How to Change Stereotypes and Meta-stereotypes

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Abstract: Stereotype is a collection of positive or negative beliefs held by individuals about the characteristics of a certain group. Meta-stereotype is an individual's belief about the stereotype that members of the outer group hold on the group to which they belong (the inner group). Stereotyping can simplify the cognition of complicated things, but the accuracy of stereotypes and meta-stereotypes is also questionable. Stereotype and meta-stereotype will cause deviation to individual's information processing and then affect individual's behavior. Negative stereotypes and meta-stereotypes between groups will lead to tension between groups. Since the inaccuracy of stereotype and meta-stereotype deviates from the essence, it is more important to correct it, especially to change the negative stereotype and meta-stereotype. The presentation of anti-stereotype inconsistent information is an important prerequisite for the change of negative stereotype. The change of meta-stereotype requires individuals to perceive that they are being evaluated or have the possibility of being evaluated by members of other groups. Positive imaginative intergroup contact is an important way to change negative meta-stereotype.

1. Stereotype

The importance of categorization in the process of stereotyping has long been recognized by scholars. It first emerged implicitly from the stereotype analysis of group perception by journalist W. Lippmann, and it also brought the concept of stereotype into the field of social science. After that, psychologist Ashmore & Gould (1981) summed up the previous theoretical and empirical studies on stereotypes, which were summarized into three aspects: psychodynamics, socio-cultural theory and cognitive theory. According to psychodynamics, stereotype is an important function of people's overall personality, and it is the operation of self-defense mechanism, which reflects the anxiety of coping with id such as projection and empathy. Social theory emphasizes the important role of social environment in the formation and maintenance of stereotypes, and advocates that stereotypes can be acquired and strengthened through social learning. From the perspective of cognitive theory, stereotype is a cognitive structure, which is one of the important features of intergroup perception and interpersonal perception, and reflects the schemata and emotional color of a certain social perception form.

When people form a certain impression of someone or something, they always activate and use the information of their related members. Some studies also question the stability of stereotypes, and think that stereotypes are not unshakable, and they can be overcome or diluted under certain conditions. For example, the start-up of thinking of "denying stereotypes", the "distinctive" way of thinking, imagination, suppression, strategies of opinion selection, more contact, unexpected combination of categories, etc. will all weaken the activation of stereotypes related to the target object.

2. Meta-stereotype

2.1. The Concept of Meta-stereotype

Meta-stereotype belongs to the category of group meta-perception. Vorauer et al. (1998) first put forward the concept of meta-stereotype, which is defined as an individual's belief and view about the stereotype held by members of the outer group to their group (inner group) [1]. At first, the definition of Vorauer didn't contain the titers of meta-stereotype. Some researchers believe that meta-stereotype should be divided into positive and negative, and different titers of meta-stereotype will bring different results [2]. However, there are also many studies that the potency of meta-stereotypes is mainly negative [3].

The two important components of meta-stereotype are "content" and "consistency". First of all, from the content point of view, although meta-stereotypes are usually negative, but the contents of meta-stereotypes are not necessarily accurate and consistent with the facts. The consistency of meta-stereotype refers to the consistency of its content with the members of inner groups. At present, many scholars pay more attention to the consistency of meta-stereotype [4]. Influenced by social preference, meta-stereotype is more negative than other stereotypes. On the one hand, it may be because meta-stereotype is a holistic view and the processing of information is holistic, which leads to a lot of individual information being easily overlooked, thus affecting the accuracy of meta-stereotype. On the other hand, meta-stereotype speculates others' views on the inner group from the perspective of self. At the same time, it is difficult for individuals to directly get the explicit evaluation of the inner group from the members of the outer group, and the information source is relatively closed, which makes the meta-stereotype more negative and lasts longer than the stereotype.

The search for "meta-stereotype" in CNKI shows 52 results, among which the earliest title "Research and Progress of Meta-stereotype" introduces the latest research results on meta-stereotype abroad in recent years [5]. The first empirical study in China is based on the analysis of meta-stereotypes and their functions in different social strata. It is found that different treatments of meta-stereotypes have no obvious influence on the inter-group relations of higher social strata. The positive prominence of meta-stereotype improves the attitude of the lower social strata towards the outside groups and their cognition of inter-group relations, but has no obvious influence on their interest in communication [6]. The social cognitive research of meta-stereotype shows that compared with stereotype, meta-stereotype has a greater impact on inter-group relations, and it is a sign (prediction) that implicitly measures the attitude of individuals towards external groups [7]. The last ten years' research is divided according to the content: there are studies on the relationship between rights and stereotypes in the cultural background of China; Meta-stereotype and intergroup interaction and their effects on intergroup relations; The activation mechanism of meta-stereotype; The research is more about the influence of meta-stereotype, including creativity, cognitive processing, emotional and cognitive performance, individual attention bias, sexual harassment tolerance on campus, professional self-efficacy, group preference, social interaction, social integration, cooperative behavior, aggressive behavior, etc. The last decade's research is divided

according to the objects: migrant children and urban children, children moving with them, rural children, rural left-behind children, urban and rural college students, Han and Uygur students, Yi college students, Christian college students, poor college students, female college students job seekers, students with learning difficulties, secondary vocational schools, middle school students from single-parent families, deaf students, doctors, armed police soldiers, new citizens, drug addicts, Dong and Han people, the elderly, introverts and other groups.

2.2. Activation of Meta-stereotype

Vorauer et al. found that there are differences between the activation of meta-stereotype and the activation of stereotype. The automatic activation of stereotype only needs to present the members of the outside group, which is not enough for the activation of meta-stereotype. The activation of meta-stereotype depends on other factors, and the most basic condition is that individuals perceive that they are being evaluated by members of the outside group or have the possibility of being evaluated. Studies have shown that inter-group contact between two groups can lead to the activation of meta-stereotype, which can be the actual situation or the individual's expected contact. Once an individual perceives that others are evaluating him/her, he/she will project his/her own views to speculate on his/her image in the eyes of others, thus activating meta-stereotype. It has been found that there are many ways to activate meta-stereotype, and the most direct and commonly used method is to ask the tried phrases or sentences to directly describe how they think the foreign group sees his group [8]. Another study is to estimate the proportion of the members of the outer group who think that the members of the inner group have certain characteristics by asking the subjects to imagine contact with the outer group. In addition, there are some indirect methods. For example, some researchers ask subjects to imagine contact with foreign groups, and then complete vocabulary completion tasks. Recently, it has been found that the meta-stereotype can also be successfully activated by directly telling an external group about its evaluation [9].

When China studied the cognitive effects of the activation of negative meta-stereotypes, researchers chose the working memory task [10]. Because working memory is generally considered to be closely related to individual cognitive ability. In some complex tasks that require the participation of advanced cognitive activities, working memory can control, plan and actively maintain relevant information, so it is often used as a representative task to explain individual cognitive differences. Studies have explored the effects of two emotion regulation strategies, cognitive reappraisal and expression inhibition, on the cognitive effects of negative meta-stereotype activation, and found that different emotion regulation strategies have different effects on the cognitive effects of negative meta-stereotype activation [11]. The exploration of the cognitive neural mechanism of the activation of negative meta-stereotypes found that the activation group of negative meta-stereotypes induced larger amplitudes of P2, N2 and EFP (early frontal positivity) than the control group, indicating that in the first stage, namely P2 and N2, the activation of negative meta-stereotypes showed an automatic processing feature. In the second stage, namely EFP stage, it shows a controlled processing feature. Compared with the control group, the brain wave correction of the negative meta-stereotype activation group took about 300ms, which indicated that the negative meta-stereotype activation had self-processing advantage effect. The research shows that negative meta-stereotype activation is a two-stage processing model, and it has the advantage of self-processing [12].

2.3. The Influence of Meta-stereotype on Inter-group Relations

In social interaction, people's concern for others' evaluation will affect their thoughts, feelings and behaviors. When people attach great importance to what others think of them, they tend to

regard other people's behavior as feedback evaluation to them, and they will make more responses to other people's behavior. Meta-stereotype can cause intergroup anxiety, and also affect people's interpersonal judgment, expectation and experience of intergroup contact, and behavior of inner and outer groups. When the negative meta-stereotype is activated, it affects individual cognition, causing anxiety, fear and other bad experiences, which in turn leads to a series of vicious cycles, impairing individual behavior, destroying inter-group relationships and causing inter-group conflicts [13]. People will have negative emotional, cognitive and behavioral results due to being threatened by stereotypes from others (negative meta-stereotypes) [14]. Some researchers have also paid attention to how those who are stigmatized, those who are bound by negative meta-stereotypes, face and deal with discrimination. Some studies have found that it is more effective to reduce negative meta-stereotypes than negative stereotypes to improve inter-group relationships. For individuals, negative meta-stereotypes will pose a certain threat to their self-concept and clarity, forming low self-esteem and leading to low inner group identity. For groups, excessively negative meta-stereotypes will set the stage for mutual distrust at the beginning of the relationship, and even lead to a vicious circle in the follow-up, which often underestimates the damage to interpersonal and inter-group relationships.

Recently, a questionnaire survey of 191 international doctoral students studying in Italy found that positive meta-stereotype is directly related to self-disclosure and contact intention, while negative meta-stereotype is directly related to psychological adjustment. Both positive and negative meta-stereotypes are related to the fear of cross-cultural communication. The research results show that the intervention of positive meta-stereotypes can improve the relationship between overseas students and the internal groups in the receiving country [15]. Another study shows that local people's stereotype of tourists will affect their behavior towards tourists. The meta-stereotype of tourists will affect their willingness to interact with local people and self-disclosure in the process of interaction in different ways. These influences are regulated by the degree of tourists' rights, and tourists with rights are more likely to show behaviors that conform to meta-stereotype [16].

To sum up, the study found that the potency of meta-stereotype is mostly negative and lasts for a long time, so the content is not necessarily accurate. The activation of meta-stereotype requires individuals to perceive that they are being evaluated or have the possibility of being evaluated by members of other groups. There are direct and indirect ways to activate meta-stereotype. When negative meta-stereotype is activated, it will cause inter-group anxiety, which will lead to a series of vicious cycles and destroy inter-group relations. The latest research abroad has found that positive meta-stereotypes are related to self-disclosure, contact intention and cross-cultural communication. It can be seen that meta-stereotype can be intervened, especially the intervention of negative meta-stereotype, which can make meta-stereotype more positive, improve inter-group relations and help social groups to live in harmony.

3. Anti-stereotype

3.1. The Concept of Anti-stereotype

With regard to the concept of anti-stereotype, most researchers define it as: groups with stereotypes show the opposite phenomenon to the original stereotypes in one aspect or some aspects of their characteristics. At present, the research on anti-stereotype mostly focuses on the gender level. From the research content, it can be seen that anti-gender stereotype violates a conventional rule about men and women. This kind of violation will naturally cause people's evaluation, attribution and attitude change [17]. For example, China's traditional concept holds that "men are in charge outside and women are in charge inside". In real life, if a man takes care of housework all day like a "family cook" and a woman works hard to earn money to support her family like a

"desperate saburo", it will be considered as a representative of anti-gender stereotypes; For example, in general, everyone thinks that men work more outdoors, while women work more indoors. If women work in construction sites and men work as secretaries in offices, this is the anti-stereotype of gender-occupation. In addition, if you have the impression that northerners are extroverted and bold, southerners are introverted and shy, but when you meet introverted northerners and extroverted and bold southerners in real life, this is an anti-regional stereotype. If a young man is ill, while an old man feels energetic, it is an anti-age stereotype. It can be seen that where stereotypes exist, anti-stereotypes also exist. The relationship between them is like the south pole and the north pole on the compass, which exist in opposite directions at the same time.

3.2. The Relationship between Anti-stereotype and Stereotype

Foreign scholars believe that anti-stereotype is the content that shows the opposite attribute to stereotype, and it is also the reflection of stereotype in essence. Researchers believe stereotypes, traits and behaviors can be represented by a connectionist network unit (node). The first step is to activate the observed information. Not all information will be noticed and activated by individuals. The second step is to spread the observed information of activation to other nodes directly connected with it. The level of activation after diffusion is enhanced or weakened depending on whether the connection between them and the initial activation is excited or inhibited. It can be seen that the intensity and direction of exciting or inhibiting connection come from the pre-existing knowledge base. The third step is to integrate information by repeatedly refreshing the activation of all nodes before the network is set up. After the third step, additional reasoning may occur. When the input information is particularly new or the perceiver himself has gained a new understanding of the target object, additional causal reasoning may occur (this additional causal reasoning itself may follow the parallel restriction to satisfy the processing principle). Read et al. (1993) discussed in detail how Thagard's model can be used to explain social behavior and trait reasoning. Therefore, the final impression of the formation of the target group is the product of mutual integration of reasoning and prior knowledge.

Generally speaking, stereotypes dominate the cognition of individuals, but when the anti-stereotype information is strong enough to reclassify the stereotypes of target groups, stereotypes may change. The premise of change depends on whether the current stimulating information is strongly connected with stereotypes or with anti-stereotypes. Or the current anti-stereotype intensity of stimulation is higher than the original stereotype in the mind, then the stereotype change may occur. For example, popular American literature in the 19th century contained grotesque and servile stereotypes of blacks. In order to protest, anti-stereotypes that could show the elegance and wisdom of blacks appeared. In the 1970s, in the United States, in response to feminist criticism, advertisers chose to show the anti-stereotype of women's confidence and wit in gender. Although the presentation of anti-stereotypes inhibits stereotypes, if anti-stereotypes become popular, they will eventually become stereotypes, which is also not conducive to people's understanding of the original appearance of people, things and things. Therefore, when we use anti-stereotype information, we need to master the standard of intensity.

3.3. The Influence of Anti-stereotype Information on Stereotype Change

There have been a series of research results on the relationship between anti-stereotype information and stereotype change. Some studies have confirmed that when information inconsistent with stereotypes is presented, people will ignore the inconsistent information, thus effectively protecting stereotypes.

Research on the quantity of inconsistent information. Paolini et al. (2004) proposed in

Experiment 2 and Experiment 3 that the type of contrast situation and the number of dimensions of target stimulus would regulate the influence of "inconsistent information" on stereotype change. In Experiment 3, it was found that when the number of dimensions of the target stimulus was small (4), the presentation of inconsistent information would significantly affect people's judgment on the distribution of the target group. However, when the number of dimensions of the target stimulus is large (8), the presentation of inconsistent information has no significant effect on the distribution judgment of the target group. The researcher's explanation for this result is that when the number of dimensions of target stimulus is large, people will perceive that there are differences in many dimensions of the group, so the judgment of heterogeneity of the group is high, and the stereotype evaluation is low. As a result, the presentation of inconsistent information is not significant.

Research on the abnormal degree of inconsistent information. Moderate inconsistent information means that the deviation between this information and the original stereotype is small. The extremely abnormal inconsistent information means that the information deviates greatly from the original stereotype. People usually regard extremely abnormal inconsistent information as information that is not representative of the group, that is, information with low typicality, which leads people to less extend the attribute characteristics of extremely abnormal inconsistent information to the whole group. Many studies have found that, compared with extremely abnormal inconsistent information, the presentation of moderately abnormal inconsistent information is more conducive to the change of stereotyped cognition. For example, Kunda & Oleson (1997) found that the abnormal degree of information inconsistent with stereotypes will affect people's typical cognition and the change of stereotypes. In addition, some studies have found that the abnormal degree of inconsistent information can be realized by presentation: under the condition of moderate abnormality, inconsistent information is scattered in a large number of samples. Under extreme conditions, inconsistent information is concentrated in a small number of samples. It is found that the abnormal degree of inconsistent information will affect the change of stereotype, that is, the scattered inconsistent information is more conducive to the change of stereotype than the centralized inconsistent information. Tausch & Hewstone (2010) further found that social superiority positioning, as an individual difference variable and the abnormal degree of inconsistent information, will jointly influence the stereotype change. When there is moderate abnormal inconsistent information, there is a significant negative correlation between social superiority orientation and stereotype change. However, when the extremely abnormal inconsistent information appears, the above relation is not valid [18]. To sum up, the abnormal degree of inconsistent information plays a key role in stereotype change.

In addition to exploring the influence on individual stereotypes by presenting the superficial clues of inconsistent information, existing studies have also tried to start or strengthen anti-stereotypes by various methods to suppress or eliminate the original stereotypes in the mind. For example, anticipating or imagining anti-stereotype, reconfirming anti-stereotype materials, starting a "different" way of thinking, and classifying and combining "unexpected" can not only weaken the explicit stereotype, but also reduce the level of implicit stereotype [19]. Social psychologists have found that people tend to have more negative reactions to people with anti-stereotypes than those with stereotypes, because anti-stereotypes threaten the need to maintain stable and coherent stereotypes.

To sum up, starting anti-stereotype information under different conditions has different effects on the original stereotype cognition in the mind. Besides, in the process of using anti-stereotype information to change the original stereotype, we should also pay attention to the long-term effectiveness of stereotype change. To effectively change stereotypes, we should not only start from the explicit level, but also try to change the implicit stereotypes.

4. Imaginative Intergroup Contact

Imaginative intergroup contact hypothesis, which originated in Europe, is a new theory in the research field of social psychology group relations. Its basic hypothesis is that psychologically simulating positive interaction with members of external groups can improve intergroup attitudes, increase intergroup trust and reduce intergroup prejudice, and promote positive group relations. This hypothesis makes up for the deficiency of the traditional intergroup contact theory, and is the further improvement and development of the traditional intergroup contact theory. In the past three years, a great deal of research has been carried out abroad, involving the effects of imaginative contact, its psychological mechanism, influencing factors and other aspects. At present, this theory has become mature and formed a certain research paradigm. By imagining the friendly social interaction between the members of the inner group and another member of the outer group in their minds, after completing such a psychological simulation, the subjects have positive emotions and friendly communication experiences similar to the real contact, thus reducing their anxiety, which can effectively change the individual's impression of the outer group, increase the willingness to contact and improve the inter-group relationship.

The basic principle of imaginary contact hypothesis is mental representation or mental image. Because representation overcomes the limitations of direct experience in people's perceptual activities, it has an important cognitive function. On the basis of appearance, people can also carry out imagination and psychological simulation activities to create new things. Relevant research shows that mental images can trigger nervous, emotional and motivational responses similar to actual experiences. It was found that imaginative contact can reduce prejudice against the elderly and gay men, and later studies found that imaginative contact has similar effects on attitudes towards different ethnic groups, immigrants, overweight people and people with mental health disorders. Foreign researchers have done a meta-analysis-analysis of more than 70 empirical cases of imaginary contact reducing intergroup prejudice. This study takes four variables of intergroup emotion, attitude, willingness and behavior as the key indicators to measure intergroup prejudice. It is found that imaginative contact can reduce intergroup prejudice at both explicit and implicit levels. In addition, the meta-analysis also found that imaginative contact can promote the willingness of intergroup contact more than the attitude of intergroup contact, and the imaginative contact effect of children is greater than that of adults. These research results have important practical significance for improving intergroup relations in a diversified social background [20]. In a mutually beneficial task, contact with members outside the group will lead to the reversal of altruism level outside the group. After inter-group contact, people's attitude towards stigmatized outside groups has changed [21]. Group contact can change the beliefs of external groups, thus reducing discrimination [22].

The theory of intergroup contact answers the following four questions under the background of western culture: (1) What are the causes of intergroup prejudice? (2) Under what conditions are different groups more likely to contact and interact with each other? (3) What are the main forms of intergroup contact? (4) What is the psychological mechanism of inter-group contact to promote inter-group relationship?

Scholars in China found that imaginary contact is not exactly the same as face-to-face group contact. Imagination puts more emphasis on the psychological simulation of individuals in order to realize certain needs. Through this active and positive psychological simulation, individuals have a positive inter-group contact experience, their anxiety is reduced, and their cognition and attitude towards external groups are also improved, further effectively enhancing inter-group relations [23]. By asking subjects to list positive self-traits, the role of imaginative contact in attitude change of subjects with high identity can be enhanced [24]. The closer the psychological distance is, the more likely it is that the group will choose the common values, and when the individual perceives that the

psychological distance between the group and others is reduced, the actual approaching behavior will occur. Inter-group communication and inter-group trust are closely related to social psychological distance [25]

The attitude change caused by imaginary inter-group contact is not as stable as the actual and direct contact. As an indirect inter-group contact, the long-term effect of imaginary inter-group contact cannot be guaranteed when the time interval between experimental operation and test becomes longer. Therefore, in order to enhance the lasting effect of inter-group contact, it is necessary to increase the frequency and intensity of inter-group contact. Imagination frequency can positively predict individuals' willingness to contact [26]. Domestic studies have used "one-class implicit association test" to measure the effect of imaginary inter-group contact between Han college students and minority college students with different previous contact experiences, and found that the main effect of imaginary inter-group contact type is significant [27], and even individuals who have had direct contact experience can change their implicit attitude towards other groups by imagining intergroup contact [28]. In the process of inter-group interaction, the emotional experience in communication is the key factor that affects the effect of inter-group contact, among which inter-group anxiety is the key intermediary variable that produces inter-group threatening experience, and the anxiety about contact is the main reason that leads to negative effects. In cross-group interaction, prejudice or negative expectations will lead to inter-group anxiety, which will lead to unfriendly or even aggressive behaviors of group members. It is found that individuals who use imaginary intergroup contact as intervention means show a more positive attitude. The effect of imaginary contact is influenced by the vividness of imagination. The more vivid the mental script of participants in the process of imaginary contact and the closer the atmosphere is to reality, the better the effect of imaginary contact will be.

5. Conclusions

The presentation of anti-stereotypical videos, photos and behavioral information can inhibit the activation of stereotypes. There are considerable differences in the sensitivity to trait change. Because stereotypes are made up of traits in different degrees, the difference in operation mode of inconsistent information presented as anti-stereotypes should also affect the degree of change of the original stereotypes.

Positive imaginary intergroup contact helps to eliminate negative meta-stereotypes, and individuals have a positive experience of intergroup contact, which reduces their anxiety, improves their cognition and attitude towards foreign groups, and further effectively promotes intergroup relations.

Acknowledgements

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