The Effect of External Threat Level on Creativity: The Dual Mediating Role of Emotion and Dual Processing

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Abstract

This study conducts an in-depth investigation into the influence of external threat levels on creativity by employing experimental intervention and questionnaire survey methods. Taking 400 college students as the research samples, this research aims to explore and reveal the mediating effect of emotion and dual processing on creativity. The results of the study demonstrated that threat level, emotion, and dual processing pattern were directly and significantly positively correlated with creativity. Specifically, threat directly impacts creativity. Moreover, emotion and dual processing play mediating roles between threat level and creativity. This research provides valuable insights into understanding the complex relationship between external threat levels and creativity and offers a theoretical basis for further exploring ways to enhance creativity in different contexts.

Key words: *Threat; Creativity; Emotion; Dual Processing*

1 Introduction

With the advancement of society, various sectors show a momentum of rapid development, especially artificial intelligence, intelligent manufacturing , and other high-tech fields more attention, it relates to the development capability of society.Under the background of social development and demands, innovation is significant, and Individual creativity constitutes the principal source of this phenomenon. The level of individual creativity not only depends on the accumulation of knowledge, logical thinking ability, vision degree ,and other factors, but also from all sides of the influence. Presently, the most influential factors of creativity are threats (Raja, U.et., 2020).

Creativity is a key ability for individual and social development, its influence mechanism has been paid attention to by various disciplines. The current society is competitive, and individuals face unprecedented threats. The degree and nature of these threats vary, and the impact on creativity varies significantly (Raja. et., 2020). Although the relationship between threat and creativity has been studied in the past, the mechanism of action is not fully understood. According to existing studies, emotions play an essential mediating in individuals' perception and response to threats (Baas.et., 2008). When faced with a threat, individuals may experience various emotions, ranging from mild nervousness to extreme fear. Positive emotional states are conducive to creativity; however, negative emotions may limit the flexibility and openness of thinking and hinder the production of creativity (Clore.et., 2007). At the same time, the dual Processing theory also provides a new perspective for us to understand the relationship between threat and creativity. In response to threats, individuals' cognitive Processing patterns may change. Individuals will adopt different Processing patterns according to stimuli (Evans, 2008).

The research purpose that is explore the influence of threat level to creativity, and focus on the dual mediating role of emotion and dual Processing. By uncovering this complex relationship, we hope to can provide more targeted strategies and recommendations for individuals and organizations to respond to threats and inspire creativity. Whether fostering innovation in students in the field of education or promoting creativity in employees in a corporate setting to promote innovation and development, understanding the subtle relationship between threat levels and creativity has essential theoretical and practical implications. It is not only helps individuals to display their creativity in a challenging environment better, but also creates a more favorable atmosphere and conditions for innovation in organizations and society.

1.1 Research problem

In today's society, creativity is a crucial factor in promoting the development of individuals and society, and its influencing mechanism has always been a research hotspot in psychology, cognitive science, and other fields. Emotion and cognitive processing styles, particularly dual processing, are recognized as critical factors influencing creativity. Additionally, the level of threat—an environmental variable—may exert significant effects on individual emotions, cognitive processing, and creativity. Nevertheless, current research remains limited in its exploration of the relationship between varying levels of threat and their impact on emotion, dual processing, and creativity. Furthermore, understanding the predictive and mediating roles of emotion and dual processing in relation to creativity presents a substantial opportunity for further investigation.

1.2 Research gap

The first research gap is the lacking in-depth research and a clear understanding of how different threat levels specifically affect emotion, dual Processing, and creativity, as well as the mechanisms by which they interact.

The second research gap concerns the predictive effect of dual Processing on creativity is non-significant . Although some studies have shown that systematic Processing plays an essential role in some creative tasks (Wang et al., 2022; Li et al., 2022), the role of heuristic Processing and how the synergistic or competitive relationship between the two influences creativity remains to be further explored. More

importantly, few studies have considered the co-predictive effects of emotion and dual Processing on creativity, and how their interaction affects creativity generation and development.

The third research gap is that minimal research on whether and how emotion and dual Processing mediate different between threat levels and creativity (Chen et al., 2021). For example, does emotion act as a mediating variable in the process of threat level affecting creativity, that is, threat level affects creativity by triggering specific emotional states? Does dual Processing play a similar mediating role in this process? Or do emotion and dual Processing form a complex network of mediators, and mediate the relationship between threat level and creativity? The answers to these questions have important implications for a deeper understanding of how creativity is formed and how it can be stimulated in different contexts.

1.3 Research objectives

RO1: To examine the existential effect analysis of different threat levels and emotions, dual Processing, and creativity

RO2: To examine the predictive effect of emotion and dual Processing on creativity

RO3: To examine the mediating effect of emotion and dual Processing on creativity

1.4 Research Questions

RQ1: Is there effect of different threat levels and emotions, dual Processing and creativity?

RQ2: What are the predictive effects of emotion and dual Processing on creativity?

RQ3: Is there a mediating effect between emotion and dual Processing on creativity?

2 Literature Review

The literature review is an essential basis for this study. The primary purpose of this part is to elaborate on threat level, emotion, dual Processing, and creativity, to clarify the significance of this study further. At the same time, the relevant framework will be elaborated in this parts.

2.1 Review of relevant research

Threat refers to the stimulus that affects or harms individuals, which can be divided into physiological threats and social threats from the impact level（Johnson, B.，2021）. Physical threat refers to the stimulus directly acting on the body of an individual and causing physical damage to the individual, with direct and realistic characteristics (Bulley, A., Henry, J. D., & Suddendorf, T., 2017). Social threat is the stimulus that affects an individual's social status, with potential and uncertain characteristics (Hirschberger, G.et., 2016). In the present study, there is research evidence that threats play a role in three aspects of individual creativity: First, threats hinder creativity. For example, Hu found that threats can reduce the cognitive speed of individuals and limit the innovation of thinking (Hu et al., 2012). Second, threats promote creativity. For example, motivational anxiety theory emphasizes that threats and other factors can stimulate specific brain regions and start the allocation of cognitive resources. The human resources necessary to enhance creativity (Baas et al., 2019). Third, there is an inverted U-shaped relationship between threat and creativity. Byron(2010) found through meta-analysis that moderate threat would promote the improvement of creativity, confirming an inverted U-shaped relationship.

According to existing research, emotions also play a significant role in creativity. The dual competition theory points out that negative emotions affect the level of creativity through influencing the allocation of individual cognitive resources (Tremoliere B.et., 2016). The anxious working memory theory also confirmed the influence of emotion on creativity (Gawda, B., & Szepietowska, E., 2016). The cognitive

regulation theory also emphasizes that individuals will adjust their thinking under different situations, which is conducive to solving existing problems (Shen, W. B. et al., 2019). According to the activation theory, emotional arousal also has an impact on creativity, with both high and low arousal having a limiting effect on creativity, In contrast, moderate arousal has a promoting effect on creativity (Burns, P., & Egan, C., 1994). From the above research theories, it can be found that emotion plays a direct role in creativity. According to the two-dimensional theory of emotion, there are two dimensions of emotional effective valence and arousal (Ye et al., 2023). Among them, emotional valence refers to the nature of emotion, which divided into positive and negative, and emotional arousal refers to the degree of emotion, which divided into high arousal and low arousal.

At the same time, according to existing studies, the influence of emotional valence and emotional arousal on creativity mainly plays a role at the cognitive level. On the cognitive level, the direct influencing factor is the difference in thinking patterns (Shen et al., 2019). According to the thinking model difference, the cognitive process can be divided into two ways of Processing: feeling and perception. In real life, in the face of different stimulus sources, the individual will appear the conflict between sensibility and rationality. Sensibility refers to rapid and intuitive giving responses, similar to sensory Processing; Rationality refers to the response given through logical analysis, which is similar to perceptual Processing (Ye Shuqi, et., 2023). The difference between these two modes of thinking that the dual Processing theory (Evans et al., & Stanovich et al., 2013). According to different information Processing methods, the theory divides cognitive processes into two types, intuitive Processing (T1) and analytical Processing (T2). Intuitive Processing is based on sensibility thinking mode, giving information rapid and unconscious Processing process; Analytical Processing is a slow, conscious process of giving information based on rational thinking patterns (Van et al., 2020).

In addition, some studies show that emotions also play a role in intuition and analytical Processing. Langley (2018) found through experimental research that under negative emotional states, individuals are more inclined to intuitive Processing (Langley, S., 2018). Remmers and Zander (2017) limited the results that negative emotional states would reduce an individual's intuitive Processing ability. Bookbindert and Brainerd(2017), through their research on emotional arousal and false memory, found that individuals with high-arousal emotional states would produce more false memories. Sohn (2015) found through the study of image induction that individuals in a state of high arousal are more inclined to intuitive Processing.

According to the above research statement, it can be found that threat level and emotion play a direct role in creativity, while emotional valence and emotional arousal affect individual Processing modes. Therefore, it can be inferred that emotion and Processing modes play a particular role in the relationship between threat and creativity, and further research is needed to clarify the internal mechanism and relationship between the four.

2.2 Theories underpinning the study

2.2.1 Two-factor theory of emotion

So far, there is no precise definition of a universally accepted emotion. Domestic scholar Peng Ranling (2012) pointed out in his research that emotion can be regarded as a psychological activity mediated by individual wishes and needs. Many theoretical models describing emotional outcomes, but in this study, the arousal model of emotion is the most typical. In this model, it is pointed out that valence and arousal are two independent dimensions of emotion (Posner et al., 2005). Among them, arousal has a calm-exciting bipolar, and valence has an unpleasant (negative) - pleasant (positive) bipolar (Russell,1991). The ring model of emotion uses two orthogonal axes to describe the two dimensions of emotion, the horizontal coordinate represents valence, and the vertical coordinate represents arousal, and the two coordinates cross to form four quadrants. Different valence and arousal levels are combined to form different emotions, as shown in Figure 1.

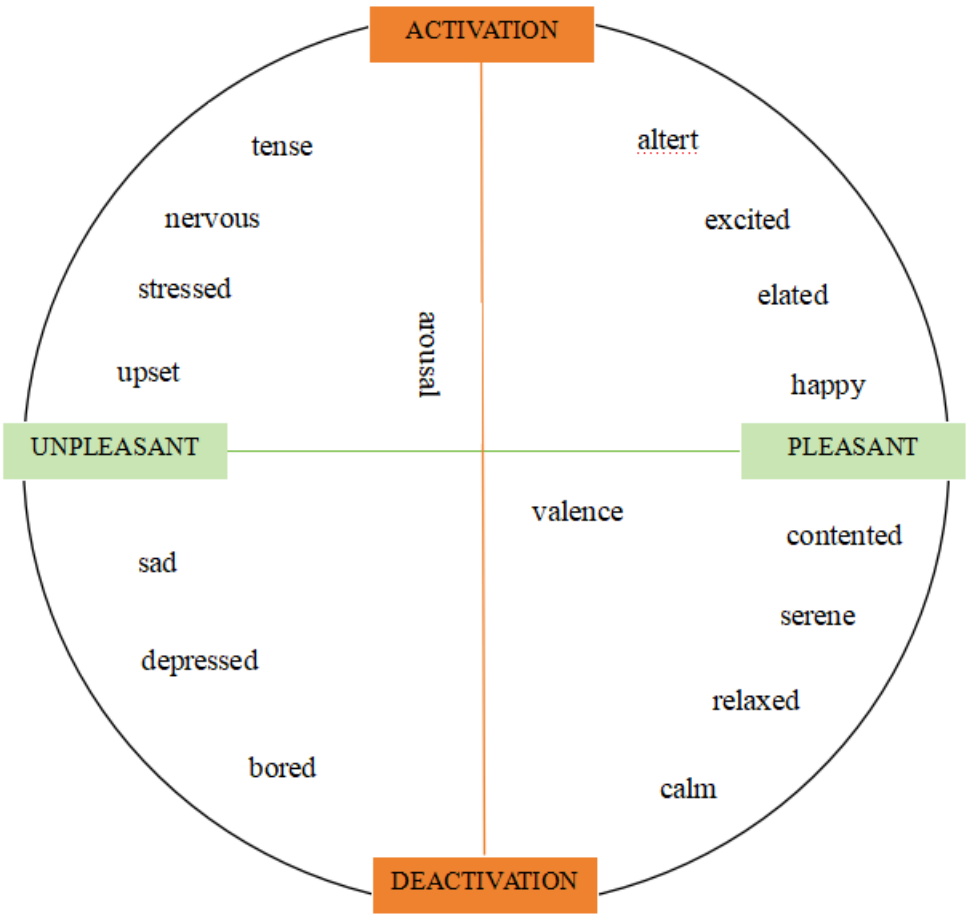

Figure 1 is reprinted from Kai-Yen Wang , Yun-Lung Ho , Yu-De Huang , Wai-Chi Fang， Institute of Electrical and Electronics Engineers Inc.，2019，142-145

Colibazzi (2010) pointed out that two dimensions of emotional valence and emotional arousal were related to brain regions. The activation of the amygdala, promotion of high arousal (Anderson et al., 2003), exceptionally high arousal of negative emotions. Moreover, the brain's frontal lobe and others associated with emotional valence (Beauregard et al., & Bourgouin, P., 2001).

2.2.2 Dual-Process Theory

Dual-process theory is an essential theoretical framework in cognitive psychology (Evans et al., 2008). The theory states that there are two different ways of Processing in the human cognitive system: intuitively heuristic "Type 1 Processing," which is an automatic, rapid, and unconscious Processing that relies on factors such as intuition, experience, and emotion. It does not require much cognitive effort and can reach conclusions or react quickly. It is highly efficient when dealing with ordinary, familiar situations, allowing for quick decision-making and saving cognitive resources. However, they may be influenced by prejudice, stereotype, and wrong intuition, leading to decision-making errors (Stanovich et al.,2011); Type 2 Processing: a controlled, slow, conscious way of Processing that requires more cognitive effort and attention. It is based on logical analysis, rule following, and careful thought. It can deal with complex and novel problems more accurately and avoid errors caused by intuition. However, the speed is slower, and may be difficult to fully function in tight time or limited cognitive resources (Stanovich et al., 2011).

2.3 Conceptual Framework of Study

Threat level: The term 'threat' denotes stimuli that can adversely affect individuals. Based on the nature of their impact, threats can be categorized into physiological and social dimensions (Johnson, B., 2021). In this study, threat is defined as the influence stemming from an individual's self-assessment of their external environment, encompassing both high-level and low-level threats.

Emotion: Emotion refers to the inner feelings expressed by an individual through behavior. Including emotional valence and emotional arousal (Baas et al., 2008). Emotional valence refers to evaluation of emotional attributes, including positive and negative emotions, emphasizing how much an individual likes and dislikes a particular event. In this study, emotional valence refers to the attributes of an individual's emotions, including positive and negative emotions.

Arousal emotions include sadness, anger, and being amused. Whether due to emotional arousal or other reasons, when people are mentally awakened, nervous system is activated, to promote the spread of social behavior. In this study, emotional arousal refers to the intensity of individual emotional responses, including two dimensions : high arousal and low arousal.

Dual Processing is two different Processing ways in human psychological processes such as information Processing, cognition, decision making, and solve the problem. Two modes are included: automatic, unconscious, rapid, intuitive, and experience-based Processing, and the other is controlled, conscious, based on logical analysis and deliberate Processing (Toplak et al., 2014). In this study, double machining includes intuitive machining and analytical machining.

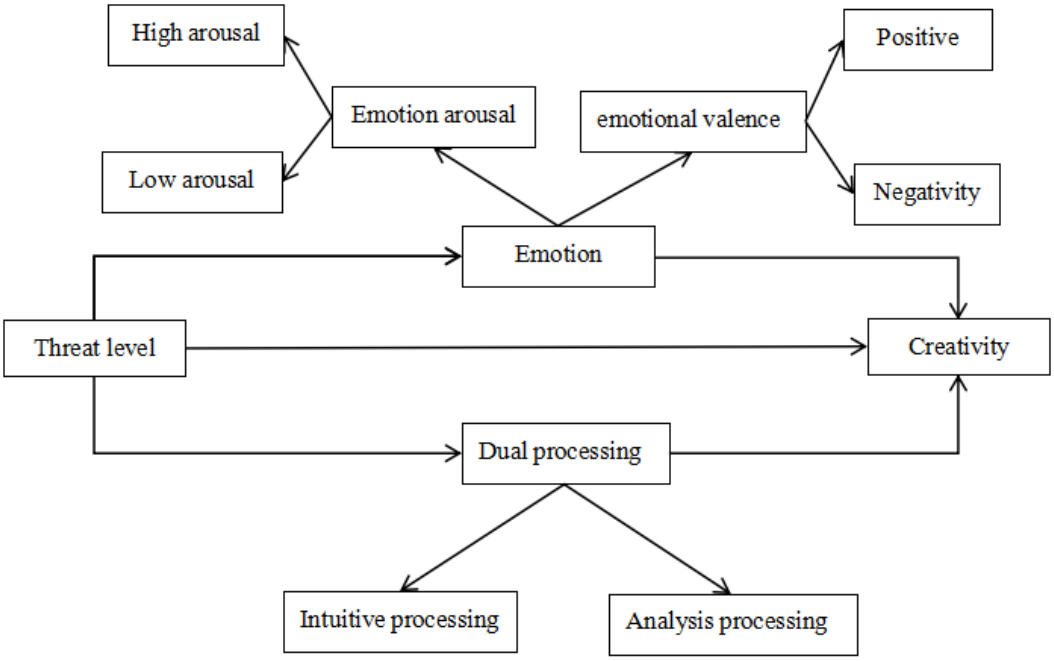

Figure2 Conceptual Framework

3 Research Design

3.1 Research subjects

400 college students were recruited as research subjects in this study, including 220 male students and 180 female students, covering all grades from first-year students to seniors. See Table 1 for details.

Table 1 Basic information of study subjects

Item	Sex		Grade				Origin	
	M	F	Freshman	Sophomore	Junior	Senior	City	Rural
N	220	180	120	100	100	80	260	140

3.2 Research Tools

3.2.1 Threat stimuli

The dual factors of pictures and video clips are used as threat stimuli. According to the pilot study, snakes, natural disasters, car accidents, and other pictures and Sadako, death is Coming, roller coaster, and other scary clips present a high degree of threat. Images such as starry sky and deep sea, and clips such as police and racing cars show a low level of threat.

3.2.2 Measurement Tools

The positive and negative emotion scales were used to measure the emotional valence attributes. Self-assessment scale was used to measure emotional arousal level. The thinking mode measurement scale was used to measure the thinking Processing mode. The Karwowski Creativity self-rating Scale was used to evaluate the level of creativity.

3.2.3 Analysis Tools

The data analysis was conducted using SPSS and EQS.

4 Research Results

4.1 Analysis of the effects of different threat levels on emotion, dual Processing, and creativity

Table 2 Effects of emotion, dual Processing, and creativity under different threat levels

Item	Threat levels	M±SD	t
Positive emotion	High-level threat	1.01±0.012	14.898***
	Low-level threat	1.74±0.443	
Negative emotion	High-level threat	1.79±0.412	13.016***
	Low-level threat	1.08±0.265	
High arousal	High-level threat	1.21±0.412	6.188***
	Low-level threat	1.65±0.480	
Low arousal	High-level threat	1.33±0.471	4.890***
	Low-level threat	1.69±0.466	
Intuitive Processing	High-level threat	1.10±0.098	13.183***
	Low-level threat	1.69±0.466	
Analysis Processing	High-level threat	2.05±0.012	13.577***
	Low-level threat	1.30±0.461	
Creativity	High-level threat	6.30±1.226	1.192***
	Low-level threat	6.58±1.659	

Table 3 Correlation matrix of emotion, dual Processing, and creativity

	Emotional valence	Emotional arousal	Intuitive Processing	Analysis Processing	Creativity
Emotional valence	1				
Emotional arousal	0.577*	1			
Intuitive Processing	0.863**	0.577*	1		
Analysis Processing	0.769*	0.601*	0.553*	1	
Creativity	0.707*	0.692*	0.707*	0.610*	1

According to the results in Table 2, different degrees of threat impact emotional valence, emotional arousal, and dual Processing mode. A high degree of threat will lead to low arousal of negative emotions, and individuals tend to analyze and process. A low threat level will lead to low arousal of individual positive emotions, and individuals tend to intuitive Processing. At the same time, from the index point of

view, A low threat level has a more significant promotion effect on individual creativity.

In addition, Table 3 shows that emotional valence, emotional arousal, dual Processing, and through the above analysis, it can be found that threat level has a significant influence on individual emotion, dual Processing mode, and creativity. It can be concluded that threat, emotion, and dual Processing modes all play a direct role in creativity.

4.2 The predictive effects of emotion and dual Processing on creativity

Adopt multiple regression analysis, the analysis results showed that both emotion and dual Processing scores were entered into the regression equation, and emotion and dual Processing played a predictive role in creativity.

Table 4 The predictive effects of emotion and dual Processing on creativity

Predictor variable	Result variable	Beta	R^2	ΔR	t
Emotional valence	Creativity	0.436	0.426	0.411	7.872***
Emotional arousal		0.489			7.168***
Intuitive Processing		0.462			6.985***
Analysis Processing		0.471			6.963***

4.3 Relationship model and the mediating effect of emotion and dual Processing on creativity

In order to further explore the relationship between threat level, emotion and dual Processing, and creativity, the following hypotheses are put forward: First, threat level directly affects creativity; Second, emotion and dual Processing play a mediating role; Third, emotion and dual Processing directly affect creativity.

According to the above assumptions, EQS data analysis software was used to test the model. The results indicated that RMSEA=0.275, GFI=0.912, CFI=0.923, X2/df=0.534. These findings suggest that the model demonstrates a good fit. In this framework, threat level, emotion, and dual processing exert direct effects on creativity; additionally, threat level influences creativity indirectly through emotion and dual processing. Consequently, these results imply that both emotion and dual processing serve as mediators in the relationship between threat and creativity.

5 Discussion

5.1 Threat level has a direct effect on emotion and dual Processing mode

It is true that different levels of threat level trigger very different emotional responses and dual Processing mode selection. When individuals face high levels of threat, a state of low arousal of negative emotions tends to follow. In this context, the individual's Processing mode will be more inclined to analytical Processing. This emotion is not an intense excitement or outburst, but a deep, depressed state of low

arousal. The brain quickly starts analyzing Processing patterns, carefully evaluating various factors , such as the intensity of risk, and trying to figure out the most effective coping strategies. This kind of analysis and Processing needs to mobilize a lot of cognitive resources, and the individual's attention will be highly focused, like a strained bowstring, always ready to deal with possible dangers.

From the point of view of physiological indicators, in the face of a high degree of threat, the body will secrete a large amount of adrenaline, and all focus on coping with possible dangers. It is like an emergency mobilization inside the body, with all systems on high alert. The brain is highly focused state to ensure an accurate assessment and response to threats. At this time, other non-critical physical and psychological activities are temporarily suppressed, all in the service of survival and coping with threats (Kahneman, D, 2011).

In contrast, when individuals are exposed to low levels of threat, the situation is very different. At this time, individuals tend to have a high arousal state of positive emotions, and their Processing mode is more inclined to intuitive Processing. For example, a student facing a moderately tricky exam may feel excited and confident, seeing it as an opportunity to demonstrate his abilities rather than a potential threat. In this situation, he will be less analytical and deliberate than when facing a high threat, relying more on intuition and experience to react quickly. He believes in his own ability to solve the problem, so he does not see it as a threat factor that requires high vigilance, and may even see it as a somewhat challenging but surmountable situation. This state of positive emotional hyperarousal prompts him to respond to challenges more quickly and confidently, and his concentration level is less than that of high-level threats (LeDoux, J, 1996).

The reasons for the above situation involve human instincts and evolutionary mechanisms. In the long process of evolution, humans have gradually formed a self-protection mechanism in the face of intense crises. When faced with a high degree of threat, such as natural disasters, animal attacks, and the survival of an individual is directly threatened, the brain will prioritize the analysis and Processing mode to ensure that the threat can be comprehensively and deeply assessed and the most effective response strategy can be developed. This highly focused attention and analytical ability is designed to increase the chances of survival in extremely dangerous situations (Damasio, A. R, 1994).

When faced with a low level of threat, individuals are able to show more positive emotions and more intuitive Processing patterns because the level of threat is considered manageable and manageable within the range of human experience and capabilities. This confidence enables individuals to face it with relative ease and make decisions quickly (Eysenck et al., & Keane et al.,2015).

Further research has revealed that individuals' perceptions and judgments of threat levels are not entirely objective; rather, they are influenced by a variety of factors. An individual's experiences, personality traits, values, and environmental context all contribute to their assessment of threat severity. For instance, a person who has successfully navigated a similar challenge may evaluate the same threat level as lower, thereby exhibiting more positive emotions and employing more intuitive processing patterns. Additionally, social and cultural backgrounds play an indispensable role in this dynamic. In some cultures, a particular situation or event may be considered a high threat, while in cultures, it may be considered a low threat. This cultural difference will further affect the individual's emotional response and the choice

of Processing mode.

5.2 Threat level, emotion, and dual Processing mode have a direct effect on creativity

According to the research results, a low level of threat has a more significant effect on individual creativity, and this phenomenon is closely related to individual self-cognition and self-efficacy. Self-cognition, the individual's clear understanding of their abilities and levels; Self-efficacy refers to an individual's speculation and judgment about his or her ability to complete a specific behavior (Fredrickson, B. L, 2001). When individuals are in a low-threat situation, they will evaluate their psychosocial competence to determine whether they can deal with threats. Because they believe they can cope with this low-level threat, they reduce their allocation of cognitive and physiological resources and adopt more intuitive Processing models to solve problems. This intuitive Processing model allows individuals to respond more quickly, free from too much detail and logic, which has the potential to inspire unique ideas and ideas.

In contrast, in the face of a high threat level, the individual's resource allocation strategy is completely reversed. They will mobilize almost all resources and adopt an analytical Processing model to solve the problem. In this case, the individual's brain will think deeply and carefully, weighing various possibilities and consequences, hoping to find the most reasonable and effective solution. However, this highly focused and intense way of thinking may sometimes limit the flexibility and creativity of an individual's thinking.

In addition, the correlation analysis results further revealed that emotional valence, emotional arousal, intuitive Processing, and analytical Processing were significantly positively correlated with creativity, clearly indicating a direct relationship between them. When individuals are in a positive emotional state, and have a high degree of emotional arousal, their thinking is more active, and they are more likely to produce novel ideas and unique insights. This cheerful and highly aroused emotional state can broaden the cognitive range of individuals, enhance the flexibility and divergence of thinking, and thus provide a favorable psychological environment for creativity.

The two models of intuitive Processing and analytical Processing also play an indispensable role in creativity. Intuitive Processing allows individuals to capture inspiration and potential possibilities in an instant, and quickly form initial creative ideas. The analytical Processing can evaluate and improve these preliminary ideas in depth to ensure their feasibility and practicability. Both complement each other and jointly promote the development of creativity (Isen et al., 2000).

For example, in artistic creation, the low-level threat that painters feel when confronted with a blank canvas may stimulate their inner desire to create. With an intuitive brush, they experiment boldly with combinations of colors and lines. In the subsequent creative process, they will use analysis and Processing to examine the composition of the work and whether the color match is harmonious, to constantly improve the work. In scientific research, when faced with a challenging but not unsolvable research problem (low-level threat), researchers may rely on intuition to come up with some bold hypotheses and conjectures. Then, through rigorous analysis and Processing, experimental verification and theoretical derivation of these hypotheses are carried out, and finally, scientific progress and

innovation are promoted.

Not only that, the social environment and cultural background of individuals also impact threat level, emotion, and the relationship between dual-Processing mode and creativity. In cultures that encourage innovation and risk-taking, individuals may be more willing to face low-level threats and see them as opportunities to stimulate creativity. In a more conservative and risk-averse culture, individuals may be more sensitive to perceived threats, thus inhibiting creativity to some extent.

Educationally, understanding these relationships can help design more inspiring and innovative teaching methods. By creating an appropriate level of threat situation, we can cultivate students' self-cognition and self-efficiency, and guide them to flexibly use intuitive Processing and analytical Processing modes, to stimulate students' creativity. For enterprise managers, understanding emotions and thinking patterns of people at different threat levels can create a working atmosphere more conducive to innovation, allocate work tasks and resources reasonably, improve the innovation potential of employees, and the competitiveness of enterprises.

5.3 Emotion and dual Processing modes play a mediating role between threat level and creativity

Through a series of rigorous exploratory, correlation analysis, and multiple regression analysis, can reveal a significant correlation between these variables, and they influence and interact with each other.

Firstly, it is worth noting that emotional valence, emotional arousal, intuitive Processing, and analytical Processing have a significant positive effect on creativity. Emotional valence, the positive or negative nature of emotions, primarily affects an individual's mental activity and openness. When individuals are in a positive emotional state, they are more likely to think about problems openly and flexibly, which makes it easier to generate novel and unique ideas and promote the development of creativity. Emotional arousal is related to the intensity of emotions. Moderate emotional arousal can stimulate the motivation and attention of individuals and make them more focused on creative tasks, thus promoting the play of creativity (Baas et al., & Nijstad, et al., 2008).

Intuitive Processing and analytical Processing, as two different cognitive models, also play a crucial role in creativity. With its rapid and unconscious characteristics, intuitive Processing allows individuals to capture inspiration and potential possibilities instantly, providing an opportunity for the germination of creativity. Analytical Processing, on the other hand, evaluates and improves the initial ideas generated by intuition systematically and logically to ensure the feasibility and quality of the ideas (Forster, J., Friedman, R. S., & Liberman, N, 2004).

Further investigations into the mediating effects indicate that emotion and dual processing modes serve a dual mediating role between threat level and creativity. This suggests that they not only exert direct influence on creativity but also affect it indirectly. Specifically, on the one hand, threats, emotions, and dual Processing patterns directly affect creativity. When individuals are faced with different levels of threats, the emotional states triggered, and the Processing modes adopted will directly affect the play of creativity. For example, in low-threat situations, individuals may experience more relaxed and positive emotions and tend to use intuitive Processing patterns. This state helps them explore and associate more

freely, thus stimulating creativity.

On the other hand, threat also indirectly on creativity through emotional and dual-Processing modes. First different levels of threat will trigger specific emotional responses, then affect the Processing mode selected by the individual, and ultimately have an indirect impact on creativity. For example, high-threat may cause individuals to develop feelings of anxiety and tension, prompting them to adopt more analytical Processing modes, and In some cases, this combination of emotions and processing patterns may limit the full development of creativity..

Emotion and dual processing models are the focus of research and have a profound impact on individuals in real life. Through in-depth analysis of the relationship between them, we can clarify the specific mechanism of emotion and dual Processing mode under different threat levels, and provide a solid reference for formulating effective intervention programs in the later stage.

In the fields of education, understanding this relationship helps teachers guide students to adjust their emotional states and thinking patterns according to the learning pressure they face (i.e., threat level) to cultivate and enhance students' creativity. For example, for students facing exam stress (high threat), teachers can help them ease anxiety and encourage flexible thinking to better cope with exams and be creative. In the work scene, managers can create an appropriate working environment and task difficulty (adjust the threat level), pay attention to employees' emotional changes, and cultivate their ability to flexibly use different Processing modes, to stimulate employees' innovation potential, improve work efficiency and innovation results. In terms of personal growth and development, individuals themselves can also take the initiative to adjust their mentality and coping styles in the face of various challenges (threats) by recognizing the relationship between threats, emotions, and Processing patterns, to better exert their creativity and maximize their value.

6 Conclusion & Proposed Framework

6.1 Conclusion

It is a significant direct positive correlation between threat, emotion, dual Processing mode, and creativity. At the same time, on the one hand, threat, emotion, and dual Processing mode can directly affect creativity; on the other hand, threat can indirectly affect creativity through emotion, and dual Processing. In addition, different threat levels can cause different emotional valence, emotional arousal, and creativity levels.

6.2 Proposed Framework

Based on previous studies, this study explores the relationship between threat, emotion, dual Processing mode, and creativity, and explores the internal relationship between them. However, due to the limitation of research time and research tools, it is not possible to research from brain regions, nerve fluctuations, and other physiological indicators. In the later stage, more perfect research tools will be used for in-depth exploration. In addition, through analysis, this study found that different threat levels would produce different emotional performances and adopt different Processing modes for individuals, and conducted

in-depth discussions.

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