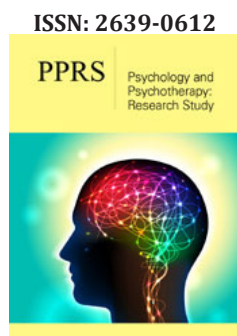


The Review of the Mechanism of Emotional Contagion

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Abstract

According to the theory of primitive emotional contagion, emotional contagion is a psychological process of physiology eliciting emotion, which consists of the following courses: emotional awareness → unconscious mimicry → physiological feedback → emotional experience. As early as 1884, William James and Carl Lange put forward a same periphery-feedback theory of emotion, which depicted a close relationship between physiological change and emotional change. Unfortunately, it described neither the mechanism from stimuli events to peripheral physiological change, nor the internal link between physiological feedback and emotional arousal. The above two issues could be resolved by research on the mechanism of emotional contagion. Emotional contagion begins with a perceiver mimicking the other's expression, which elicits the mimic's physiological reaction in the specific circumstances. If the perceiver's peripheral physiological change was cut off from the specific circumstances, his/her emotional experience would not come up. In a word, only when an individual is exposed under certain circumstances will physiological reaction arouse emotional experience.

Keywords: Emotional contagion; James-lange theory; Mechanism

What is Emotional Contagion

According to the theory of primitive emotional contagion, the awareness of emotional information is accompanied by mimicry, and there is a synchronic interaction between the perceiver and the inducer. This kind of mimicry-feedback mechanism with the emotion had an impact on the emotional experience of the perceiver and made him or her produce the perceivable emotion, thus infecting perceivers with the emotion that he or she had perceived. This process can be expressed as follows: emotional awareness → unconscious mimicry → physiological feedback → emotional experience [1]. As indicated in Figure 1; Zhang et al. [2] elaborated the concept and mechanism of emotional contagion, theoretically demonstrating that this mechanism is scientific [2]. Through the awareness of the perceiver, the sensory emotional information (Types of emotional information can be referred to Zhang [2]) will induce the perceivers to produce unconscious mimicry, which causes them to produce the same emotional experience with the inducer through physiological feedback. It can be inferred that "level of emotional awareness" of the perceiver have an influence on "level of unconscious mimicry" which will affect "level of physiological feedback", thus ultimately exerting influence on the "level of subjective emotional experience". Hess et al. thought that the acquisition mechanism of emotion began with the feedback of facial expression. The movements of facial muscles gave the brain a feedback which activated the physiological feedback system and resulted in the corresponding emotional experience [3]. Therefore, people will feel happy if they are laughing. Likewise, individuals who imitate other people's facial expressions will also affect their own emotional experience, resulting in the experience of same emotion with those being observed [4]. This is called "Hypothesis of Facial Feedback Theory" [5].

The relationship between emotional contagion and James-Lange theory

James, W. and Lange, C. put forward the same emotional peripheral theory respectively in 1884 and 1885, which advocated that the activation of autonomic nervous system, visceral feedback and facial expressions (Darwinian Theory) were causes of emotion. For example, fear was caused by escaping and happy was caused by laughing, which described a kind of "bottom-up" emotional mechanism from physiological changes to emotional arousal. This emotional mechanism was consistent with the latter two mechanisms of emotional contagion (physiological feedback-emotional experience), all belonging to "bottom-up"

manners of emotional arousal which aroused the emotion through physiological feedback. Different from emotional contagion, James-Lange Theory did not explain some crucial questions as “what induces peripheral changes of the body”, “what is the relationship between the peripheral changes of the body and stimuli events (real emotional situation)” and “what role do stimuli events play in emotional arousal”. We might not experience the same emotion even if we had same peripheral changes of the body, such as the “escape”—we might not experience “fear”, while we might feel “disgusted”. It is obvious that there is no one-to-one correspondence between peripheral changes of the body and emotional experience. The stimuli events do play a key role in emotional arousal, while peripheral changes of the body alone cannot fully explain the “bottom-up” emotional mechanism. For more than one hundred year, James-Lange Emotional Theory has always been criticized by people, but it has been enduring, not only showing us a path from the physiological changes to emotional changes, but also leaving people many doubts. James-Lange Theory is an incomplete theory because sometimes “laugh” does not mean happy and “escape” does not mean fear, which is the reason why this theory has been alive while undergoing plenty of criticisms for more than one century. And the research of emotional contagion can fully reveal conditions of the “bottom-up” manner of emotional arousal.

As shown in Figure 1, every section in the mechanism of emotional contagion is linked with one another, and the level of the perceivers’ emotional awareness is high or low [6]. While the amount of emotional information detected by the perceivers has a

direct influence on their level of unconscious mimicry because this is based on the sensory emotional information they can perceive, and there will not exist mimicry without the basic section of information input—awareness. The mimicry enables our muscles to get the same action with others and gives the brain a feedback, making us experience the same emotion with others. Therefore, it can be said that mimicry is the basis of physiological feedback. The mechanism of emotional contagion is a kind of bottom-up emotional mechanism based on unconscious mimicry and physiological feedback without the participation of awareness. The mimicry is often automatic and unconscious. There is unconscious mimicry even when people are watching TV. The emotional experience produced by the audiences’ understanding of the plot is called empathy, and the empathy for the characters in the TV series can be enhanced by unconscious mimicry [4]. The mimicry is a key link of the emotional contagion and it can not only show the mimics’ level of emotional awareness, but also predict their level of physiological feedback and emotional experience. The previous studies did not succeed in demonstrating the causal relationship between the mimicry and emotional contagion and they even denied the role of unconscious mimicry in emotional contagion. For example, the Conscious Emotional Contagion Theory believes that emotional contagion is based on the comparison of the emotion between individuals and other people. If the individuals think that the emotion of other people is appropriate, they will accept it. And the theory holds that the emotion is a process of “shift-in and adjustment” [1], which confuses the relationship among emotional contagion, empathy and emotional adjustment.

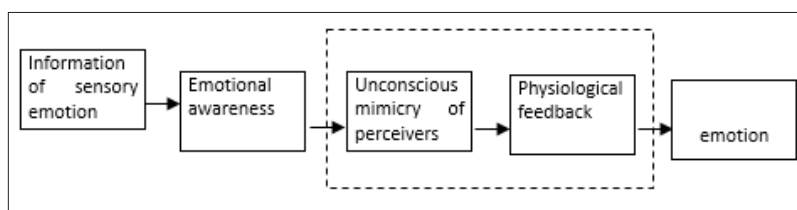


Figure 1: Bottom-up mechanism of emotional contagion.

The key roles of stimuli events in emotional contagion

Emotional contagion means that under certain situation, the mimicry of other people’s emotional behavior activates the physiological response and thus produces emotional experience. There will not be some emotional experiences without the situation even if there is peripheral physical behavior. For example, people may not feel happy even if they have the act of laughing. Likewise, in the real emotional situation (stimuli events), the emotional experience that is the same with the situation will be produced if there is physiological feedback and it can get “reasonable” explanations. For example, the suspension bridge experiment of Aron, A. aroused the emotion just because of the false attribution of physiological feedback, and the false attribution happens unconsciously. This is a vivid interpretation of the James-Lange Theory with a limitation that it only realizes that the changes of the body can arouse the emotion, but it is not aware that the changes of the body need the individual to “reasonably” explain in the real situation, and physiological feedback alone cannot arouse the corresponding emotion without unconscious interpretation. For example, the

act of “beat” may not arouse “angry” as hammering the nail also has the act of “beat”, but the individual will not feel angry. And the emotional contagion happens just in the real emotional situation and more detailed, in the mimicry of the emotion of other people. Obviously, this physiological feedback can be explained reasonably, so the bottom-up emotional experience can be aroused. In short, the stimuli events play two key roles in emotional contagion: one is activating their own physiological feedback through the perceivers’ unconscious mimicry of the expressions of other people, and the other is making reasonable explanations for the perceivers’ physiological feedback. And the role of stimuli events in the James-Lange Theory is also reflected in two aspects:

1. One is activating the peripheral changes of the body (for example, people will “escape” on seeing the dog chasing them),

And the other is making the reasonable explanations for these peripheral changes of the body (the dog may bite me). It is obvious that separated from the stimuli events, peripheral changes of the body cannot explain the emotional arousal reasonably. In addition,

the James-Lange Theory is not omnipotent, which only describes one kind of bottom-up way to arouse the emotion rather than the only way.

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