

# The Influence of Social Media Users' Pre-Understanding on Polarization Behavior in the Process of International Information "Backflow" Assisted by Artificial Intelligence: A Study Based on Structural Equation Model

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## Abstract:

With the acceleration of globalization, social media has become a core channel for transnational information dissemination, playing an increasingly crucial role in the process of international information "backflow." This study analyzes the impact of social media users' pre-understanding on information polarization behavior through artificial intelligence (AI) recommendation systems and verifies the influence pathways of various factors on polarization behavior using structural equation modeling (SEM). The findings reveal that users' ideological orientations, cultural affiliations, and individual psychological attributes significantly affect their willingness to engage in polarized information behavior. Moreover, narrative comparison serves as a mediating variable between ideological orientation, cultural affiliation, individual psychological attributes, and the willingness to engage in polarization. AI recommendation systems continuously adjust information flows based on users' historical preferences, further exacerbating information polarization. This study provides new perspectives on the cognitive and emotional mechanisms involved in modern information dissemination and offers a theoretical foundation for improving cross-cultural communication and optimizing information technologies.

**Keywords:** social media, artificial intelligence, pre-understanding; information backflow, information polarization, structural equation model, narrative comparison.

## INTRODUCTION

In an era of increasingly intensified global information dissemination, social media has become a crucial vehicle for the transnational flow of information, particularly playing a significant role in the process of international "information backflow." Information backflow refers to a phenomenon in which information originating from domain A, after being disseminated to domain B, reversely and uncontrollably surges back into domain A on a rapid and large scale due to disparities between the two domains in terms of values, technological resource allocation, and discursive spaces—a concept referred to as the "information power differential." This process not only intensifies the interactions between the two domains but also, under the influence of the information power differential, exhibits self-reinforcing diffusion effects. This self-reinforcement continually attracts new actors into the dissemination process, thereby generating broader societal impacts.

In this context, social media platforms, through the application of artificial intelligence (AI) technologies—particularly deep learning-based recommendation systems—have profoundly influenced the flow and dissemination pathways of information. AI systems, by analyzing users' behavioral data, shape users' cognitive structures and exacerbate the phenomenon of information polarization. Especially in the context of information backflow, AI recommendation systems continuously adjust the direction and modes of information dissemination based on users' historical preferences and behavioral patterns, thereby influencing users' understanding and reactions to information.

Moreover, the "pre-understanding" of social media users plays a critical role in the reception and processing of information. Pre-understanding refers to the pre-existing cognitive structures or frameworks that individuals form prior to specific experiences or cognitive events, which guide their interpretation and understanding of the world. Heidegger posited that pre-understanding encompasses preconception, pre-judgment, and pre-apprehension, asserting that "interpretation is always grounded in a prior view, targeting an interpretable state and engaging with what has already been pre-conceived." Gadamer also emphasized that because human existence is historical, understanding is inherently historical as well. Gadamer affirmed that pre-structuring is a necessary condition for understanding and referred to this pre-structuring as pre-understanding.

The phenomenon of action polarization induced by information is increasingly severe on social media, especially in the context of cross-national information dissemination. The interaction between users' pre-understanding and the AI recommendation

mechanisms of social media platforms jointly drives information polarization. Artificial intelligence technologies predict user behavior through deep learning models, not only accurately identifying users' preferences but also making the flow of information nonlinear and complex. As information polarization intensifies, recommendation mechanisms on social media platforms not only reinforce existing cognitive biases but may also deepen informational divides and create an "echo chamber" effect.

To better understand the cognitive behaviors of social media users in the process of international information influx and their impact on polarization, this paper will use Structural Equation Modeling (SEM) for analysis. By constructing and verifying the pathways through which users' pre-understanding influences information polarization, this paper aims to explore how artificial intelligence in social media environments adjusts users' cognitive frameworks, thereby exacerbating or alleviating information polarization. Furthermore, this paper will focus on how artificial intelligence plays a role in the process of international information "influx," particularly in shaping and regulating users' pre-understanding within information recommendation systems, in order to provide theoretical support and practical guidance for the governance and optimization of social media platforms.

Through this research, the paper aims to offer new perspectives on understanding the cognitive and emotional mechanisms in modern information dissemination, especially in the context of globalization, and how to effectively address the challenges posed by information polarization. It also aims to provide valuable theoretical foundations for future research on cross-cultural communication and the application of information technologies.

## RESEARCH HYPOTHESES

Pre-understanding [1] refers to a pre-existing cognitive structure or framework that individuals use when comprehending and interpreting the world. Pre-understanding encompasses three aspects: ideological tendencies, Cultural Affiliation, and psychological cognitive patterns, all of which influence the narrative identification of subjects at the level of text interpretation.

First, ideological tendencies reflect an individual's preferences for evaluating political, economic, and historical events. An individual's ideological tendency may lead to biased selection and interpretation of narrative texts. Individuals tend to choose and value information that aligns with their ideological stance while being skeptical of or ignoring information that contradicts it [2].

Second, Cultural Affiliation also influences narrative identification [3]. Different cultural identities lead individuals to emphasize different cultural symbols, ideas, and behavioral norms when interpreting texts. Individuals resonate with content related to their Cultural Affiliation while rejecting or doubting information that conflicts with it.

Third, psychological cognitive patterns play a crucial role in pre-understanding [4]. Traits such as social dominance orientation, authoritarian personality, need for cognitive closure, and a tendency toward negative emotionality influence how individuals focus on authoritative viewpoints and emotional content in narrative texts. These traits make individuals more inclined to accept information consistent with their predispositions, resulting in biased text interpretation.

Pre-understanding affects individuals during the text interpretation stage, playing an important role in polarization behavior. Pre-understanding influences individuals' identification with and preference for specific narrative content. In the online environment, individuals may be more inclined to gather with others who share similar pre-understandings, forming information silos and closed loops of viewpoints. This group clustering reinforces and amplifies individual identification, making them more resolute in accepting and disseminating information consistent with their own beliefs during interactions and information exchanges, thus contributing to behavior polarization. Therefore, this study proposes the following research hypotheses:

H1a: Ideological tendencies have a positive impact on the Polarization Behavior Intention.

H1b: Cultural Affiliation has a positive impact on the Polarization Behavior Intention.

H1c: Individual Psychological Traits have a positive impact on the Polarization Behavior Intention.

In the process of meaning exchange and identity formation mediated by narratives among diverse subjects, narrative comparison is used to integrate narrative texts [5]. Narrative comparison refers to the process of contrasting, analyzing, and evaluating different narratives. When subjects interact with others on social media, narrative comparisons are often triggered. Narrative comparison encompasses both the "suffering" involved in self-interpretation and the "benevolent care" associated with attributing responsibility to others. Since narrative comparison begins with the reading of texts, it is inevitably influenced by an individual's pre-understanding. Pre-understanding affects the selection and focus of narratives during the comparison process. Factors such as ideological tendencies, Cultural Affiliation, and psychological cognitive patterns guide individuals to prefer narratives

consistent with their own ideologies, cultures, and cognitive models while ignoring or excluding narratives that do not align with their pre-understanding.

At the same time, narrative comparison may influence individuals' polarization behaviors in the following ways:

1. Reinforcement of personal viewpoints: When subjects compare, analyze, and evaluate different narratives, they tend to start from their existing positions and viewpoints, seeking information consistent with their own views, thereby reinforcing their stance. This may lead individuals to more firmly support their chosen narratives, deepening opposition and disagreements, and further intensifying their polarization tendencies.
2. Neglect of diverse perspectives: While reinforcing their own viewpoints, subjects may overlook perspectives presented in other narrative texts. This may narrow their scope of understanding, making it difficult for them to comprehend opposing viewpoints and exacerbating polarization.
3. Weakening of neutral positions: According to the revised spiral of silence theory, neutral viewpoints have weaker dissemination power, while extreme viewpoints are more likely to spread and influence others. During narrative comparison, subjects may increasingly lean toward polarized positions [6], making it difficult to maintain neutrality and objectivity. This may cause them to become more inclined to support or oppose specific narratives, weakening neutral perspectives.

Therefore, narrative comparison is not only influenced by individuals' pre-understanding but also serves as an important mediating factor affecting polarization behavior. Based on the above analysis, this study proposes the following research hypotheses:

H2a: Narrative comparison mediates the relationship between ideological tendencies and the Polarization Behavior Intention.

H2b: Narrative comparison mediates the relationship between Cultural Affiliation and the Polarization Behavior Intention.

H2c: Narrative comparison mediates the relationship between Individual Psychological Traits and the Polarization Behavior Intention.

## RESEARCH DESIGN

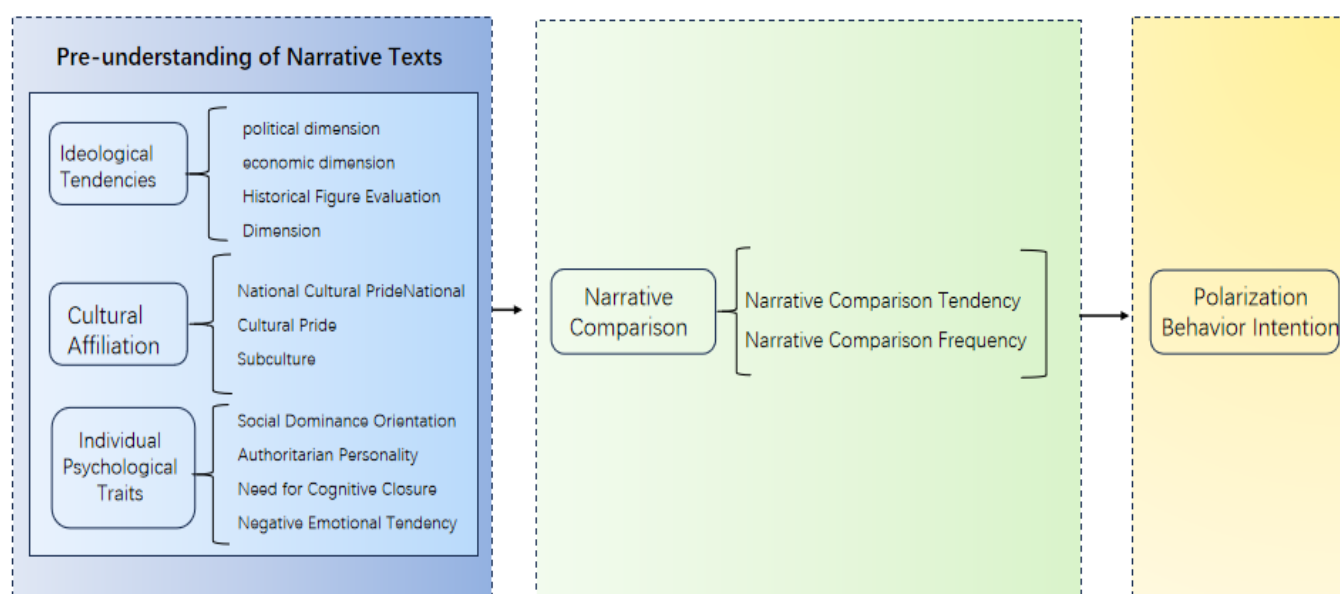
This study constructs a theoretical model of the "influence of users' pre-understanding on polarization behavior" based on the above theoretical hypotheses. Pre-understanding refers to a cognitive structure or framework formed by individuals based on their past experiences, beliefs, and knowledge during the processes of cognition and interpretation. In the process of narrative text interpretation, individuals select and interpret information from the text under the influence of their pre-understanding. The pre-understanding of individuals mainly includes three observed variables: ideological tendencies, Cultural Affiliation, and individual psychological tendencies. The observed variable of ideological tendencies consists of three latent variables: the political dimension, the economic dimension, and the historical figure evaluation dimension. The observed variable of Cultural Affiliation consists of three latent variables: national cultural pride, fan culture, and subculture. The observed variable of individual psychological tendencies consists of four latent variables: social dominance orientation, authoritarian personality, need for cognitive closure, and negative emotional tendencies. The various factors in pre-understanding may lead different individuals to interpret the same text from different perspectives. This may affect the process of identity formation and may also directly result in polarization behavior.

Narrative comparison refers to the process in which individuals contrast, analyze, and evaluate different narratives. During this process, individuals compare their interpreted narratives with societal mainstream values, group opinions, and other narratives to identify differences and similarities. Specifically, the observed variable of narrative comparison can be divided into two latent variables: narrative comparison tendency and narrative comparison frequency. Narrative comparison tendency refers to the degree of an individual's inclination to engage in narrative comparison. It reflects the extent to which an individual actively contrasts, analyzes, and evaluates different narratives when encountering them. An individual with a high narrative comparison tendency is more likely to actively compare their narratives with others, incorporating more external perspectives in the process of forming their identity. Narrative comparison frequency refers to how often an individual engages in narrative comparison activities within a given period. It measures the frequency with which individuals compare narratives over time. Through narrative comparison, individuals can gain a clearer understanding of their own positions and viewpoints while becoming more aware of conflicts or resonances with other narratives. An individual with a high narrative comparison frequency is more likely to frequently participate in comparing different narratives, placing their viewpoints within a broader discursive context, thereby increasing the involvement of external perspectives in the process of forming their identity.

This study designed a survey scale based on the hypotheses of the theoretical model. The scale design was grounded in relevant research literature, and most measurement items were adapted from existing scales. For example, the measurement indicators for the three latent variables of the ideological tendencies—political dimension, economic dimension, and historical figure evaluation dimension—were adapted from the scale developed by Ma Deyong and Zhang Shuxia. The measurement items for social dominance orientation were based on Duckitt J.'s classic scale from the dual cognitive-motivational model of ideology and prejudice [7]. The measurement indicators for authoritarian personality were adapted from B. Altemeyer's Right-Wing Authoritarianism (RWA) scale [8]. The measurement indicators for the need for cognitive closure (NFC) were selected from three dimensions representing internal psychological closure, decisiveness, and preference for order in the NFCS scale proposed by Kruglanski et al [9]. The measurement items for negative emotional tendencies were proposed based on the research conclusions summarized in Chapter 4. For the two latent variables of narrative comparison—narrative comparison tendency and narrative comparison frequency—since no fully matching mature scales currently exist, the measurement items were adapted from those developed in the studies of Social Comparison Orientation (SCO) and Social Comparison Frequency (SCF) [10-12].

This study collected a total of 872 valid questionnaires, using Weibo platform users as the sample through snowball sampling. Among the respondents, 407 were male (46.7%) and 465 were female (53.3%). In terms of age, 142 participants (16.3%) were aged 18 and below, 196 participants (22.5%) were aged 19–22, 316 participants (36.2%) were aged 22–30, 146 participants (16.7%) were aged 31–40, 45 participants (5.2%) were aged 41–50, and 27 participants (3.1%) were aged 51 and above. Regarding education level, 315 participants (36.1%) had a middle school education or below, 201 participants (23.1%) had a high school, vocational school, or technical school education, 179 participants (20.5%) had an associate degree, 92 participants (10.6%) held a bachelor's degree, and 85 participants (9.7%) held a master's degree or higher. In terms of average monthly disposable income, 204 participants (23.4%) earned 1,000 yuan or less, 249 participants (28.6%) earned between 1,000 and 3,000 yuan, 155 participants (17.8%) earned between 3,001 and 5,000 yuan, 109 participants (12.5%) earned between 5,001 and 8,000 yuan, 88 participants (10.1%) earned between 8,001 and 10,000 yuan, and 67 participants (7.7%) earned over 10,000 yuan.

This study utilized Mplus 8.3 to establish structural equation models (figure 1) for latent variable mediation and moderated mediation, examining the effects of ideological tendencies, Cultural Affiliation, and Individual Psychological Traits on the Polarization Behavior Intention, as well as the mediating role of narrative comparison. The model included ideological tendencies, Cultural Affiliation, and Individual Psychological Traits as independent variables, narrative comparison as a mediating variable, and Polarization Behavior Intention as the outcome variable. The analysis results are presented below.



**Figure 1. Research model**

In this study, the mediation effect was tested using the causal steps method (testing  $H_0: c = 0$ ;  $c = 0$ ,  $H_0: a = 0$ ;  $a = 0$ ,  $H_0: b = 0$ ;  $b = 0$ ), the product of coefficients method (testing  $H_0: ab = 0$ ;  $ab = 0$ ), and the difference in coefficients method (testing  $H_0: c - c' = 0$ ;  $c - c' = 0$ ). Simulation studies have shown that the product of coefficients method has higher testing power compared to the causal steps method and the difference in coefficients method [13-14]. However, due to the asymmetric and skewed distribution of the product of coefficients, the estimation of the mediation effect may be inaccurate. Scholars Fang

Jie and Zhang Minqiang proposed three methods that do not impose any distributional assumptions and are suitable for small and medium samples: the distribution of products method, the bootstrap method, and the Markov Chain Monte Carlo (MCMC) method [15]. This study used the bootstrap method (with 5,000 resamples) to estimate the 95% confidence interval of the mediation effect. If the 95% confidence interval does not include zero, the effect is considered significant.

## RESEARCH FINDINGS

The study constructed a structural equation model based on the research design. The fit indices of the structural equation model are shown in Table 1:  $\chi^2/df = 1.884 < 5$ , RMSEA =  $0.032 < 0.08$ , SRMR =  $0.027 < 0.08$ , CFI =  $0.974 > 0.9$ , and TLI =  $0.970 > 0.9$ . All fit indices meet the acceptable thresholds, indicating that the model is well-fitted and supported by the data, demonstrating a good model structure.

**Table 1. Structural equation model fit indices**

Fit	$\chi^2$	df	$\chi^2/df$	RMSEA	SRMR	CFI	TLI
Model	570.932	303	1.884	0.032	0.027	0.974	0.970
Criteria			<5	<0.08	<0.08	>0.9	>0.9

According to the results of the structural equation model (Table 2), the following research hypotheses can be verified:

### Hypothesis H1a: The Effect of Ideological Tendencies on the Polarization Behavior Intention

There is a significant positive effect of ideological tendencies on the Polarization Behavior Intention ( $P < 0.001$ ,  $\beta = 0.177$ ). Additionally, the bootstrap test shows that the 95% confidence interval of the total effect of ideological tendencies on the Polarization Behavior Intention is [0.195, 0.364], with a standardized total effect of 0.283. This indicates a significant positive effect of ideological tendencies on the Polarization Behavior Intention, supporting Hypothesis H1a.

Similarly, Cultural Affiliation and Individual Psychological Traits also have significant positive effects on the Polarization Behavior Intention ( $P < 0.05$ ), with standardized coefficients ( $\beta$ ) of 0.125 and 0.207, respectively. Moreover, the 95% confidence intervals of the total effects tested using the bootstrap method are [0.183, 0.359] for Cultural Affiliation and [0.282, 0.464] for Individual Psychological Traits, both of which do not include zero. The standardized total effects are 0.272 and 0.374, respectively, indicating significant positive effects of Cultural Affiliation and Individual Psychological Traits on the Polarization Behavior Intention, supporting Hypotheses H1b and H1c.

### Hypothesis H2a: The Mediating Role of Narrative Comparison in the Relationship Between Ideological Tendencies and Polarization Behavior Intention

The significance test results of the mediation path show that ideological tendencies have a significant positive effect on narrative comparison ( $P < 0.001$ ,  $\beta = 0.242$ ), and narrative comparison has a significant positive effect on the Polarization Behavior Intention ( $P = 0.007$ ,  $\beta = 0.143$ ). Following the causal steps method proposed by Baron & Kenny (1986), Hypothesis H2a is considered supported.

Furthermore, using the product of coefficients method and conducting a bootstrap test (with 5,000 resamples), the 95% confidence interval for the mediating effect of narrative comparison in the relationship between ideological tendencies and Polarization Behavior Intention is [0.011, 0.068], which does not include zero. This indicates a significant mediating effect of narrative comparison, with a standardized mediation effect of 0.035, further supporting Hypothesis H2a.

Additionally, Cultural Affiliation has a significant positive effect on narrative comparison ( $P < 0.001$ ,  $\beta = 0.315$ ), and Individual Psychological Traits also have a significant positive effect on narrative comparison ( $P < 0.001$ ,  $\beta = 0.326$ ). Narrative comparison has a significant positive effect on the Polarization Behavior Intention. Based on the causal steps method, Hypotheses H2b and H2c are supported. Moreover, the 95% confidence intervals for the mediating effect of narrative comparison in the relationships between Cultural Affiliation and Polarization Behavior Intention, as well as between Individual Psychological Traits and Polarization Behavior Intention, are [0.013, 0.084] and [0.013, 0.087], respectively. Since neither interval includes zero, both mediating effects are significant, supporting Hypotheses H2b and H2c.

**Table 2. Structural equation model results**

	Road		Standard	Unstandard	S.E.	t	P
Structural Model	Ideological Tendencies	→ Narrative Comparison	0.242	0.307	0.054	5.649	0.000
	Cultural Affiliation	→ Narrative Comparison	0.315	0.330	0.045	7.412	0.000
	Individual Psychological Traits	→ Narrative Comparison	0.326	0.516	0.070	7.405	0.000
	Ideological Tendencies	→ Polarization Behavior Intention	0.177	0.165	0.043	3.857	0.000
	Cultural Affiliation	→ Polarization Behavior Intention	0.125	0.097	0.038	2.541	0.011
	Individual Psychological Traits	→ Polarization Behavior Intention	0.207	0.242	0.061	3.980	0.000
	Narrative Comparison	→ Polarization Behavior Intention	0.143	0.105	0.039	2.683	0.007
Measurement Model	Ideological Tendencies	→ IO1	0.726	1.000			
	Ideological Tendencies	→ IO2	0.792	1.157	0.051	22.795	0.000
	Ideological Tendencies	→ IO3	0.731	1.008	0.052	19.403	0.000
	Cultural Affiliation	→ CA1	0.823	1.000			
	Cultural Affiliation	→ CA2	0.663	0.809	0.027	29.506	0.000
	Cultural Affiliation	→ CA3	0.718	0.907	0.033	27.445	0.000
	Cultural Affiliation	→ CA4	0.781	0.970	0.028	34.422	0.000
	Cultural Affiliation	→ CA5	0.729	0.985	0.034	28.658	0.000
	Cultural Affiliation	→ CA6	0.711	0.875	0.031	28.429	0.000
	Individual Psychological Traits	→ SPT	0.691	1.000			
	Individual Psychological Traits	→ AP	0.738	0.964	0.063	15.217	0.000
	Individual Psychological Traits	→ NCC	0.732	1.009	0.057	17.727	0.000
	Individual Psychological Traits	→ NAB	0.617	0.913	0.058	15.800	0.000
	Narrative Comparison	→ NC1	0.742	1.000			
	Narrative Comparison	→ NC2	0.695	0.969	0.047	20.687	0.000
	Narrative Comparison	→ NC3	0.786	1.053	0.043	24.639	0.000
	Narrative Comparison	→ NC4	0.780	1.042	0.041	25.308	0.000
	Narrative Comparison	→ NC5	0.754	1.035	0.043	24.054	0.000
	Polarization Behavior Intention	→ PBI1	0.744	1.000			
	Polarization Behavior Intention	→ PBI2	0.815	1.146	0.054	21.060	0.000
	Polarization Behavior Intention	→ PBI3	0.748	1.022	0.053	19.210	0.000

Note: Ideological Tendencies (IO), Cultural Affiliation (CA), Individual Psychological Traits (IPT), Narrative Comparison (NC), Polarization Behavior Intention (PBI).

## DISCUSSION

This study investigated the influence of individuals' pre-understanding on polarization behavior among diverse subjects and yielded the following findings.

### **Pre-Understanding of Narrative Texts: Direct Influence on Behavioral Polarization**

Regarding the relationship between pre-understanding of narrative texts and the Polarization Behavior Intention, the results indicate that ideological tendencies, Cultural Affiliation, and Individual Psychological Traits positively influence the Polarization Behavior Intention by shaping how narrative texts are interpreted. This suggests that how individuals interpret specific narratives directly impacts whether they exhibit polarized behaviors. For example, an individual who adheres to a particular ideological stance may interpret a narrative from a biased perspective, leading to polarized actions.

This finding helps explain why individuals may develop strong emotional investments in certain viewpoints or narratives. In social and online environments, such emotional investments may lead to polarized behaviors, such as refusing to accept differing opinions, firmly clinging to one's beliefs, or posting extreme remarks on social media. This can exacerbate social divisions and hinder rational and balanced public discourse.

Policymakers and educators can leverage these findings to design effective interventions aimed at reducing unhealthy polarization. For instance, educational programs can focus on developing students' critical thinking skills, teaching them to analyze and interpret information from multiple perspectives, and fostering respect for diverse viewpoints. In addition, social media platforms can implement tools and strategies to identify and mitigate extreme rhetoric, encouraging more rational and inclusive discussions.

Furthermore, this finding underscores the importance of addressing social polarization. In increasingly diverse societies, promoting dialogue and understanding across different cultures, ideologies, and backgrounds is crucial. Enhancing understanding and acceptance of diverse perspectives can effectively reduce social polarization and foster social cohesion and harmonious development.

### **Narrative Comparison Among Diverse Subjects: A Catalyst for Polarization Behavior**

During the process of identity formation, narrative comparison among diverse subjects serves as a mediating factor in the relationships between ideological tendencies, Cultural Affiliation, Individual Psychological Traits, and the Polarization Behavior Intention. The tendency and frequency of narrative comparison, as key components in identity formation, not only convey and reinforce individuals' ideological and cultural identities but may also amplify their psychological traits, thereby encouraging more active participation in polarization behavior.

This phenomenon may have several impacts in real-world contexts. First, when individuals frequently compare and contrast different narratives on social media or in daily life, they may become more inclined to hold firmly to their views and resist accepting opposing viewpoints. This behavioral pattern can lead to the fragmentation of social perspectives, increasing the risk of societal division. For example, in political debates, supporters from opposing sides often become more entrenched in their positions rather than seeking common ground.

Second, such narrative comparison behavior can result in selective information processing, thereby intensifying confirmation bias. Individuals may seek information that supports their views while ignoring or rejecting information that contradicts them. This tendency not only limits individuals' comprehensive understanding of information but also hinders society's ability to embrace and understand diverse perspectives.

Moreover, when individuals' narrative comparison behavior continuously reinforces their ideological tendencies and Cultural Affiliation, they may become more susceptible to extremist thinking. For instance, the rise of religious extremism or nationalist sentiment is often associated with individuals repeatedly comparing and reinforcing their beliefs or cultural identities.

### **CONCLUSION**

By constructing and validating the theoretical model of the "influence of users' pre-understanding on polarization behavior," this study reveals the significant roles of ideological tendencies, Cultural Affiliation, and Individual Psychological Traits in information polarization during the AI-assisted process of international information "influx." The results indicate that these three factors not only have a significant positive impact on the Polarization Behavior Intention but also intensify the effects of information polarization through narrative comparison as a mediating variable. Specifically, ideological tendencies, Cultural Affiliation, and Individual Psychological Traits all exert significant mediating effects on polarization behavior through narrative comparison, confirming their profound influence on information processing and dissemination.

Moreover, AI recommendation systems, by precisely identifying user preferences and delivering personalized content, further reinforce users' existing cognitive frameworks, thereby fostering information polarization and confrontation. Although

"perceived support from others" did not demonstrate significant mediating effects across all model paths, the study highlights its indirect influence in the relationship between Individual Psychological Traits and polarization behavior. These findings provide theoretical support for the governance of social media platforms, particularly in optimizing AI recommendation system designs to reduce information polarization, promote information diversity, and facilitate cross-cultural dialogue.

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