way of pushing, so that they obviously know that they are caught in the "information cocoon" vortex [4]. It can be seen that such a single-minded acceptance of homogenized information content and attitude of infection, and indeed ultimately exacerbates the problem of "information cocoon".

What's even scarier is the difficulty of combating such a commercialized technology. Big data push technology for platforms and enterprises, although to make their content more efficient and save labor costs to the user side, it also means that they completely entrust the screening of information to machine computing. The "gatekeeper" of information is no longer a person, but a machine, which is one of the biggest differences from the traditional media era. Machines are no

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more flexible and humanized than real people in their choices, and in the law of machine computing, data is king, and with the large number of network traces left behind as a base, it is actually very difficult for people to change or override the proportion of the original type of information in a short period of time. Therefore, even if people realize that they are trapped in the "information cocoon", it is very difficult for them to jump out for the first time.

2.2. Social attributes of human beings

It is often difficult for adolescents to exist independently of their groups, and thus they are inevitably influenced by their social groups. According to the social comparison theory, when people are faced with a relatively unfamiliar information environment, they tend to refer to the opinions and experiences of other people in the same group, and make comparisons, emulations, and other judgments based on them. This kind of behavioral and attitudinal comparison will make people aware of the differences and gaps between themselves and other members of the group, which will lead to some thinking and changes in their own behaviors and perceptions, that is to say, their own perceptions will be shifted along with the attitudes of the group [5]. Adolescents will experience a greater degree of cognitive shift, changing their minds in response to the information transmitted by a particular group, and gradually agreeing with the attitudes and value judgments embedded in it.

Tajfe and Turner's social identity theory provides some explanation for the psychology and behavior of individuals when they exist in groups. They believe that individuals will realize that they belong or want to belong to a certain social group, and while gradually understanding the emotional and identity value that the group can bring to them, they tend to enjoy and pursue the sense of acquisition and belonging that the social group brings to them, thus deepening the concept of their collective consciousness [6]. Adolescents are more likely to accept and immerse themselves in this kind of information when they are constantly exposed to "like-minded" concepts. Even in order to obtain a sense of belonging to the group and to strengthen the security of their own concepts of unconditional agreement, and then step by step into the "information cocoon" trap, is framed in a certain type of group, and do not go to the group outside the concept of the content of the understanding.

2.3. Age stages of cognitive fluctuations

It is found that 83.2% of adolescents recognize that the information provided by the Internet is richer and more in-depth when comparing online information with traditional media information [7]. In addition, as digital natives, adolescents have been sufficiently influenced by the Internet in their growth process, which has changed the physiological structure of their brains to a certain extent, thus affecting their thinking and cognitive styles. Teenagers are more likely to integrate the Internet with their cognitive activities, which makes them spend more time immersed in the online information environment at an age when they are not yet mature and seeking for newness and differences, thus reducing the time they spend on traditional media and daily socialization. As a result, these groups are more likely to be captured by the big data push model, which takes advantage of their mental plasticity to pull them into the "information cocoon" and trap them in a vicious cycle by continuously increasing their attention and dependence on the online information environment.

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3. The cognitive impact of the "information cocoon" on adolescent populations

3.1. Polarization and group strife

Young people are happy to receive information on the Internet, and although the Internet provides them with convenient access to information, they are also bound to come into contact with negative, radical and one-sided negative information. In order to avoid the audit department's search, this kind of information is often hidden in corners that are not easy to find, and this kind of "novelty" information is more likely to get the attention of the youth group with strong curiosity. The inculcation and reinforcement of preconceived ideas and concepts will also gradually weaken or even eliminate the cognitive development of young people's critical thinking. Long-term exposure to this kind of information will inevitably affect the cognitive judgment of teenagers.

In the closed information environment by the obvious bias of the information continued to surround, so that their thoughts are also biased, in the process of receiving information dissemination selective contact, understanding and memory, in the long run, it will be very easy to appear in more extreme cognitive thinking mode [8]. Stoner proposed the theory of "group polarization" through experimental research, which suggests that when a group engages in decision-making behaviors, it tends to make the advice provided by a single individual tend to be consistent with that of the group due to the results of the discussion among them [9]. When individuals have already developed a certain bias in their thinking, they will be more eager to obtain the recognition and support of others. The convenient social function of the Internet makes it easy for them to find individuals and groups that agree with them, and in the continuous exchange and output of ideas to further strengthen their biased thinking, breeding a more extreme collective consensus, thus leading to the occurrence of "group polarization". However, a social system cannot be composed of a single group. Because the space for ideas and behaviors that can be accommodated by extreme thinking is much narrower than that of objective and neutral thinking, there are bound to be groups within the same system that are contrary to it. Therefore, when multiple groups with different perceptions come into contact with each other, group strife can erupt. Intergroup rivalry can also be seen as a competition for identity, with group members seeking different strategies to protect or enhance their group's distinctiveness and social identity, to ensure that the emotional value of the group is not shaken, which can lead to the development of group strife [10].

3.2. Differences in cognitive levels between urban and rural areas have become more pronounced

The influence of China's urban-rural dual structure system has not been completely eliminated, and the cognitive gap between urban and rural youths has not shown a narrowing trend, but rather a sharp contrast with the rapid popularization of the Internet. Therefore, the relationship between Internet development and the cognitive ability difference between urban and rural youth is worth pondering. On the one hand, the "absence" of parents in rural families to monitor information will have a serious negative impact on the cognitive development of adolescent children. Parents in rural families often go out to work for a living, so they are less likely to supervise and guide their children's daily access to information than their urban counterparts, which makes it easier for their children to be exposed to the online information environment [11]. The youth's understanding of the world is still shallow, cognitive immaturity, it is difficult to have a strong self-regulation and self-control ability, so let their information acquisition be very easy to be tempted by the external information environment and manipulation. Sensory stimulation of entertainment information content will be the first to bear the brunt of the cumulative number of falls into the "information

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cocoon" of the trap. Some research studies have shown that entertainment-oriented Internet preferences have a significant negative impact on the cognitive development of adolescents [12]. The visual and auditory richness of entertainment content will strongly stimulate the sensory nerves, making users more likely to engage in impulsive behaviors [13]. At the same time, excessive limitation of attention to entertainment content and constant acceptance of entertaining and virtualized information content can lead to a lack of logical thinking ability when facing abstract and complex problems, and also affect the cognitive development of adolescents by gradually crowding out the most basic real-world exercise, learning, and socializing time [14].

On the other hand, there is also a certain gap in the cognitive level of parents who can act as information gatekeepers. Due to the limitations of economic and cultural environments, the cognitive conditions and boundaries of rural parents are harsher than those of urban parents. This will lead to the parents can not be more efficient screening and filtering of the information received by their children, and even parents themselves will be trapped in the "information cocoon" at the same time to further limit and narrow the cognitive space of their children, thus affecting the cognitive development rate of the youth group. Ultimately, the gap between the cognitive level of urban and rural youth is getting wider and wider, which is not conducive to the common development of urban and rural areas in terms of thinking.

4. Suggested solutions to mitigate the "information cocoon" problem

4.1. Give full play to the guidance of mainstream thinking in the information environment.

While deepening media integration, China's media should also develop according to their form and play a positive guiding role [15]. Mainstream thinking in all kinds of media is used to do thought leadership, cultivate users to form inclusive, critical values, so that the underlying thought on the closed, homogenized "information cocoon" to fight, inspire people to learn about the initiative of information. In addition, we should optimize the presentation of mainstream ideas in information dissemination. Enhance the diversification of the mainstream thought information dissemination carrier, the development of text, pictures, video, audio and other forms of mainstream thought information, so that mainstream thought in all kinds of media platforms has been presented. At the same time, we can constantly explore the media linkage and media integration of mainstream thought information, so as to form a good mainstream thought information ecology.

4.2. Media Optimization Big Data Recommendation Model

The key to media development and integration lies in the insight of the integration of market demand, to improve and optimize the information structure based on user needs [16]. While exploring the information needs of interest to users, it is also necessary to recognize the deep-seated needs of users who do not want to be completely controlled and manipulated by data, leaving space for users to choose is not only a kind of humanized service, but also a kind of respect for the freedom of users. Therefore, all kinds of media platforms that transmit information should enhance their sense of social responsibility by actively fulfilling their social obligations, and transform and optimize their big data recommendation models to add "de-cocooning" computing mechanisms. Xu studied the information cocoon phenomenon of microblogging and proposed that to cope with the "information cocoon", the "sidewalk" model should be constructed and the chance of information encounter should be increased [17]. Media platforms can appropriately carry out some reverse interest push, presenting some positive information that users seldom come into contact with in the process of browsing. In this way, the platform can help users break the cage of "information cocoon" and broaden their information exposure, thus guiding people to accept diversified information content.

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4.3. Strengthening media literacy education for youth

The State and schools should actively promote media quality education for young people, standardize their attitudes and approaches to media use, and guide them in the direction of pluralistic, inclusive and critical media use. Through lectures, online and offline publicity activities, and information course education, we should introduce the reasons for the formation of the "information cocoon" to this group and explain its negative impacts, and provide ideological guidance on the awareness of information aggregation, so as to prevent the promotion of the selective mentality to the "information cocoon". The promotion of selective psychology in the "information cocoon" is prevented.

5. Conclusion

The theme of this paper is to analyze the causes, consequences, and solutions of the cognitive impact of the information cocoon on the youth group, explaining how the prevalent technological mode of big data pushing and people's social psychology are exploited in the information cocoon, briefly explaining the negative impacts of group polarization and urban-rural differences, and proposing corresponding solution measures. In this paper, there is still room for expanding the angle of discussion in the impact analysis part of the information cocoon room, lacking the data support of questionnaire survey and social visits, and in the part of the solution measures, it may or may not lack the feasibility and social acceptance, and there is no social opinion research. In the future, we will further implement relevant surveys and visits to put theoretical ideas on the ground and really combine them with social reality, so as to increase the convincing power of the article and enhance the depth and breadth of the problem analysis.

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