# The Impact and Reflection of Social Media on Adolescent Cognition and Stereotypes

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**Abstract.** The rapid development and popularization of the Internet also have a significant impact on the cognitive development of adolescents. This study combines language theory and cognitive behavioral frameworks to explore how geographic stereotypes affect users' cognitive systems. The paper results found that biased and stereotyped language always exacerbates stereotypes and fixed beliefs. Understanding and intervening in regional label language and overcoming stereotypes is crucial. The root cause of adolescents' susceptibility to such influences lies in their immature cognitive development and weak ability to recognize information influences. At the same time, the group compliance and cultural belonging in the context of Chinese collectivist culture make it easier for them to view regional labels as "universal cognition" and lack reflection. In addition, the strengthening of the Internet algorithm recommendation mechanism and the lack of media literacy education have further amplified the negative impact of stereotypes, which makes it difficult for young people to resist the erosion of tagged discourse in the digital environment. Media literacy education has been proven to be a key intervention pathway. By cultivating teenagers' critical thinking, information filtering ability, and understanding of social narrative constructiveness, it can help them identify algorithmic biases and emotional labels that mislead, break cognitive rigidity, and ultimately guide them to form inclusive cognition of regional diversity. Establish an open cognitive structure and flexible self-identity to maintain cognitive independence and social judgment in the digital age.

**Keywords:** Adolescent cognition; social media influence; stereotypes; algorithmic bias; social psychology.

## 1. Introduction

With the rapid development of network technology, social media has become an important field for teenagers to express themselves, interact and communicate, and form cognition. In the Chinese social environment, Bilibili, Weibo, Tiktok, Xiaohongshu and other platforms are widely used by young people. They participate in public discussions by sending bullet screens, comments, tags and other ways. Their cognitive system and emotional expression are continuously affected by the platform information environment [1]. Among them, discussions related to regional stereotypes frequently appear, which not only reflect cultural differences and cognitive biases between different groups, but also reveal the amplification effect of platform algorithms on emotions and the potential mechanism of bias solidification. Research has shown that the formation of bias is closely related to selective information exposure, group identity reinforcement, and platform systematic recommendation mechanisms. These factors interact with each other, leading to an increasing polarization of viewpoints. Due to immature cognitive systems and insufficient media literacy, the adolescent population has weaker ability to distinguish complex information and is more susceptible to the influence of discourse labels, leading to biased cognition towards specific social groups through "quick labeling". Cross cultural psychology research further points out that cultural background plays a decisive role in an individual's cognitive patterns and social identity. In the cultural context and regional emotional structure that emphasizes collectivism in Chinese society, regional label discourse on social platforms often carries stronger emotional colors and group projection. This paper takes the regional stereotypes and cognitive responses of young people in Chinese social media as the research object and combines the theory of new social movements and the framework of media literacy education, aiming to enhance the reflective ability and social media literacy of young people, and strengthen their self-awareness in the digital age.

## 2. Impact of Regional Stereotypes in Social Media on Cognitive System of Adolescents

In the Chinese social environment, social media has become an important field for teenagers to express themselves, interact and communicate, and form cognition, enabling teenagers to label and classify different regions. Although such discourse may have an entertaining tone, it gradually produces cognitive solidification effects. On the surface, this labeling phenomenon may seem like easy interactive behavior, but in reality, it hides deep issues in platform mechanisms and cognitive psychology. In this process, the mechanism of viewpoint polarization plays a crucial role. According to the bias generation model, discourse polarization in social media is usually driven by individual cognitive preferences, group identity mechanisms, and platform algorithm structures. Especially for users who have not yet formed a stable cognitive structure, they are more susceptible to the influence of group environment, and recommendation systems will strengthen tag awareness and ignore individual differences. For example, when the algorithm aggregates content based on regional tag keywords, it may further amplify stereotypes, form an information loop, and reduce the possibility of diverse cognition.

In addition, the "discriminatory label reproduction" caused by algorithmic bias is also crucial. Meng pointed out that algorithmic bias has cognitive inevitability. When platforms lack reflection mechanisms and users blindly rely on system recommendations, this bias can be transformed into a driving force for actual discriminatory behavior [2]. It indicates that the information in the region tags is uneven, and the frequent appearance of labels for specific geographic groups can cause teenagers to lose critical judgment in constructing their own "proper impression".

Emotional expression also plays an important role in regional label discourse. Comments on social media platforms often have high-intensity emotions, and users often construct self-awareness and other labels through expressions such as "worry," "heaviness," and "anger". This tendency is also common in regional label discourse, especially in controversial topics such as gender comparison, workplace culture, and regional discrimination. Teenagers are prone to immerse themselves in high emotional tension interactions but neglect their rational understanding of the process of label formation. The emotional driven tagging interaction mentioned above has a particularly significant impact on adolescents who are not yet cognitively mature - because adolescents are in a critical period of cognitive development, and their information reception and processing patterns themselves have particularities [3].

Adolescence is one of the most important stages in life, with rapid cognitive development that cannot be separated from information reception. Teenagers at this stage will receive a large amount of information, but they may have difficulty identifying the impact of the information on themselves. In the Chinese social environment, collectivist values make it difficult to detect the label effect in society, leading teenagers to view regional stereotypes as recognized and guided cognition, resulting in an increasing deviation between stereotypes and group identity. Under the guidance of collectivism, group compliance tends to make teenagers more inclined to view regional labels that frequently appear on social platforms as ‘group consensus' - rather than biases that need to be examined. When most people repeat similar labels, they subconsciously perceive it as' recognized cognition ', thereby weakening their reflection on the rationality of the labels [4]. Cultural background can profoundly influence children's thinking patterns and social cognitive pathways. For example, Japanese children tend to have field dependent cognition, American children have a strong tendency towards self-expression, and Chinese children exhibit a high degree of compliance and cultural belonging in emotional recognition and group cooperation. This means that Chinese teenagers tend to categorize language with regional bias as "universal cognition" rather than understanding and reflecting on differences.

The rapid development and popularization of the Internet also have a significant impact on the cognitive development of young people. The attention persistence, information screening ability and emotional regulation ability of young people who have been immersed in the platform content environment for a long time will undergo new structural changes [5]. It can be seen that algorithmic

recommendation mechanisms lead to the presentation of content that conforms to stereotypes, which enhances society's acceptance of the influence of stereotypes. Media literacy not only includes the ability to judge information, but also encompasses the integration of creativity, participation, expression, and critical thinking; Incorporating media literacy into the framework of civic education can help improve the discourse recognition ability of young people on digital platforms and enhance their ability to identify and resist stereotypes [6]. However, there is almost no media literacy education in the current Chinese education system, and teenagers cannot obtain help or ability to identify stereotypes through education. The chain mediation model of 'new media use → psychological capital → social distance → identity' provides a specific explanation for the influence of regional labels [7]. When teenagers frequently come into contact with labels targeting a certain region (such as' generous and bold people from a certain province 'or' shrewd people from a certain province '), if they fit the label description, they will adjust their social distance from the regional group through changes in psychological capital (such as' sense of belonging' or 'alienation' from the group), ultimately affecting self-identity - positive labels may strengthen their sense of group pride, while negative labels may lead to identity crisis. Tags are not empty words, and if individuals conform to these tags, they will be affected: positive tags produce positive effects, while negative tags bring negative effects, making people feel out of group, lacking security, and experiencing identity crisis.

## 3. Intervention Pathway

The formation of regional labels in the field of news communication is not only influenced by user interaction, but also by media discourse structure. The tendency to label in news reports can guide the audience to perceive and reinforce stereotypes, and this mechanism is further amplified on social platforms, especially for teenagers who are not yet cognitively mature, which can easily lead to group identity bias and cognitive solidification effects [8]. Therefore, media labels are not only tools for simplifying information, but also ways to guide social cognition. When teenagers are frequently exposed to certain labels, their sense of belonging is also shaped and restricted. The relationship between social feedback and social media addiction reveals another pathway of label identification. Flannery et al. found that changes in adolescents' neural responses to social feedback are significantly associated with social media addiction, especially in the highly sensitive stage of early adolescence [9]. This suggests that adolescents may adjust their emotions through self-identity derived from stereotypes, thereby relying on label effects.

In addition, media stereotypes and selective exposure constitute a reinforcing mechanism of self-identity. Arendt pointed out that the solidification of stereotypes in social media is not only due to the content itself but also related to the 'selective contact' behavior of teenagers: they tend to browse information that is consistent with their existing biases and avoid challenging content, which makes social platforms a 'self-reinforcing space' for cognitive biases [10]. This behavior is particularly evident in the dissemination of regional labels - teenagers may further solidify their one-sided understanding of specific regions and exacerbate cognitive barriers between groups by actively choosing label content that fits their own cognition [11]. This viewpoint is highly consistent with the current social environment in China, where teenagers often identify with things that are consistent with their own cognition, ignoring differences and diversity. Therefore, breaking selective contact is crucial as it allows people to access more diverse content.

The algorithmic bias of educational platforms may exacerbate group differences and labeling effects, especially for adolescents whose cognition is not yet mature [12]. Their research reminds that while the recommendation mechanism of online social platforms brings convenience, it also deepens stereotypes-because the recommendation mechanism itself is classified by tags, and this mechanism has inherent biases. Therefore, it is necessary to enhance the media literacy of adolescents in order to reduce the systematic amplification of cognitive biases.

Media literacy education should strengthen the critical thinking and expression abilities of young people to enhance their cognitive recognition skills in the digital environment [13]. At present, there

is a basic lack of media literacy education in China's formal education system, and young people have not received systematic training on how to critically approach digital content. This educational gap makes teenagers particularly vulnerable to emotional and stereotypical language on social platforms. Due to the lack of tools to identify biases, assess credibility, and understand the construction of social narratives, adolescents may internalize labels and stereotypes without reflection, leading to cognitive rigidity and distorted group identity. The core value of media literacy education is reflected in targeted solutions to the aforementioned cognitive dilemmas. Firstly, by cultivating critical thinking, media literacy education can help teenagers identify label biases in algorithm recommendations, such as the formation mechanism of information loops. Secondly, by enhancing their ability to filter information, media literacy education can help young people reduce their blind dependence on emotional labeling content. Thirdly, by guiding teenagers to understand the constructiveness of social narratives, media literacy education can help them break the cognitive rigidity of "labels as facts". Through the above path, media literacy education will ultimately promote the formation of inclusive awareness of regional diversity among young people. If media literacy education is incorporated into the framework of civic education, it can serve as a fundamental intervention tool to enhance the information judgment, critical thinking, and emotional regulation abilities of adolescents, enabling them to maintain cognitive independence when exposed to labeled discourse, resist emotional content amplified by algorithms, and form a deeper understanding of social diversity. Against the backdrop of rapid digital development and the increasing influence of social media on identity shaping, empowering young people with media literacy is not only an improvement in teaching, but also a necessary step in cultivating individuals with resilience, reflective ability, and social responsibility.

Some studies have pointed out that social media may not only empower teenagers but also bring cognitive load and emotional distress. It emphasizes that the algorithm design of social platforms often tends to push extreme content to attract attention, which may lead to a dual state of "cognitive numbness" and "emotional dependence" among teenagers in information contact. This article proposes that media literacy education should be the starting point of intervention to help young people understand platform mechanisms, identify information biases, and rebuild their autonomy in the digital space [14]. This viewpoint profoundly describes the cognitive consequences and social impact of a lack of social media literacy.

Teenagers who have not received systematic media literacy training are more likely to be attracted by emotional expressions when faced with labeled language on social platforms. In the process of information contact, they tend to focus on content that is consistent with their own identity, ignoring the cultural biases and social structures hidden behind the labels. Especially in the dissemination of regional, gender, or group labels, adolescents are more likely to view labels as “universal cognition" rather than a result of social construction. This cognitive bias not only exacerbates stereotypes between groups but also limits adolescents' ability to understand multiculturalism and differences. Long term exposure to this labeled information environment may gradually lead to cognitive closure among adolescents, which means they only accept information that is consistent with their own cognition, reject heterogeneous viewpoints, and thus affect the development of critical thinking and social judgment. Therefore, media literacy education is not only a tool to enhance information recognition abilities, but also a key path to help young people establish open cognitive structures and flexible self-identity.

## 4. Conclusion

This paper analyzes the impact of social media on the cognitive system of adolescents, as well as avoidance and correction strategies. Combining language theory and cognitive behavioral frameworks, it explores how geographic stereotypes affect users' cognitive systems. The results of this article found that the discourse of regional labels is influenced by users' group identity, platform algorithm mechanisms, and social bias polarization. Platform bias research and media education pathways were applied, and intervention suggestions were proposed for both platforms and users.

Effective measures to improve regional bias by understanding the algorithm mechanism of the platform, enhancing media literacy education, and understanding the principles of self-identity. Overall, understanding and intervening in regional label discourse and overcoming stereotypes is crucial, not only as a governance challenge for social platforms, but also as an important component of adolescent cognitive development. This article also has certain limitations, as some conclusions still require more experiments to validate due to limited sample size and platform types. Future research can further investigate and understand the intertwined mechanisms between regional discourse, gender, and urban-rural structure.

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