

The Influence of Parental Warmth and Family Rearing Style on College Students' Creativity Tendency: The Mediating Role of General Self-Efficacy

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ABSTRACT

Family is the first environment that affects people's psychological development. In recent years, with people's attention to education, more and more people began to pay attention to the impact of family upbringing on children's physical and mental development. People also pay more attention to the impact of family upbringing on children's creativity and general self-efficacy. The objective of this research is to explore the relationship between parents' emotional warmth and college students' creativity tendency, and to examine whether general self-efficacy plays a mediating role. There was a significant positive correlation between emotional warmth and creativity tendency at the level of 0.05. Emotional warmth was positively correlated with creativity tendency at the level of 0.01, and emotional warmth was positively correlated with general self-efficacy at the level of 0.01. There was a significant positive correlation between emotional warmth and general self-efficacy at the level of 0.01. General self-efficacy plays a complete intermediary role in parents' emotional warm and college students' creative tendency. In sum, parental affective warmth can affect college students' creative tendency through general self-efficacy. In this study, there were certain regional restrictions in the selection of samples, and only subjects from Shanghai and Hebei Province were collected. To control the number of questions, most of them were from the simple version of the scale. Future research can improve the above two aspects. More in-depth research can be carried out from this perspective in the future.

Keywords: College Students Creativity, Family Rearing Style, General Self-Efficacy

1. INTRODUCTION

"Family rearing style" is the comprehensive embodiment of parents' educational behavior, rearing concept, and emotional requirements for their children. Affected by their educational level and personality characteristics [1]. Creativity was a concept put forward by American psychologist Gilford in 1950 [2]. He believed that creativity had the characteristics of thinking flexibility, sensitivity to problems, conceptual fluency and initiation, and analysis and synthesis. The essence of creative thinking is divergence and transformation. General self-efficacy refers to an individual's subjective judgment on whether he can succeed in certain achievement-related behavior. Bandura believed that general self-efficacy determined people's choice of activities and their persistence in the activities. It affects

people's attitude and behavior acquisition in the face of difficulties, and then affects the emotions during activities [3].

In recent years, studies have shown that parental rearing style has a particularly prominent impact on college students' creativity. Democratic upbringing, receptive upbringing, and encouraging education are conducive to the cultivation of children's creativity [4, 5, 6]. On the contrary, autocratic doting or simple and rough upbringing is not conducive to the development of children's creativity. Gu found that the early creative characters of families generally had strong control, organization, independence, and intimacy, and showed great attention to morality and ethics [7]. An environment, in which protects children's thirst for knowledge and curiosity and pays attention to children's

independent development, can promote the development of children's creativity. Family rearing style also plays an important role in the cultivation of college students' sense of self-efficacy. Results of previous studies showed that parental rearing patterns had a significant effect on their children's self-concept and mental health. Parents need to adopt a positive way of education, which is conducive to children's formation of good self-concept, to deal with the pressure and anxiety in learning and life [8]. Most studies have verified the correlation between innovative self-efficacy and creativity [9]. Innovative self-efficacy was a new definition put forward by Tierney and Famo based on Bandura's self-efficacy theory and their understanding.

This study hypothesizes that there is a significant correlation between self-efficacy and creativity (hypothesis 1). Based on previous studies, this study hypothesizes that family rearing style has an impact on college students' creativity, and self-efficacy plays an intermediary role (hypotheses 2 and 3). This study aims to provide a theoretical basis for the cultivation of children's creativity from the perspective of family rearing style as an environmental variable. In addition, it further examines the intermediary role of self-efficacy as an individual psychological factor. The current research has a practical value regarding how to improve student's creativity through intervening family rearing styles.

2. MATERIALS AND METHODS

2.1. Participants

The students from Shanghai University of Political Science and Law and Hebei Vocational College of Foreign Trade and Economic Cooperation were randomly selected as the subjects, and 520 questionnaires were distributed through the online answering of the questionnaire star. After eliminating the incomplete information and making the questionnaires without serious answers, 500 copies (96.2%) were effectively recovered. Among them, 192 were male (38.4%) and 308 were female (61.6%). There were 150 (30%) in Arts and 350 (70%) in science, and 68 only children (13.6%) and 432 non only children (86.4%). There were 68 people in urban areas (13.6%) and 432 people in rural areas (86.4%). The average age of the subjects was 20 years old, with the age range 18-22 years.

2.2. Measurement

2.2.1. Williams Creativity Tendency Scale

Revised by Lin and Wang based on the combined creativity test prepared by Williams [10]. The scale consists of 50 items, including 4 creative characteristics of risk-taking, curious, imaginative and challenging. The survey uses 3 points for scoring, 1 for "completely

inconsistent", 2 for "partially consistent" and 3 for "fully consistent". The higher the score is, the more obvious the tendency of creativity is, among which 4, 9, 12, 17, 29, 35, 45 and 48 are reverse topics. In this study, the risk-taking, curious, imaginative, challenging dimensions and overall α coefficient were 0.591, 0.760, 0.729, 0.711, 0.890, respectively. After adjustment, the internal consistency coefficient of the fifth question, the twenty-ninth question and the thirty-fifth question of the risk dimension is 0.708, which is acceptable.

2.2.2. General Self-efficacy Scale

General self-efficacy scale (GSES) was used in this research, which was compiled by German psychologist Schwarzer and translated by Chinese scholar Zhang and revised by Wang and colleagues (2,000) [11]. The scale has a total of 10 questions, taking 4 levels of scoring, "completely correct" for 4 points, "mostly correct" for 3 points, "slightly correct" for 2 points, and "completely incorrect" for 1 point. The higher the score is, the higher the general self-efficacy is. In this study, the internal α consistency coefficient is 0.923, with good reliability.

2.2.3. EMBU

Simplified scale of EMBU (Egna Minnen av Barndoms Uppfostran-own memories of parental rearing practices in childhood) was revised by Jiang and colleagues in 2010, which was divided into father version and mother version (21 items each), and consisted of 3 dimensions of rejection, emotional warmth and over protection, with a total of 42 questions [12]. According to the needs of the study, only the emotional warmth dimension in the scale was used, including 2, 6, 9, 11, 13, 17 and 21 questions. This table uses 4 points of scoring, 1 represents "never", 4 represents "always", and the higher the score, the more parents' behavior performance on a certain factor. The internal consistency coefficients of the 2 dimensions of the father and the mother of emotional warmth are 0.859 and 0.851, respectively, with good reliability.

2.3. Procedure

The researcher created a questionnaire that was published through Questionnaire Star and distributed to the subjects in the form of an online completion. All subjects completed the questionnaire on three dimensions of creativity, parenting style and self-efficacy. Finally, the data was viewed at Questionnaire Star through online recall and the final analysis led to conclusions.

2.4. Data Analysis

This study investigated issues related to the creativity tendency of university students. Through questionnaires, the current study examined the influence of family

parenting style and general self-efficacy on the creativity of university students, and revealed the different roles played by different family parenting styles in self-efficacy and the creativity of university students in China.

The data collected from the questionnaire was processed by SPSS 25.0, and correlation analysis was used to explore the relationship among warm family education, general self-efficacy and creativity. In addition, AMOS 23.0 software was used to analyze the mediating effect of general self-efficacy on parenting style and creative tendency.

3. RESULTS

3.1. Correlation of Study Variables

Table 1. Descriptive statistics and univariate correlations of study variables.

Variables	M	SD	Correlations(r)								
			1	2	3	4	5	6	7	8	
1.Warmth (F)	19.32	4.57	1								
2.Warmth (M)	19.96	4.3	.868**	1							
3.Adventure	17.28	2.43	.130**	.154**	1						
4.Curiosity	29.95	3.96	.111*	.151**	.695**	1					
5.Imagination	24.99	3.81	-0.026	-0.023	.568**	.605**	1				
6.Challenge	26.54	3.02	.139**	.165**	.684**	.685**	.431**	1			
7.Creativity	104.23	11.18	.102*	.126**	.839**	.901**	.800**	.804**	1		
8.GSE	26.09	5.17	.163**	.118**	.174**	.223**	.117**	.187**	.220**	1	

Pearson correlation analyses were performed among the study variables. As demonstrated in Table 1, the dimensions of emotional warmth father and emotional warmth mother were significantly positively correlated with general self-efficacy. The dimension of emotional warmth father had a significant positive correlation with creativity tendency. Plus, it had a significant positive correlation with the risk dimension and challenge dimension of creativity tendency. Emotional warmth mother had a significant positive correlation with creativity tendency. In addition, it had a significant positive correlation with the three dimensions of adventure, curiosity, and challenge of creativity tendency. Both emotional warmth father and emotional warmth mother were not related to the imagination dimension of creativity tendency.

3.2. The Mediating Effect of General Self-Efficacy

AMOS software package was used to test the mediating effect hypothesis. Among them, parenting style and creativity tendency were potential variables.

The measurement model was established according to the modeling requirements of structural equation model and the dimension attribution of the scale. Emotional warmth father and emotional warm mother constituted parenting styles. Adventure, curiosity, imagination, and challenge constituted creative tendencies. The total score of general self-efficacy was directly used as an observation variable.

Table 2. Path test results.

Path	Non-Standardized Coefficient	Standardized Coefficient	S.E.	C.R.	P
Parenting Styles→ General Self-Efficacy	0.218	0.154	0.065	3.361	***
General Self-efficacy→ Creativity Tendency	0.151	0.228	0.031	4.785	***
Parenting Styles→ Creativity Tendency	0.089	0.095	0.045	1.965	0.049

The results of the path analysis were obtained via AMOS software. The independent variable, intermediary

variable and dependent variable of the structural equation were parenting style (emotional warmth dimension),

general self-efficacy and creativity tendency respectively. The overall fit indexes revealed a relatively good fit between the model and the data ($\chi^2=61.552$; $\chi^2/df =5.129$; RMSEA=0.091; CFI=0.887; NFI=0.866, IFI=0.889; GFI=0.965).

According to the path test in Table 2 parenting styles had a significant positive impact on general self-efficacy ($\beta=0.218$, $P<0.001$). Plus, general self-efficacy had a significant positive impact on creativity tendency ($\beta=0.151$, $P<0.001$). Besides, parenting styles had a positive impact on creativity tendency ($\beta=0.089$, $P<0.05$).

In this study, bootstrap method (5000 sampling times under 95% confidence interval) was used to test the mediating effect. As shown by Table 3, the Bias-corrected 95% Confidence Interval (0.002 - 0.078) of the mediating effect (general self-efficacy) did not contain 0 and the Bias-corrected 95% Confidence Interval (-0.056 - 0.201) of direct effect contained 0. As a result, the mediating effect of general self-efficacy was significant, and the direct effect was not significant. Plus, the mediating effect and the direct effect account for 27.05% and 72.95% respectively. Warm parenting style had a positive impact on children’s creativity through the mediating role of general self-efficacy.

Table 3. Analysis of mediating, direct and total effects of general self-efficacy.

Path	Effect value	SE	Bias-corrected 95%CI		P	Effect proportion (%)
			Lower	Upper		
Mediating effect of general self-efficacy	0.033	0.018	0.002	0.078	0.032	27.05
Direct effect	0.089	0.068	-0.056	0.201	0.282	72.95
Total effect	0.122	0.065	-0.015	0.232	0.081	

4. DISCUSSION

Consistent with the hypothesis, the current study showed that warmth family rearing style had a significant positive correlation with general self-efficacy and creativity tendency. Especially in the two dimensions of adventure and challenge, warmth parenting style showed a good promoting effect. Besides, it also had an impact on creativity by the mediation effect of general self-efficacy.

To verify the influence of democratic and caring upbringing environment on college students’ sense of self-efficacy and creativity, this study selects two dimensions: father’s emotional warmth and mother’s emotional warmth. The results show that this characteristic family rearing style has a significant positive correlation with general self-efficacy and creativity tendency. Especially in the two dimensions of adventure and challenge, parents’ emotional warmth and parenting style play a good role in promoting. The adventurous personality tends to dare to try new things and have a sense of innovation, while the challenging personality tends to actively seek various feasible methods and fear the risk of failure. Parents’ emotional warmth provides the most basic guarantee for children’s psychological safety. On this basis, children dare to participate in risky, curious and challenging tasks. Wang

and Xi believe that the emotional warmth of father and mother is conducive to the good development of personality [13]. Pohlman believes that parents can give their children spiritual support such as encouragement, belief, and sense of belonging [14]. The above studies have similar conclusions with this study. In addition, there is a significant positive correlation between parental emotional warmth and general self-efficacy. Self-efficacy is an individual’s belief judgment or subjective self-feeling about the level at which he can complete the behavior before performing a certain behavior operation. It is a spiritual force inspired by a positive, confident, and promising dynamic psychology [15]. Warmth from parents can improve children’s self-confidence. They believe that they can overcome difficulties through their unremitting efforts, so they will tend to choose risky, curious, challenging, and imaginative tasks to continuously improve themselves. In other words, high self-efficacy can make children have excellent performance in the persistence of choice, the attitude in the face of difficulties, the performance in acquiring behavior and the emotion in activities. The results of this study are consistent with the conclusions of Yao and colleagues, that is, parental preference has a positive predictive effect on general self-efficacy. At the same time, the significant correlation between general self-efficacy and creativity tendency in the research conclusion is also consistent with the characteristics of

high creativity tendency of children with high self-efficacy in real life. For example, such children can consciously and creatively learn, and are willing to think and ask questions.

Congruent with previous research, we found a significant association between parents' parenting style and creative tendency. In a previous study, the results showed that authoritative parenting style can help increase the creativity of children [16]. The study used the Abedi Creativity Questionnaire to test 400 students in the first, second and third grades of middle school, as well as the Baumrind Parenting Style Inventory (PSI) to test their mothers to identify parenting styles. Respondents were asked to rate each item on a five-point Likert-type scale. The results showed a significant positive relationship between creativity and scores of authoritative parents, a significant negative relationship with scores of authoritative parents, and no relationship with scores of permissive parents [16]. The regression results showed that students' creativity could be predicted according to their authoritative or authoritarian parenting style. In conclusion, authoritative parents monitor and influence clear standards of their children's behavior and provide a democratic atmosphere that is reasonable and conducive to providing a basic environment for children's creative activity [17]. Permissive parents relate to their children more like friends. They have a close relationship with their children but with low expectations, which leads to a lack of readiness to make decisions [18]. Authoritarian parents control their children by demanding obedience to parental authority, causing them to grow negative ideas and fear experiencing new things [19].

Furthermore, another previous study also indicated the consistent findings. In the study, researchers administered a questionnaire to 323 honors college students from a Midwestern university to examine the young cohort, the potential relationship between perceived parenting styles, perfectionism, and creativity was examined [20]. The study used correlation analysis and path modeling, and the results showed a positive correlation and fantasy subscale between creativity and permissive parenting, while the path model also proved that permissive parenting style had a significant positive effect on students' overall creativity, while on the contrary, authoritative parenting style had a negative effect, this finding is different from the findings provided by most studies, so this study speculates that maybe permissive and authoritative parenting style is the most important in fostering creativity and may also be influenced by genetics, a question that needs to be explored. In contrast, a negative relationship was found between authoritarian parenting style and creativity, and this relationship was also significant in the path model. Furthermore, in the demanding and responsive dimensions, permissive and authoritarian styles were completely opposite (i.e., authoritarian parents were high

in demandingness and low in responsiveness, whereas permissive parents were vice versa), and opposite parenting styles also had opposite effects on creativity in the path model, so the present study speculates that the combination of these two dimensions is a key part of understanding the effect of parenting styles on creativity. In contrast, this study did not find a significant relationship between the two factors of socially prescribed perfectionism, gender, and overall creativity.

The significant correlation found in this paper was not only a subjective judgment, but also had the biological basis. Si and colleagues systematically investigated if genetic variations in the DRD2 and COMT interacted with parenting style to predict individual differences in creativity using creativity test. Parental authority questionnaire and general intelligence test was used in a sample of 427 Chinese undergraduate students aged 18-22 [21]. Hierarchical regression models were used to examine the interactive effects of variations in DRD2 and COMT single genetic polymorphisms (SNPs) and parenting styles on creativity. After the single variants analyses, five different cumulative genetic scores (CGSs) of DRD2 and COMT was computed, examining their interaction with parenting style on creativity. When examining polymorphisms in isolation, rs5993882 and rs5993883 were found to interact with mother authoritative to predict creativity. Furthermore, between CGSa and mother authoritative a significant two-way interaction was found for predicting originality. In addition, the interaction between CGSb and mother authoritative, CGSc and father authoritative, CGSd and father permissiveness, CGSe and father authoritarianism on flexibility were also significant. However, the negative effect of authoritarian parenting style was only existent in individuals with high CGSe. According to the result, individuals with high CGSe might be more susceptible to the adverse environments.

Parental control might impact adolescents' creativity through influencing their basic psychological needs. In the study by Ghavam et al., the relationship of parenting style, basic psychological needs, and emotional creativity was investigated and whether the fulfillment of basic psychological needs acted as a mediation between parenting style and emotional creativity in this relationship was examined [22]. It was found that among the dimensions of basic psychological needs, the dimensions of autonomy and competence had significant positive effect on emotional creativity. For parenting styles, as the model showed, warmth, structure, autonomy styles had significant effects on the emotional creativity (direct and indirect effect, direct and indirect effect, indirect effect respectively), on the contrary, chaos, coercion and rejection styles had significant negative effect on the emotional creativity (direct and indirect effect, direct effect, indirect effect respectively). In addition, the parenting style of warmth, autonomy and structure had significant positive effects on basic

psychological needs, whereas rejection, chaos and coercion styles had a negative effect on basic psychological needs. Among the three basic psychological needs (autonomy, competence and relatedness), the dimension of autonomy and competence had a mediating role between parenting style and emotional creativity. As the basic psychological needs of relatedness had the lowest correlation with emotional, the dimension of relatedness is not included in the final model due to poor correlation.

The mediating role of general self-efficacy between family rearing style and creative personality could be found in the result. The mediating effect results of structural equation show that parents' democratic upbringing and warm emotion are through general self-efficacy. That is, with the care and support of parents, children's sense of self-efficacy can be further improved, they can be more confident and bolder to try and explore, and then bring a higher level of creativity. Therefore, in the process of family education, parents should give their children active support as much as possible, improve their confidence in themselves and the courage to overcome difficulties, so as to better promote the improvement of their creative personality. A large number of studies on creativity have found that individual factors and environmental factors jointly affect individual creativity [23, 24]. The intermediary effect in this study also confirms that family rearing style, as an external environment, plays a role through the individual internal role of general self-efficacy. In addition, the research of Wu and Haiyan shows that self-efficacy plays a complete intermediary role between parents' emotional warmth understanding and creativity tendency [25]. Wang and others also concluded that creative self-efficacy plays a complete intermediary role between family environment and creative personality tendency in the research on the relationship between family environment, creative self-efficacy and creativity of primary school children [26]. This study and the above studies have proved the mediating role of self-efficacy from different perspectives.

According to the result that the indirect effects account for 27.05% and the direct effect held a proportion of 72.95%, it shows that except for general self-efficacy, there could be other psychological needs which contributed to the direct effect. There was a significant correlation between family rearing style and individual self-esteem. Attachment theorists believed that people's belief in self was based on the responsiveness and sensitivity of the main caregivers in childhood. Parents, especially mothers, had a prominent impact on the psychological environment of most children [27, 28]. Self-esteem was divided into implicit self-esteem and explicit self-esteem. Various experimental studies showed that implicit self-esteem predicts more important psychological and physical behaviors than explicit self-esteem [29]. This paper explored the relationship

between implicit self-esteem and parental rearing styles. Study 1 used the self-esteem scale and self-concept clarity scale to measure explicit self-esteem. Implicit self-esteem was measured by initial preference test. Children's experience scale was used to measure parental rearing styles. After data processing, people's memories of their early interaction with their parents were related to their implicit level of self-esteem. Participants who recalled having more parenting and caring interactions with their parents also reported higher implicit self-esteem. Study 2 based on the experimental tools of study 1, a scale measuring parental interaction was added (including overprotection and care scale), the purpose was to explore what factors in parental rearing styles affect implicit self-esteem. Birthday number preference experiment and name letter experiment were added to measure implicit self-esteem. After data processing, the experimental results showed that implicit self-esteem was related to people reporting their early experiences with their parents. Subjects who grew up in a family environment where parents were more caring for their children had higher implicit self-esteem and lower implicit self-esteem than subjects whose parents were over-protected. In Study 3, to reduce the reports that people's current beliefs and feelings about themselves tarnish their childhood experience with their parents, the mothers' parenting reports on the subjects were used. The data results showed that the children of mothers who reported that they were more educated and less overprotective had a higher level of implicit self-esteem.

Parental warmth has a positive impact on creativity, while the opposite parenting styles have negative impacts on creativity. Creativity is closely related to the family environment. Creativity is the ability to produce original, adaptive ideas. Rogers put forward that the environmental condition of creativity is that individuals are unconditionally accepted and trusted without external judgment and that individuals can experience psychological freedom. Brown Finn Brenner's bioecology theory put forward that individual development was affected by his interaction with direct and indirect context. The family environment created by the main caregiver (parents) was a part of children's microsystem. Previous studies have found a significant relationship between parenting style and children's creativity [30, 31, 32]. Mccoughby and Martin divided parenting styles into four styles: Permissive, Authoritative, Neglectful, and Authoritarian. Creativity was negatively correlated with authoritarian parenting style, and significantly negatively correlated with neglected parenting style. The relationship between tolerant nurturing creativity and authoritative nurturing creativity was either positive or insignificant [32, 33]. Other factors affected the relationship between parental rearing style and creativity. The above research showed that parents' good upbringing was not a sufficient condition for creativity to bloom. The concept mentioned

in the speech was very close to the concept of self-efficacy. Bandura believed that general self-efficacy determines people's choice of activities and their persistence in activities, affected people's attitude and behavior acquisition in the face of difficulties, and then affected the emotion during activities [6]. Most studies have verified the correlation between innovative self-efficacy and creativity [7].

5. LIMITATION AND FUTURE DIRECTION

This study has some limitations in selecting samples. Due to the limited city and social scope of the researchers, the selected samples are from Shanghai University of Political Science and Law and Hebei Vocational College of Foreign Trade and Economic Cooperation, so the research scope is small. Moreover, the groups used for analysis may be affected by regional, cultural, and other factors, resulting in the results not having strong universality, which may not be applicable in other regions. Secondly, due to the limited research time, this study only explores the relationship between family rearing style, general self-efficacy, and creativity tendency, thus ignoring many other problems. On the one hand, it is conducive to the design, distribution, recovery, and data analysis of the questionnaire. On the other hand, some information may not be noticed. When selecting the scale, considering the number of questions and subjects, researchers mostly choose the simple scale, and there may be a problem that the research results are not rigorous enough.

If possible, future research should be more random in the selection of subjects, rather than limited to a region or a school. It can also consider more careful design of the questionnaire. It is better to use the full version, rather than the short version in the selection of the scale, to ensure the preciseness of the data. At the same time, the data results show that in the two dimensions of adventure and challenge, parents' emotional warmth plays a promoting role. In the future, the research direction and content can be more detailed from this perspective. For the factors that show no obvious correlation in this study, research should also be carried out in the future to verify or correct some possible deviations in this study.

6. CONCLUSION

Despite the limitations affected by region, time, and culture, the present study adds to the literature. There are significant correlational relationships among parenting styles, general self-efficacy, and creativity tendency. Plus, a significant mediating effect of general self-efficacy was found between parenting style and creative tendency. Based on these, the present research highlights how parental warmth positively influences creativity. In addition, these findings are also supported by previous

studies. There is a biological basis under this relationship. Future research can explore the interactions among self-efficacy and other potential psychological mediators in this relationship. Studies with large samples should be conducted in the future to further examine these relationships.

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