

The Negative Impact of Group Polarization Effect on Adolescent Emotions and Self in Social Media

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Abstract. Nowadays, social media has become an important place for the socialization of emotions and values among teenagers, but its homogeneous push and information cocoon effect have led to the intensification of group polarization effects. Meanwhile, research targeting teenagers is scarce. This study adopts literature review method, comprehensively studying the impact of group polarization in social media on the emotions and self of adolescents. The study found that group polarization effects could trigger extreme emotions in adolescents and deepen their negative emotional experiences. The group polarization effect can also distort teenagers' self-awareness and undermine their values. The research conclusion points out that the group polarization effect in social media poses a threat to adolescents through both emotional and cognitive pathways, suggesting that the platform make improvements from a technical perspective to avoid information silos. Schools should offer courses to strengthen education, and parents should also strengthen communication and guidance. This study examines the negative effects of group polarization in social media on adolescents' emotions and self-identity from both theoretical and practical perspectives, revealing intervention strategies that provide theoretical support and specific methods for ensuring the healthy development of adolescents.

Keywords: Group polarization, Social media, Adolescents, Emotion, Self-cognition

1. Introduction

Nowadays, it has become a common phenomenon for teenagers to be exposed to social media. Moreover the internet has already become an important place for teenagers to form social values and emotional socialization. At the same time, the algorithms of major social media platforms tend to provide users with homogeneous content, which leads to severe information cocoons and increasingly significant group polarization effects. Frequent incidents related to group polarization, such as online violence, mutual attacks in fan circles, and group anxiety, have attracted widespread attention from society. Therefore, it is crucial to understand the negative impact and mechanisms of group polarization on adolescents.

Existing research indicates that group polarization effects have a negative impact on the emotions and self-existence of adolescents. In the context of negative group norms, sometimes just a brief group discussion can lead to a sharp increase in hostility and distrust towards the target audience

among teenagers, as well as a significant increase in anxiety and depression experiences. The emotional information present in cyberspace, such as the emotions conveyed in short videos and public opinion events, is more likely to drive group polarization and cause severe emotional fluctuations among adolescents than factual information. In addition, during the critical period of the formation of teenagers' political self-concept, group polarization can amplify their negative self-perception through group pressure, and trigger their dissatisfaction with their bodies and devaluation of their self-worth through social comparison.

However, there are still many gaps in existing research. Firstly, there are relatively few systematic studies on the adolescent population in related research questions. In existing research, there are few studies that delve into specific subgroups of adolescents, such as impoverished adolescents or those troubled by mental illness. In addition, current research has limitations in research methods. Research often uses the method of self-report, which can lead to biases such as overly subjective results or social expectation effects (i. e. adolescents tend to answer in a way that better meets social expectations). Finally, there is also a problem of insufficient interdisciplinary integration in existing research. Regarding this issue, most existing articles only start from a single disciplinary perspective, ignoring its complexity. This article to some extent fills the research gap and reveals how social media group polarization amplifies adolescent emotions, distorts self and values, providing theoretical basis and operational path for platform governance, school education, and family intervention.

This article aims to explore the effects of group polarization on the emotions and self-perception of adolescents, using literature analysis methods for research. From the perspective of research ideas, this article first defines the core concepts and explains the relevant mechanisms. Then, literatures are selected to provide detailed explanations and analysis of quantitative experiments, case studies, and other content in the literature. Finally, intervention methods are proposed. From the perspective of content arrangement, this article first explains the concepts and theories, and then enters the analysis section, analyzing the impact of group polarization on emotions, then analyzing the impact of group polarization on oneself, and finally discussing and providing intervention suggestions.

2. Concept definition and theoretical basis

2.1. Group polarization

Group polarization refers to a process in which the original tendencies of group members become reinforced, elevating a view or attitude from its initial level to a dominant position. There are two reasons that can explain the formation of group polarization. According to social comparison theory (Leon Festinger), because people want others to make a positive comment on themselves, they will use more extreme ways to meet the requirements of others or society, which ultimately leads to the extreme attitude or decision-making of the group. The persuasive argument theory holds that because people get information and ideas from others, if most people support this idea, then individuals will tend to support it. Then, more supporting views than opposing views will appear, which makes this idea extreme. Group polarization usually causes a group to always choose extreme behavior or views. If the group members hold a cautious attitude before the discussion, the views of the final group may be conservative or even cowardly, which is called "cautious transfer". On the contrary, the initial view of risk may become more radical after discussion, which is called "risk shifting".

In social media, group polarization is easier to form for a variety of reasons. First, according to the principle of homogeneity, users of social media tend to communicate and connect with people with similar views, which leads to the formation of a relatively closed community and the simplification of views [1]. In this case, the possibility of group polarization is higher. Secondly, social network is an anonymous environment for most users. Anonymity weakens users' sense of social responsibility, which makes it easier for individuals to put forward extreme views. For a best viewing experience the used font must be Times New Roman, on a Macintosh use the font named times, except on special occasions, such as program code.

2.2. Concept and classification of emotion

Emotion is an individual's physiological and psychological response to external stimuli, which consists of three parts: individual's subjective experience, external performance and physiological arousal. Among them, subjective experience is the subjective feelings of individuals for different emotions. External performance such as facial expressions is the performance of various parts of the individual body when emotions occur. Physiological arousal refers to bodily responses triggered by emotion .

There are many classifications of emotions. From the perspective of biological evolution, emotions can be divided into basic emotions and complex emotions. In addition, emotions can also be divided into positive emotions and negative emotions. Positive emotions include love, excitement, satisfaction and so on, which are related to approaching behavior. Negative emotions, including sadness, anger, and fear, are often linked to avoidance behaviors.

2.3. Self-cognition

Self-cognition is an individual's objective understanding of oneself, that is, to be able to recognize his objective ability, personality, behavior preference, etc. It is the most important part of self-consciousness , and is composed of five parts: self feeling, self-concept, self observation, self analysis and self-evaluation [2].

Adolescence is a special period. During this period, teenagers will experience the second leap in self-awareness. They will experience the contradiction between the psychological sense of adult and childish, and have a rebellious psychology in emotion. At the same time, mild and violent emotions coexist. During this period, teenagers will have some self-cognitive biases. When they look at things, they tend to be self-centered and have self-cognitive bias. This deviation includes false audience and personal fable. The former refers to that teenagers regard themselves as the object of attention of others, while the latter refers to that teenagers always think of themselves as the unique one [3]. Words like “is”, “or”, “then”, etc. should not be capitalized unless they are the first word of the title. Follow the rule of Capitalization in title. Do not capitalize short prepositions (less than 5 letters), articles, and short coordinating conjunctions.

3. Negative effects of group polarization on teenagers' emotions

The group polarization effect in social media has brought more emotional problems for teenagers. This paper mainly explains from two aspects: the group polarization effect brings extreme emotions to teenagers and aggravates teenagers' experience of negative emotions.

3.1. Leading to extreme emotions

'The group polarization effect intensifies teenagers' emotions, particularly negative ones. Some scholars regard teenagers' extreme emotions as one of the consequences of network group polarization. First of all, the technical factors of social media itself lead to the enhancement of emotions. The information cocoon leads to the gathering of members with the same value tendency, and homogenized information continues to appear at a high frequency. In this process, the information will be distorted and exaggerated in the process. In addition, teenagers' lack of adult judgment on information will eventually lead to the deviation of teenagers' emotions and attitudes towards events. Secondly, emotion is regarded as a booster of group polarization, that is, teenagers' emotion promotes the formation of group polarization, and it is also the consequence of group polarization. Opinion leaders or media on social platforms will first stimulate teenagers' emotions, such as anger or fear, by means of labeling, suggestion and example, and then solidify polarized views in the rising emotions. This means that extreme emotions and group polarization effects basically occur at the same time. In addition, in the network, the dispersion of responsibility caused by anonymity is more likely to lead to the "spiral of silence" effect, that is, the groups with weak opinions are less and less vocal, while the dominant opinions dominate. Under the condition that there is no voice of dissenters, people's reason will be less and less, and extreme emotions forced in the last stage will hold the dominant position. This extreme emotion will affect teenagers' ability to distinguish information, and also affect teenagers' moral judgment and moral choice. Teenagers in an impulsive state are more likely to make decisions and choices that disregard morality. In addition, young adolescents in extreme emotions, especially in negative emotions, are more likely to participate in various behaviors, which in turn promotes group polarization and forms a vicious circle [4]. Another scholar pointed out that when an individual is in an environment of highly homogeneous information, the number of angry words in his posts will increase by 2-3 times. Moreover, group polarization will result in a highly homogeneous information environment. When cross camp information increases, these tweets will become much more moderate [5].

3.2. Experiences that exacerbate negative emotions

In addition to triggering extreme emotions, the group polarization effect will also aggravate teenagers' experience of negative emotions and deepen the impact of negative emotions on teenagers. Some scholars have conducted experiments to explore whether group polarization in the network causes fertility anxiety, and discussed related issues. The experiment used snowball sampling method to collect online anonymous questionnaires, and finally obtained 729 valid samples (18-35 years old). The experiment used the Likert scale, which was proposed by social psychologist Rensis Likert and consists of several questions. For each question, participants can choose from 5 or seven equally spaced options ranging from strongly agree to strongly disagree. This scale is used to evaluate the attitudes and opinions of participants, and then quantify the results. Moreover, the independent variables included social media use intensity, group identity, inter-group emotion, selective contact, and social comparison tendency, with a total of 25 items. The dependent variable was fertility anxiety, which included six items. The results showed that the intensity of social media use ($\beta=0.28$), selective contact ($\beta=0.30$) and social comparison tendency ($\beta=0.25$) were significant, while group identity and inter-group emotion had no direct impact on reproductive anxiety. However, the author points out that both may have an indirect effect on reproductive anxiety through selective reception. First of all, social issues first trigger inter-group emotions. Social media algorithms and co-delivery will jointly promote the visibility of emotions and let users

with consistent positions see relevant content. Teenagers selectively contact the information in social media and only see the content they are interested in, so they receive a large number of non-neutral information. When inter-group emotions occur repeatedly and teenagers continue to receive selectively, they will solidify extreme cases and experience significant negative emotions. Therefore, although the direct path of inter-group emotion to reproductive anxiety is not significant, the results highlight its indirect effect through selective contact. It completes the indirect aggravation of anxiety through selective contact as an intermediary variable [6]. Another scholar conducted an experiment to test whether "social level negative norms" catalyze internal polarization and exacerbate negative emotional experiences towards ethnic minorities through "local group discussions". This is a 2x2 inter subject design, with the independent variables being attitude towards disclosure (positive, negative) and thinking context (independent, group). The experiment first randomly presented a piece of "fake news" informing participants that the majority of Dutch students held a "negative" or "positive" attitude towards their Moroccan classmates. Subsequently, a vague scenario was set up: a Moroccan student was suspected of stealing a mobile phone. The next step is for the participants to be divided into two groups: one group to independently write down their feelings about the situation, and the other group to organize a five minute group discussion. Finally, negative emotions and attitudes towards the target person were measured using the Likert Scale (Level 7) and text encoding (two or four independent coders analyzing the "trust" and "negative emotion" content of written/oral reports). The experimental results showed that under the condition of informing most people that they dislike Moroccans and engaging in group discussions, there was a significant increase in negative emotions. The experiment shows that when negative norms exist at the social level, group polarization amplifies negative emotions, suggesting that adolescents are particularly vulnerable in such contexts [7].

4. The impact of group polarization on adolescent self-identity

The group polarization effect in social media affects the emotions of teenagers and their self-identity. This article mainly discusses the impact of group polarization on their self-awareness and values.

4.1. Distorted self-cognition

Being caught up in group polarization can have a negative impact on teenagers' self-cognition. An article clearly points out how peer pressure, conformity behavior, and social comparison can distort adolescents' cognition in social media (SNS). Although it did not explicitly mention the term group polarization, there is no doubt that the above mechanisms are the mechanisms behind group polarization. At the same time, conformity behavior and peer pressure are also the results of group polarization. Firstly, social comparison makes teenagers more inclined to showcase their idealized images on social media rather than their more authentic images. However, when reading content posted by others, they tend to compare that content with their own real lives. Comparing one's daily life or real situation with carefully edited content online can create a great sense of discrepancy for them, leading to feelings of self doubt and self deprecation. Then this process will exacerbate the gap between the real self and the ideal self, thereby reducing overall self-awareness. Secondly, conformity behavior can bring great pressure to teenagers on social media. In order to gain group recognition or conform to the norms of online communities, they may engage in behaviors that do not align with their true selves. On social media, liking and comments have become popular standards. Therefore, when teenagers see sexually suggestive content or photos of alcohol use taken

by peers that receive a lot of likes, they may imitate them, even though they do not spontaneously want to do so. Such behavior blurs the boundary between the true self and the public self, resulting in identity confusion and weakened self-consistency [8]. In addition, some people believe that on social media, teenagers are shaped according to their "imagined audience". That is, when shaping their personal image, they always pretend that there is a group of "viewers" closely watching them. This means that they are more concerned about external evaluations rather than their own true feelings and thoughts. Such image-shaping undoubtedly leads to distortion of self-awareness [9]. Then, on social media platforms such as SNS, social norms are often set by the most active and extreme users. When teenagers see their peers engaging in extreme behaviors, they may perceive them as safe, leading to a decrease in their self risk assessment. They will consider these extreme behaviors as safe, such as speeding. Finally, the result of group polarization is often the occurrence of bullying. When an individual teenager's viewpoint is in opposition to the group, or when a teenager's behavior does not meet the group's requirements, serious collective exclusion and online bullying will occur. When teenagers are bullied, their self-awareness is severely damaged. The group's evaluation of teenagers may be internalized, leading to distortion in self-awareness [10].

Another article suggests that big data algorithms and content recommendation technologies trap teenagers in an "information cocoon", which leads to a highly consistent phenomenon within the group and ultimately results in group polarization. The enclosed environment in the article leads to the narrowing and rigidity of teenagers' cognition and self-awareness, further limiting their self-awareness to group preferences [11].

4.2. Distortion of values

The group polarization effect can also affect the values of teenagers and bring them some ethical and moral distortions. An article discusses the impact of group polarization on adolescent values. Firstly, big data algorithms have led to information cocoons, which further lead to the solidification of adolescent perspectives and the narrowing of their horizons, resulting in long-term exposure to a single viewpoint. This can lead them to mistakenly believe that they have known objective truth, distort their judgments on things, and over time, their values will tend to be extreme and one-sided, lacking understanding of the complexity of society. Secondly, in group polarization, teenagers' cognition is manipulated by the group. The article discusses the "disorganized crowd" effect, which means that within a group, individual rationality is weakened, heterogeneity between individuals gradually disappears, and be replaced by homogeneity. Adolescents, in order to gain recognition, may give up independent thinking and even actively cater to and express extreme opinions. In the case of group polarization, the values of teenagers are influenced by the emotions of the group, leading to their loss of judgment and autonomy.

In addition, this article also uses the attitudes of teenagers towards the country as an example. The article argues that group polarization can make teenagers more prone to developing a sense of distrust towards the country and a sense of social identity. Group polarization can amplify dissatisfaction with the country, leading to irrational criticism of the national system. The repeated occurrence of these phenomena can lead to the formation of a "system attribution tendency" among adolescents, which means that they may first attribute various social problems that occur to problems with the national system and management. This extreme attribution logic will greatly weaken teenagers' trust in the country, while also weakening their sense of political responsibility and social identity. Therefore, the values of teenagers may deviate from mainstream ideology, leading to the marginalization of mainstream values within the teenage community [12].

Another article discusses "fan culture". The fan culture refers to a subcultural community formed in the Internet environment with teenagers as the main body, stars as the core and social platforms as the place. In fan culture, group polarization is easily formed because fan culture has the characteristics of information cocoons, high conformity pressure, and high identity requirements within the fan group. These factors are important mechanisms that lead to the formation of group polarization. The group polarization effect in the process of idol worship can lead to a decrease in the moral sense of teenagers, blurring their moral bottom line. For example, they may engage in online bullying or spread rumors because their peers have said some bad things to their idols. In addition, teenagers who are in a group polarization effect will also see their consumption of idols as proof of their love for idols. Therefore, they spend excessive or even unaffordable amounts of money on idols in order to gain recognition from their fan group. This will lead to their formation of erroneous values of materialism.

5. Discussions and suggestions

5.1. Research conclusion

The theme of this article is to explore the negative impact of group polarization in social media on adolescents, starting from two perspectives: emotions and self. Firstly, group polarization triggers extreme emotions among adolescents through online interactions and collective discussions. Under the influence of social media algorithms, emotional arousal, and the spiral of silence, teenagers' emotions are amplified and solidified. In this situation, teenagers' judgment is affected, making them more susceptible to emotional domination. This results in moral judgment problems and impulsive behavior. Secondly, group polarization exacerbates the experience of negative emotions among adolescents. Through the indirect reinforcement mechanism of selective contact and emotional contagion between groups, adolescents will become more deeply aware of negative experiences such as anxiety, depression, or anger. Group polarization also has a important negative influence on the self-esteem of adolescents. Group polarization distorts the self-awareness of adolescents, widens the gap between their real and ideal selves through social comparison and idealized display, confuses their real and public selves through conformist behavior, distorts their self-awareness through imagined audience effects, and leads to narrow cognition and self-rigidity through information cocoons. In addition, group polarization can also lead to distorted values among teenagers. Long-term exposure to one-sided information can lead to the radicalization of adolescent values. The pursuit of group identity can also lead to the influence of the group on the values of teenagers themselves. Meanwhile, group polarization can also lead to ambiguity in moral judgments.

5.2. Suggestion

Firstly, from a technical perspective, current algorithm mechanisms need to be optimized by integrating diversity-enhancing recommendation systems. The platform can restrict excessive push of content with a single stance and mandate the insertion of content with diverse viewpoints. In addition, social media should also establish an age stratification mechanism to screen out extreme comments and emotional content that are not suitable for teenagers to watch, and avoid displaying them to teenagers. Social media can also incorporate anti polarization reminder mechanisms. For example, when a user is exposed to only one type of content or viewpoint for a long period of time, the system should provide a prompt stating 'you may be in an information cocoon'.

Secondly, education and guidance can also be used to enhance the media literacy of young people and improve their ability to regulate emotions. Schools should offer relevant courses to popularize knowledge about group polarization to young people, teach them how to identify and avoid group polarization, and enhance their immunity to group polarization. Schools can also train students' emotional management skills and critical thinking through interdisciplinary activities, such as combining media literacy with psychology or civic education, to help teenagers learn to identify and cope with extreme emotions, learn to view problems rationally, and think independently. Parents should also take responsibility. They should pay attention to the behavior of teenagers and correct them promptly when they exhibit abnormalities, such as extreme emotions or incorrect values.

5.3. Significance of the study

The research significance of this article is mainly divided into three levels. Firstly, at the theoretical level, this article considers group polarization in conjunction with the emotions and self-identity of adolescents, providing a systematic explanation of the psychological mechanisms of adolescents in the context of social media. It reveals how group polarization amplifies emotions, deepens negative emotional experiences, distorts self-awareness and values, and to some extent fills the gap in this cross-disciplinary perspective. Secondly, at the practical level, this article reveals how phenomena such as information cocoons, conformity pressure, and anonymity mechanisms have a negative impact on the emotions and selves of adolescents, providing risk points and path prompts for the government, schools, or parents to protect adolescents. Finally, at the intervention level, this article proposes corresponding strategies and suggestions to promote the implementation of intervention measures.

6. Conclusion

This article focuses on how group polarization in social media affects the emotions and selves of adolescents. Research has found that mechanisms such as the information cocoon effect and emotional contagion can amplify negative emotions, while phenomena such as conformity pressure and imagined audience can distort adolescents' self-awareness and values, forming a vicious cycle. Therefore, this article proposes suggestions from three perspectives, starting with collaborative intervention from technology, schools, and families. This study fills the gap in specialized research on the effects of group polarization on adolescent populations, providing theoretical support and specific methods for safeguarding the healthy growth of adolescents.

References

- [1] McPherson, M., Smith-Lovin, L., & Cook, J. M. Birds of a feather: Homophily in social networks. *Annual Review of Sociology*, 27, 415–444 (2001).
- [2] Chen, H., Pang, L., Shen, J., & Zhou, J. (Eds.). *Encyclopedia of Early Childhood Education in China (Volume on Psychological Development)*. Shenyang Press (1994).
- [3] Peng, D. *General Psychology*. Beijing Normal University Press (2021).
- [4] Yu, G., & He, Y. The impact of online group polarization on youth morality and countermeasures. *Journal of Nanhua University (Social Sciences Edition)*, 23(5), 33–38 (2022).
- [5] Iyengar, S., Lelkes, Y., Levendusky, M., Malhotra, N., & Westwood, S. J. The origins and consequences of affective polarization in the United States. *Annual Review of Political Science*, 21, 1–24 (2018).
- [6] Zhang, L., & Zhao, D. A study on the impact of online group polarization on youth fertility anxiety. *China Youth Social Science*, 41(6), 17–29 (2022).
- [7] Koudenburg, N., Greijdanus, H., & Scheepers, D. The polarizing effects of group discussion in a negative normative context: Integrating societal-, group-, and individual-level factors. *The British Journal of Social*

Psychology, 58(1), 150–174 (2019).

- [8] Davis, K. Tensions of identity in a networked era: Young people's perspectives on the risks and rewards of online self-expression. *New Media & Society*, 14(4), 634–651 (2012).
- [9] Marwick, A. E., & boyd, d. m. I tweet honestly, I tweet passionately: Twitter users, context collapse, and the imagined audience. *New Media & Society*, 13(1), 114–133 (2011).
- [10] Fullwood, C., James, B. M., & Chen-Wilson, C. J. Self-concept clarity and online self-presentation in adolescents. *Cyberpsychology, Behavior, and Social Networking*, 19(12), 716–720 (2016).
- [11] Guo, P., & Wang, M. Self-entrapment: The negative impact of youth social media polarization and governance strategies. *Technology and Innovation Management*, 44(2), 228–235 (2023).
- [12] Yang, F. The impact of online public opinion polarization on the formation of adolescents' values and countermeasures. *Journal of Huzhou University*, 44(12), 50–55 (2022).