The Impacts of Memory in Stereotypes and Decision Making with Possible Intervention

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Abstract. With the increased need of being against stereotypes, more and more people seek the possible intervention. Memory, as a composition of the formation and maintenance of stereotypes, plays a role in stereotypes. To investigate the roles of memory in stereotypes, the present study aims to discuss different aspects of memory's roles in stereotypes and come up with possible interventions. The result suggests that memory and priming can affect stereotypes by the failure of accurate information, thus affecting decision-making. Fortunately, affirmation can be an effective intervention to reduce the negative consequences. For interventions, this study mainly focuses on affirmation and its applications. The highlight of this study is that it combines different literature and points out both the advantages and drawbacks. Hence, the present study forms a comprehensive review of current studies. More empirical research needs to be conducted around stereotyping to clarify the mechanisms of stereotype influence and to better guide individuals' adaptive behaviors.

Keywords: Stereotypes, affirmation, decision-making.

1. Introduction

Stereotypes have been investigated for a long time since the last centuries. Stereotypes refer to unfair beliefs about certain events. Stereotypes can increase the possibility of negative events. stereotypes, in particular, play a vital role in today's society. A study down by Harvard University suggests that women are more likely to receive comments stating that they are less likely to succeed in math exams than men [1]. This could cause many negative consequences. Receiving negative feedback provides individuals with negative personal experiences, which could serve as vicarious experiences to reduce individuals' self-efficacy [2]. What's worse, low self-efficacy can reduce one's academic performance, therefore, enhancing stereotypes [3]. This can have many negative consequences: students might lose interest in studying even though they might be talent and diligent. Despite this, stereotypes can associate with decision-making and persuasion. For decision-making, individuals make decisions based on their memories. Memories, however, evolve stereotype-impression. A study argues that the depletion of working memory can serve as the basis of stereotypes [4]. Nevertheless, the decay of memory is inevitable. Thus, individuals will pursue stereotypes inevitably. In addition, more exposure to negative stereotype threats can undermine eld people's memories. This could further enhance stereotypes in the future. On the other hand, persuasion, can both enhance and reduce the impacts of stereotypes.

2. Main Body

2.1. Stereotypes

Stereotypes refer to a certain belief of a group of people. Many factors affect the formation and maintenance of stereotypes, such as self-Fulfilling Prophecies, illusion correlation, and out-group homogeneity. While these factors seem to have little association with memory, the maintenance of stereotypes is closely related to memory. Researchers suggest that priming and memory processes are associated with the formation and maintenance of stereotypes [5]. They point out that people are better at recalling the memory related to stereotypes. This can be harmful in many situations. In workplaces, employers might refute recruiting the poor, as they think poor people are usually lazy. It can negatively impact the atmosphere of society, and further enhance stereotypes. stereotypes, one

of the stereotypes, can be harmful in many situations as well. It refers to overall perceptions and beliefs of certain characteristics and behaviors that ought to be performed by women or men. This can negatively influence human rights in today's society. It also has similar theories in formation and maintenance. Researchers conduct an experiment to further highlight the possible negative consequences of stereotype threat [6]. In their experience, the object tends to examine the association between the old people's memory performances and interaction with stereotype threat based on ages (ST), considering participants' ages and education levels. The result reveals the level of being vulnerable to older people's working memory abilities. Interestingly, for episodic memory, stereotype threats only occur when they are subtle and neither education levels nor age will influence participants' working memory capacities. This can be used in many fields in life. If researchers can enhance individuals' memory by implementing some psychological strategies, they might have a greater possibility to avoid the negative consequences of stereotypes. Only two levels of headings should be numbered. Lower level headings remain unnumbered; they are formatted as run-in headings.

2.2. Stereotypes and Decision-making

After discussing the underlying theories of the formation and maintenance of stereotypes, the present study focuses mainly on the roles of memory in stereotypes and decision-making. The first factor which might influence stereotypes is memory. A study points out that working memory can help to attribute the outside events, thus affecting stereotypes [7]. In addition, another study propose that when processing memory, individuals tend to process the homogenous memory better [8]. In this case, when the previous memory has stereotypes, stereotypes will be further enhanced. This can be harmful, as individuals can get into a loop-like circle, which prevents them from escaping the harm of stereotypes.

Secondly, heuristics influence stereotypes as well. Heuristics refer to the mental shortcut which helps people to solve problems in a quick and efficient way. It acts in a similar way to priming. By appearing in individuals' minds in the first place, individuals tend to make judgments about the frequency of categories based on availability heuristics [9]. Moreover, other social factors play a role in stereotypes. Mood, a status that can be easily changed by environments, is related to stereotypes. Some researchers propose that individuals with positive moods indicate a higher reliance on belief about a group when they make judgments on an individual's behaviors [10]. Also, a study pointed out that individuals with higher educational backgrounds are more resistant to others' views, being less likely to change their own points of view. In the process of stereotypes, individuals like this are less likely to be persuaded and form stereotypes. Despite this, financial situations can also influence the maintenance of stereotypes. In most situations, people with better financial situations are more likely to have access to better social resources and more respect. Under this context, they might have higher self-efficacy, which might be more inclined to their original beliefs. They might have more chances to get positive reinforcement to enhance their own beliefs and prevent them from forming stereotypes. By doing so, more and more people are able to get rid of stereotypes by engaging in more behavioral approaches. This suggests that while the formation of stereotypes might be hard to avoid, it is still feasible to reduce its negative effect as much as possible.

2.3. Stereotypes and Affirmation

The application of stereotypes can be exemplified by the affirmation of stereotypes. Many people hold the stereotypes that women tend to have lower performances in math than men do. Based on this scenario, Martens et al. conduct two studies that compare the math performance of women and men [11]. They find that under stereotype threat, women perform worse than those without stereotype threat. Affirmation, on the other hand, refers to the repeated statement about oneself which aim to be positive. Interestingly, they find that self-affirmation is only effective under stereotypes and enhances performances [11]. For men without stereotypes, it appears that their performances fail to be improved [11]. Differences might give rise to this situation: women and men might have different

cognition in processing self-affirmation and treating it differently. This finding also highlights the importance of the applied situations of intervention. Other researchers also point out other benefits of self-affirmation. Some researchers imply that self-affirmation is more effective than only saying NO to stereotypes, by creating counterstereotype associations [12]. Saying NO might limit presenting attitudes, which fail to change individuals' cognition and prevent the formation of stereotypes. In this experiment, researchers select a sample based on undergraduate students in America. For the first experiment, they separate participants into two groups to test the influences of positive and negation and affirmation on reducing stereotypes. As a result, it indicates that only affirmations are effective in reducing stereotypes. On the other hand, negation has little influence on counterstereotypes. To investigate it further, the researchers conduct a second experiment. The second experiment aims to the different roles of affirmation and negation in automatic evaluations. Similarly, in the setting of the second experiment, negation has relatively little effect compared with affirmation.

Hence, according to the studies above, the present study proposes that the defense mechanism, such as affirmation, can be used as an intervention in stereotype threat. By encouraging individuals to process self-affirmation, they might have a positive attitude toward themselves and keep themselves from maintaining stereotypes. Also, an increased affirmation can bring many other benefits. A study points out that more affirmation can increase self-esteem. Moreover, there is a physiology basis for affirmation, researchers find that when individuals are affirmed, their key regions of the brain's self-processing (medial prefrontal cortex and posterior cingulate cortex) and valuation (ventral striatum and ventral medial prefrontal cortex) systems appear to be activated [13]. This can be helpful in the future when researchers investigate affirmation in the field of biology. To conclude, affirmation appears to be an effective and cost-efficient way of being against stereotypes. However, despite its efficiency, further researchers need to monitor the mood and applied situations of this intervention in order to get a better effect.

3. Discussion

The highlight of the present research is that it combines various literature and makes comprehensive research. All of the research cited in the present study have been selected carefully according to CRAAP (Currency, Relevance, Accuracy, Authority, and Purpose). The literature used is closely related to stereotypes and the intervention of affirmation. The experiments cited in the present study have been carefully examined based on their data analysis and were conducted as recently as possible. In addition, the experiments include samples chosen from different ages and regions, allowing to be with the possibility to generalize the results in a larger population. Following these standards to choose researchers, it ensures that all of them are reliable and valid. Second, the present study has a clear writing structure. Moreover, fortunately, stereotypes are a topic that has been examined for many years. Thus, it has a large amount of data and research, making it easier to make further investigations. However, the limitations also exist in the current study. Also, the present study fails to consider other potential factors which can influence the formation and maintenance of stereotypes. Stereotypes occur in many daily situations. This suggests that it can be influenced by factors besides psychological terms, such as social status and financial situations. It is true that these factors sometimes can be difficult to measure. However, as it composites a person's physical and mental background, they are worth further clarification. Lastly, as the present study lacks the sources of primary research, it fails to explain the more current and local phenomenon and propose and test its own theory. Also, it is unable to test other experiment results and evaluate their validities and reliabilities. Lastly, it is complex to investigate stereotypes that involve formation, maintenance, and changes. Focusing on partly of these is limited. The current study only investigates the affirmation as a kind of intervention based on its formation and maintenance. Other factors, such as priming and availability heuristics, fail to be considered.

Despite the current large amount of data and studies, further investigation is still needed. Most studies now are available mainly focused on the Western population and were written before the

period of COVID-19. However, with the development and changes in society, more research needs to be done. More and more experiments based on more regions, especially for the Eastern world are needed. In addition, after the period of COVID-19, people hold different beliefs about the world and each other. In this situation, the concept and application of stereotypes changes as well. To have a more comprehensive understanding of stereotypes, more research needed to be done.

4. Conclusion

To conclude, the result of the present study indicate that stereotypes play a vital role in individuals' daily life. Decision-making influences the process of making business judgments or even political decisions. Moreover, stereotype threats can undermine older people's memory ability, which can be harmful to them. However, many experiments claim that stereotypes are changeable. Many factors can influence stereotypes' formation and maintenance of. Focusing on these two aspects, the present study tends to come up with possible interventions. After evaluating a large number of experiments, the present study finds affirmation appears to be an effective one. By using intervention as affirmation, the present study finds stereotypes can be effectively reduced. Hence, it is able to reduce the related consequences as well. The highlight of the present research is to form a well-rounded understanding of stereotypes and interventions. However, the limitations, such as the lack of primary research, also exist. Further research can focus on social situations, such as finance situation and religion.

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