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Full Length Research Paper

The investigation of the relationship between positive childhood experiences and family values

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This study aims to investigate the relationship between the positive childhood experiences of young people and family values. In the quantitative research design, descriptive and relational screening method was used in the study, and the study group consisted of 753 university students aged 18-25. Data were collected using the Positive Childhood Experiences Scale and the Family Values Scale. T-test, ANAVO, and Pearson Correlation coefficient were used to analyze the data. As a result of the study, it was determined that females and individuals with a higher family income had higher levels of positive childhood experiences. Differences in family values were found according to the participants' gender, family structure, family income status, and whether they had the desire to start a family. It was found that as the participants' positive experiences with children increased, they attributed more importance to the mother in childcare, gave more importance to relatives, had a more positive view of extended family, believed that there should be a strong mother-child connection more, gave more importance to the role of child-rearing in the family, and their emotional attachment to the family increased, the importance they attached to marriage and the institution of marriage increased, they adopted unconventional values more, they evaluated the family as conventional, and their view that the decision-making process in the family should be democratic/participatory increased, justifying violence for "family well-being" and being in favor of more freedom in matters related to sexuality decreased. Some suggestions were developed by discussing the findings in light of the literature.

Key words: Family values, positive childhood experiences, family-child relationship, family.

INTRODUCTION

Individuals' experiences in childhood are well remembered and influence their future behavior and even their entire lives (Burger, 2006; Deniz, 2020). Those who have positive experiences in childhood are more resilient and perceive themselves more positively (Çiçek, 2020).

Emotions such as love, respect, tolerance, and trust experienced during childhood also affect the individual's attitudes and behaviors towards himself/herself and others (Tarhan, 2018). When psychological needs are met by both the family and the environment during

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childhood, children develop by feeding on positive emotions (Demiriz and Ulutaş, 2016).

Positive childhood experiences are those childhood experiences in which positive events and emotions, such as warm and secure relationships, spill over into adult life (Doğan and Aydın, 2020). Within this scope, it is stated that positive experiences in childhood can nurture positive emotions in adulthood (Cohn et al., 2009; Topuz, 2014). Family and friends, who are the main source of a positive childhood experience for individuals, are an important factor in terms of evaluating the experiences as positive or negative.

Positive childhood experiences have been found to strengthen individuals' family ties, make them experience less loneliness, increase their well-being in adulthood and help them become healthier individuals, increase their psychological resilience, self-esteem, and happiness levels (Doğan and Aydın, 2020; Merz and Jak, 2013; Crandall et al., 2019; Doğan and Yavuz, 2020; Luthar, 2006). It was also found that there was a significant positive relationship between self-esteem and happiness, self-efficacy, physical health, self-compassion, and positive childhood experiences, and a significant negative relationship with depression and anxiety, and that negative environmental conditions were effective in reducing the possible negative effects of negative environmental conditions on individuals' lives (Cheng and Furnham, 2004; Bingöl, 2018; Chopik and Edelstein, 2019; Tunca, 2022). Besides, it was also found that juvenile offenders with more positive childhood experiences were lower than those with more negative childhood experiences (Baglivio and Wolff, 2021). When the studies in the literature are examined, it can be said that positive childhood experiences contribute to the individual's entire life evaluated as positive.

Parents are of great importance in childhood experiences and naturally in the formation of basic values. By telling their children what to say and what not to say, what to believe and what not to believe, parents instill values as role models (Arslanoğlu, 2005). Values are most meaningfully classified according to their institutional function, and the values that regulate and guide the family institution are defined as "family values" (Yıldırım, 2013). Family values refer to the importance given to one's family as the source of purpose and meaning in one's life (Burroughs and Rindfleisch, 2002).

Children learn values such as compassion, respect, love, kindness, tolerance, and truthfulness from their parents (Kiziler & Canikli, 2015). The acceptance of social norms and values through this learning process in the family is not limited to infancy and childhood but continues throughout life (Akin, 2019). Family values are the values that keep the family together, ensure that family members live in harmony and maintain order within the family institution, and constitute the general criteria that family members must comply with as an institution (Erdoğan, 2019).

The influence of the family and parents on the child starts from birth and lasts until the child's death (Yavuzer, 2011). Family values are influenced by variables related to the family and naturally to the parents, but can also be influenced by different personal or environmental variables throughout the individual's life (Ekşi et al., 2015; Özyürek et al., 2019; Polat, 2020; Şahin, 2019; Yazıcı, 2019). It was observed that characteristics such as being married at a young age and having a high number of children were effective in maintaining traditional family values (Ekşi et al., 2015). Family values differ according to gender, age, educational level, occupation, and the number of children (Özyürek et al., 2019). A similar situation can be expected in family values, considering that the reactions and behaviors of individuals, who are social beings, differ in the face of events and situations. The family's understanding of childrearing and the psychological climate created within the family may affect the child's psychological well-being in adulthood, causing the child to become a healthy individual or weakening the child's self-confidence, self-esteem, and belief in competence when it could be enriching (Uyanık et al., 2019; Kağıtçıbaşı and Cemalcılar, 2015; Zincirli, 2008).

Studies on family values can contribute to studies on the concept of family and its problems at this stage. Today, there are studies on negative experiences and their effects on individuals' lives, but it is thought that positive experiences and their effects are not emphasized much (Doğan and Yavuz, 2020). For all these reasons, this study aimed to investigate the relationship between positive childhood experiences and family values. Within this scope, answers to the following questions were sought:

- 1) Is there a significant difference between individuals' positive childhood experiences and gender, family structure, family income status, and desire to start a family?
- 2) Is there a significant difference between individuals' family values and gender, family structure, family income status, and desire to start a family?
- 3) Is there a significant relationship between individuals' positive childhood experiences and family values?

MATERIAL AND METHOD

Model

The study was designed in quantitative research design and descriptive and relational survey method was utilized. Descriptive surveys aim to present an existing situation as it is. Correlational surveys are conducted to determine whether there is a relationship between at least two different variables (Karasar, 2007).

Study group

Participants consisted of 753 students studying in different

departments of the university who could be reached through the convenience sampling method. Of the students in the study group, 24.7% were male and 75.3% were female. Of the students, 23.8% are studying child development, 11.6% in medical techniques, 19.5% in elderly care, 15.4% in first emergency aid, 5.2% in dialysis, 19.9% in physiotherapy, and 4.6% in the school of physical education and sports. Of the students, 68% had nuclear families, 23.8% had extended families and 8.2% had single-parent families. Students perceive their family income as low by 18.5%, medium by 75%, and high by 4.1%. While 78% of the students want to start a family, 22% do not.

Data collection tools

In addition to a "Personal Information Form" in which some personal information about the students was questioned, the "Positive Childhood Experiences Scale" and the "Family Values Scale" were used to collect data.

The Positive Childhood Experiences Scale (PCES) was developed by Bethell et al. and adapted into Turkish by Çiçek and Çeri (2021). Intending to measure the positive experiences of individuals before the age of 18, the scale is applied to individuals over the age of 18. The scale is a 5-point Likert type and consists of 7 items; there are no reverse-scored items. A minimum score of 7 and a maximum score of 35 are obtained from the scale and higher scores indicate that individuals had more positive experiences in their childhood. The Cronbach Alpha reliability coefficient of the scale was determined as 0.76.

The Family Values Scale was developed by Ekşi et al. (2015); it consists of 59 items and 13 sub-dimensions. The 5-point Likert-type scale, in which 20 items are reverse scored, consists of sub-dimensions Traditional Family Values (TFV), Attitudes towards Sexuality (ATS), Mother-Child Relationship (MCR), Value of the Child (VoC), Decision-Making Processes (DMP), Attitudes towards Marriage (ATM), Women's Roles (WR), Different Approaches (DA), Socio-Economic Value (SEV), Relative Relationships (RR), Emotional Bond (EB), Loyalty (LOY) and Violence (VIO). A high score is interpreted positively. The Cronbach Alpha reliability coefficient of the scale was 0.89 for the whole scale and 0.95, 0.95, 0.95, 0.95, 0.94, 0.93, 0.93, 0.92, 0.93, 0.92, 0.92, 0.92, 0.90, 0.89 and 0.99 for the sub-dimensions respectively (Ekşi et al., 2015). For this study, the Family Values Scale was determined as 0.75.

Data collection and analysis

Ethical approval dated 22/06/2022 and numbered 2022/4 was obtained from the Gümüşhane University ethics committee before data collection. After obtaining the necessary approvals, the data were collected online from students who volunteered to participate in the study. Students were informed in the classroom, the link to the study was shared with them and they were asked to participate. The data obtained were transferred to the SPSS 22.0 program and analyzed. Normality distributions were examined and skewness and kurtosis values were found to be within ± 2 .

According to Tabachnick and Fidell (2013), the results of the skewness and kurtosis values of the variables between ± 1.5 and ± 2 are accepted as a normal distribution. Accordingly, parametric tests were preferred in data analysis. t-Test was used for binary variables, one-way analysis of variance (ANOVA) was used for three or more variables, and in case of a difference between variables, post-hoc Tukey test was applied to determine the source of the difference, and the significance value was taken as 0.05. Pearson Correlation coefficient was used to compare the two scale scores.

RESULTS and DISCUSSION

The results and interpretations obtained in line with the sub-problems of the study are given in Tables 1 to 5. In Table 1, the t-test results of the sub-dimension scores of the PCES and Family Values Scale according to gender are shown.

According to Table 1, the difference between gender and PCES scores is significant ($p < 0.05$), with females' scores ($\bar{x} = 3.485$) significantly higher than males' scores ($\bar{x} = 3.299$). A significant difference was found between gender and Family Values Scale MCH, ATS, VoC, ATM, SEV, DMP, WR, and VIO scores ($p < 0.05$). Males' scores were significantly higher than females' scores in the subscales of MCR, ATS, VoC, ATM, SEV, and VIO, and females' scores were significantly higher than males' scores in the DMP subscale. Accordingly, it can be said that females have more positive childhood experiences.

In terms of family values, it can be said that males attribute more importance to the mother in terms of childcare, believing that there should be a strong mother-child connection in favor of more freedom in terms of sexuality, attach more importance to the role of raising children, have a more emotional attachment to the family, attach more importance to the institution of marriage, perceive the family more as a social and economic structure, and consider violence more legitimate for "family well-being"; whereas females think that they should be more involved in decision-making processes.

Table 2 shows the ANOVA results of the sub-dimension scores of the PCES and Family Values Scale according to family structure and Table 3 according to family income status.

When Table 2 is examined, there is no significant difference between the family structure and the scores of the PCES ($p > 0.05$). A significant difference was found between family structure and Family Values Scale ATS, VoC, DA, ATM, TFV, DMP, WR, and LOY scores ($p < 0.05$). According to the results of the Tukey Test, the ATS score ($\bar{x} = 2.316$) of individuals with single-parent families is higher than the scores of individuals with nuclear ($\bar{x} = 1.965$) and extended families ($\bar{x} = 1.878$), and the VoC score ($\bar{x} = 3.298$) of individuals with extended families is higher than the scores of individuals with nuclear ($\bar{x} = 3.101$) and single-parent families ($\bar{x} = 3.003$). The ATM score of those with nuclear families ($\bar{x} = 2.902$) was significantly lower than that of those with extended families ($\bar{x} = 3.023$), and the DA scores of those with extended ($\bar{x} = 2.692$) and nuclear ($\bar{x} = 2.871$) families were significantly lower than those of single-parent families ($\bar{x} = 3.122$). The TFV score of those with extended families ($\bar{x} = 3.870$) is significantly higher than the score of those with nuclear families ($\bar{x} = 3.699$), and the DMP score of those with single-parent families ($\bar{x} = 3.954$) is significantly higher than the scores of those with extended ($\bar{x} = 3.705$) and nuclear ($\bar{x} = 3.699$) families. The WR score of those with nuclear families ($\bar{x} = 2.420$) was significantly lower

Table 1. T-Test results of the scores of the PCES and family values scale by gender.

Group		N	\bar{x}	S	t	p
Positive childhood experiences scale	Male	186	3.299	0.765	-2.849	0.005*
	Female	567	3.485	0.775		
Family values (FV)						
Mother child relationship (MCR)	Male	186	3.379	0.553	-5.138	0.000*
	Female	567	3.619	0.546		
Relative relations (RR)	Male	186	3.834	0.571	-0.597	0.643
	Female	567	3.861	0.531		
Attitudes towards sexuality (ATS)	Male	186	2.198	0.826	4.780	0.000*
	Female	567	1.899	0.711		
Value of the child (VoC)	Male	186	3.305	0.583	4.105	0.000*
	Female	567	3.086	0.647		
Emotional bond (EB)	Male	186	3.825	0.646	0.345	0.730
	Female	567	3.808	0.564		
Attitudes towards marriage (ATM)	Male	186	3.164	0.653	6.806	0.000*
	Female	567	2.848	0.511		
Socio-economic value (SEV)	Male	186	2.749	0.539	4.545	0.000*
	Female	567	2.545	0.528		
Different approaches (DA)	Male	186	2.802	0.699	-1.060	0.289
	Female	567	2.865	0.711		
Traditional family values (TFV)	Male	186	3.792	0.670	1.303	0.193
	Female	567	3.717	0.680		
Decision-making processes (DMP)	Male	186	3.482	0.551	-10.20	0.000*
	Female	567	3.958	0.551		
Women's roles (WR)	Male	186	2.922	0.636	12.358	0.000*
	Female	567	2.322	0.552		
Loyalty (LOY)	Male	186	3.374	0.753	-1.802	0.072
	Female	567	3.482	0.689		
Violence (VIO)	Male	186	1.774	0.903	7.421	0.000*
	Female	567	1.343	0.600		

*p<0.05.

Source:Author

than that of those with extended families (\bar{x} =2.602), while the LOY score (\bar{x} =3.512) was significantly higher than that of those with extended families (\bar{x} =3.353) and single-parent families (\bar{x} =1.406). Based on this, it can be said that positive childhood experiences do not differ according to the family structure variable. In terms of family values, it can be said that individuals with extended families

attach more importance to the role of raising children, the institution of marriage, and traditional family values and evaluate females from a conventional perspective. It can be said that individuals with single-parent families adopt unconventional values more, attach importance to democratic participation in decision-making processes, and favor freedom in matters related to sexuality. It can

Table 2. ANOVA results of the scores of the PCES and family values scale by family structure.

Family structure		N	\bar{X}	S	F	p
Positive childhood experiences	Nuclear family	512	3.453	0.762	7.989	0.443
	Extended family	179	3.441	0.809		
	Single parent family	62	3.320	0.803		
Family Values (FV)						
Mother child relationship (MCR)	Nuclear family	512	3.570	0.526	0.424	0.654
	Extended family	179	3.547	0.617		
	Single parent family	62	3.506	0.626		
Relative relations (RR)	Nuclear family	512	3.865	0.528	0.903	0.406
	Extended family	179	3.854	0.558		
	Single parent family	62	3.767	0.594		
Attitudes towards sexuality (ATS)	Nuclear family	512	1.965	0.731	8.049	0.000*
	Extended family	179	1.878	0.725		
	Single parent family	62	2.316	0.896		
Value of the child (VoC)	Nuclear family	512	3.101	0.646	7.989	0.000*
	Extended family	179	3.298	0.597		
	Single parent family	62	3.003	0.618		
Emotional bond (EB)	Nuclear family	512	3.825	0.571	0.827	0.438
	Extended family	179	3.804	0.595		
	Single parent family	62	3.725	0.666		
Attitudes towards marriage (ATM)	Nuclear family	512	2.902	0.564	3.797	0.023*
	Extended family	179	3.023	0.563		
	Single parent family	62	2.841	0.562		
Socio-economic value (SEV)	Nuclear family	512	2.578	0.547	1.016	0.363
	Extended family	179	2.644	0.507		
	Single parent family	62	2.600	0.546		
Different approaches (DA)	Nuclear family	512	2.871	0.710	9.454	0.000*
	Extended family	179	2.692	0.649		
	Single parent family	62	3.122	0.754		
Traditional family values (TFV)	Nuclear family	512	3.699	0.661	4.779	0.009*
	Extended family	179	3.870	0.654		
	Single parent family	62	3.651	0.828		
Decision-making processes (DMP)	Nuclear family	512	3.699	0.575	6.890	0.001*
	Extended family	179	3.705	0.575		
	Single parent family	62	3.954	0.666		
Women's roles (WR)	Nuclear family	512	2.420	0.610	5.735	0.003*
	Extended family	179	2.602	0.668		
	Single parent family	62	2.509	0.621		
Loyalty (LOY)	Nuclear family	512	3.512	0.684	5.492	0.004*
	Extended family	179	3.353	0.736		
	Single parent family	62	3.279	0.754		
Violence (VIO)	Nuclear family	512	1.406	0.681	0.903	0.051
	Extended family	179	1.544	0.751		
	Single parent family	62	1.532	0.809		

*p<0.05.

Source: Author

be said that individuals with nuclear families attach more importance to fidelity between spouses.

When Table 3 is examined, there is a significant difference ($p < 0.05$) between the family income status of the individuals and their PCEa scores and Family Values Scale MCR, ATS, and DMP scores. According to the results of Tukey's test, individuals with low family income level ($\bar{x} = 3.128$) had lower PCES scores than those with medium ($\bar{x} = 3.495$) and high family income ($\bar{x} = 3.783$), and their PCES scores increased as the family income level increased. Those with low family income had lower scores in MCP ($\bar{x} = 3.423$) and TFV ($\bar{x} = 3.638$) than those with medium family income ($\bar{x} = 3.593$; $\bar{x} = 3.768$). The ATS score of those with low family income ($\bar{x} = 2.076$) is higher than the score of those with medium family income ($\bar{x} = 1.934$). Hence, it can be said that individuals' positive childhood experiences increase with the increase in family income. In terms of family values, it can be said that low-income individuals favor more freedom in matters related to sexuality and care more about strong mother-child connections and traditional family values.

In Table 4, the t-test results of the sub-dimension scores of the PCES and Family Values Scale according to participants' desire to start a family are shown.

When Table 4 is examined, there is a significant difference between the individuals' desire to start a family and the scores of the PCES and Family Values Scale subscales of MCR, RR, ATS, VoC, EB, ATM, TFV, and VIO ($p < 0.05$).

Those who wanted to start a family had higher scores on the PCES ($\bar{x} = 3.513$) and Family Values Scale MCP ($\bar{x} = 3.606$), RR ($\bar{x} = 3.894$), VoC ($\bar{x} = 3.174$), EB ($\bar{x} = 3.809$), ATM ($\bar{x} = 2.969$) and TFV ($\bar{x} = 3.767$), while the ATS score ($\bar{x} = 1.944$) was significantly lower than those who did not want to start a family. Accordingly, it can be said that individuals with a desire to start a family have more positive childhood experiences. In terms of family values, it can be said that individuals who want to start a family attribute more importance to the mother in terms of childcare have a more positive view of relative relations and extended family, attach more importance to the role of raising children in the family, attach more importance to emotional attachment to the family and the institution of marriage, have more traditional family values and do not favor freedom in matters related to sexuality. In Table 5, the results of Pearson Correlation analysis of the scores of the PCES and Family Values Scale are shown.

According to Table 5, there is a positive correlation between the scores of the individuals on the PCES and the Family Values Scale MCP, RR, VoC, EB, ATM, TFV, and DMP sub-scores, and a weakly significant negative correlation between the scores on the ATS and VIO sub-scales ($p < 0.05$). As PCES scores increased, Family Values Scale MCP, RR, VoC, EB, ATM, TFV, and DMP scores increased, whereas ATS and VIO scores decreased. Accordingly, it can be said that as the individuals' positive experiences with children increased,

they attributed more importance to the mother in childcare in terms of family values, gave more importance to relatives, and had a more positive view of extended family, believed that there should be a strong mother-child connection more, gave more importance to the role of child-rearing in the family, and their emotional attachment to the family increased, the importance they attached to marriage and the institution of marriage increased, they adopted unconventional values more, they evaluated the family as conventional, and their view that the decision-making process in the family should be democratic/participatory increased, justifying violence for "family well-being" and being in favor of more freedom in matters related to sexuality decreased.

In the studies conducted in the literature, Bilgin et al. (2021) found that gender did not make a difference in the positive childhood experiences of adults, while Doğan and Yavuz (2020) concluded that males had more positive childhood experiences (Dönmezer, 1999). In this study, the reason why females' positive childhood experiences differed from those of males, unlike the studies in the literature, suggests that other personal or family-related variables are also effective in addition to gender. For example, it is known that individuals who grow up in a democratic environment in childhood have more positive childhood experiences. It has been shown that adults who have positive memories of their parents in childhood have better physical health, less depression, and a lower risk of developing chronic diseases (Chopik and Edelstein, 2019). Still, high family income may have contributed to a more positive childhood experience for individuals as it is an effective factor in improving living conditions. Higher socioeconomic status parents are less concerned with authority and more supportive of independence, curiosity, problem-solving, and creativity. Positive childhood experiences are expected to have an impact on individuals' desire to start a family. It can be said that it is an expected result that individuals who witness a positive environment in family relations have a high desire to start a family.

Individual, familial, environmental, and social factors are known to be effective in family values. In the study conducted by Özyürek et al. (2019) similarly, it was concluded that females had higher decision-making processes than males and males had higher mother-child relationship scores than females (Özyürek et al., 2019). Considering that females assume more responsibility for the home and children than males, it is natural for females to be more active in decision-making processes. In the study conducted by Şahin, it was found that the sub-dimension scores of the mother-child relationship, view of marriage, traditional family values, and roles of women, decision-making processes, different approaches, and violence showed significant differences according to gender (Şahin, 2019). In the study conducted by Polat (2020), it was reported that the sub-dimension scores of attitudes towards sexuality, attitudes towards marriage,

Table 3. ANOVA results of the scores of the PCES and family values scale by family income.

Family income		N	\bar{x}	S	F	p
Positive childhood experiences scale	Low	139	3.128	0.817	16.333	0.000*
	Medium	583	3.495	0.746		
	High	31	3.783	0.778		
Family values (FV)						
Mother child relationship (MCR)	Low	139	3.423	0.550	5.319	0.005*
	Medium	583	3.593	0.543		
	High	31	3.541	0.757		
Relative relations (RR)	Low	139	3.837	0.570	1.332	0.265
	Medium	583	3.866	0.536		
	High	31	3.709	0.492		
Attitudes towards sexuality (ATS)	Low	139	2.076	0.791	4.139	0.016*
	Medium	583	1.934	0.734		
	High	31	2.245	0.827		
Value of the child (VoC)	Low	139	3.116	0.650	0.265	0.767
	Medium	583	3.142	0.622		
	High	31	3.206	0.875		
Emotional bond (EB)	Low	139	3.832	0.644	0.148	0.863
	Medium	583	3.806	0.572		
	High	31	3.838	0.564		
Attitudes towards marriage (ATM)	Low	139	2.889	0.589	0.507	0.603
	Medium	583	2.932	0.562		
	High	31	2.987	0.538		
Socio-economic value (SEV)	Low	139	2.608	0.577	0.326	0.722
	Medium	583	2.596	0.529		
	High	31	2.522	0.540		
Different approaches (DA)	Low	139	2.900	0.784	0.450	0.638
	Medium	583	2.837	0.689		
	High	31	2.858	0.706		
Traditional family values (TFV)	Low	139	3.638	0.777	3.064	0.047*
	Medium	583	3.768	0.648		
	High	31	3.567	0.704		
Decision-making processes (DMP)	Low	139	3.794	0.667	0.567	0.567
	Medium	583	3.852	0.555		
	High	31	3.825	0.786		
Women's roles (WR)	Low	139	2.492	0.679	0.163	0.850
	Medium	583	2.468	0.612		
	High	31	2.425	0.726		
Loyalty (LOY)	Low	139	3.494	0.714	0.253	0.776
	Medium	583	3.447	0.698		
	High	31	3.440	0.831		
Violence (VIO)	Low	139	1.500	0.789	0.943	0.390
	Medium	583	1.431	0.678		
	High	31	1.564	0.928		

*p<0.05.

Source: Author

Table 4. T-Test results of the scores of the pces and family values scale by participants' desire to start a family.

Desire to start a family		N	\bar{x}	S	t	p
Positive childhood experiences	Yes	587	3.513	0.739	4.956	0.000*
	No	166	3.179	0.851		
Family values						
Mother child relationship (MCR)	Yes	587	3.606	0.534	4.393	0.000*
	No	166	3.394	0.606		
Relative relations (RR)	Yes	587	3.894	0.529	3.821	0.000*
	No	166	3.714	0.560		
Attitudes towards sexuality (ATS)	Yes	587	1.944	0.746	-2.015	0.044*
	No	166	2.077	0.764		
Value of the child (VoC)	Yes	587	3.174	0.654	2.803	0.005*
	No	166	3.018	0.566		
Emotional bond (EB)	Yes	587	3.859	0.579	4.155	0.000*
	No	166	3.647	0.576		
Attitudes towards marriage (ATM)	Yes	587	2.969	0.562	3.917	0.000*
	No	166	2.775	0.553		
Socio-economic value (SEV)	Yes	587	2.597	0.523	0.146	0.884
	No	166	2.590	0.589		
Different approaches (DA)	Yes	587	2.833	0.713	-1.206	0.228
	No	166	2.908	0.688		
Traditional family values (TFV)	Yes	587	3.767	0.677	2.369	0.018*
	No	166	3.626	0.672		
Decision-making processes (DMP)	Yes	587	3.848	0.584	0.686	0.493
	No	166	3.813	0.600		
Women's roles (WR)	Yes	587	2.452	0.626	-1.485	0.138
	No	166	2.534	0.638		
Loyalty (LOY)	Yes	587	3.481	0.710	1.862	0.063
	No	166	3.365	0.687		
Violence (VIO)	Yes	587	1.402	0.680	-3.404	0.001*
	No	166	1.614	0.793		

*p<0.05.

Source: Author

socioeconomic values, decision-making processes, and female roles showed significant differences according to gender (Polat, 2020). Yazıcı (2019), concluded that males are significantly higher than females in power, hedonism, and adaptation values among family values (Yazıcı, 2019). It was concluded that the findings

obtained in this study have similar and different aspects from the findings obtained in the literature. The process of the rapid transformation of the family has become even more evident in recent years. Although recent increases in divorce rate, single-parent families, extramarital relationships, and decreases in marriage rates, new

Table 5. Results of the correlation analysis of the scores of the pces and family values scale.

		PCES
Mother child relationship (MCR)	r	0.256
	p	0.000*
Relative relations (RR)	r	0.276
	p	0.000*
Attitudes towards sexuality (ATS)	r	-0.189
	p	0.000*
Value of the child (VoC)	r	0.157
	p	0.000*
Emotional bond (EB)	r	0.240
	p	0.000*
Attitudes towards marriage (ATM)	r	0.087
	p	0.017*
Socio-economic value (SEV)	r	-0.059
	p	0.107
Different approaches (DA)	r	-0.105
	p	0.004*
Traditional family values (TFV)	r	0.296
	p	0.000*
Decision-making processes (DMP)	r	0.079
	p	0.030*
Women's roles (WR)	r	-0.054
	p	0.141
Loyalty (LOY)	r	-0.015
	p	0.687
Violence (VIO)	r	-0.171
	p	0.000*

*p<0.05.

Source: Author

family types, stepfamilies, and remarriages have not changed the function of the family, they have brought about structural changes in the family institution (Oktik and Reşitoğlu, 2018). Changes in both family structure and family values can be expected in the course of changing times.

There have been major changes in the family and family structure in recent years. The support provided

especially to single-parent families and the new family structure emerging with the entry of females into the workforce are transforming the social structure of the family. While single parents work more, have more economic problems, experience more stress and depression, and receive less emotional support to fulfill their parenting roles (Barrett and Turner, 2005). Relationships between family members in extended family

settings may be different than in nuclear and single-parent families, and therefore there may be differences in family values.

In the study conducted by Yazıcı (2019), it was found that the value scores of individuals with higher-income groups were significantly lower than the value scores of individuals with lower and middle-income groups (Yazıcı, 2019). Polat (2020), on the other hand, found that the scores of the sub-dimension of kin relations and the value of the child differed significantly according to the perceived income status (Polat, 2020). It can be said that family values differ according to family income status and are an effective factor in both intra-family and kinship relations.

In the literature, it is stated that even starting a family is optional. In the study investigating whether the family values scale scores differed significantly according to the way the marriage decision was taken, it was determined that the sub-dimension scores of relative relations, view of sexuality, traditional family values, female roles, and violence showed significant differences according to the way the marriage decision was taken (Şahin, 2019). The relationship between the attitudes towards sexuality, different approaches, and socioeconomic value sub-dimensions of the family values scale and family integrity was found to be negative and significant, whereas a positive and significant relationship was found with the other sub-dimensions. Values are the fundamental force that guides human behavior (Yaylacı and Beldağ, 2018). In this sense, the perspective on family and intra-family relationships will have a significant effect on individuals' desire to start a family.

Positive childhood experiences are positively associated with self-esteem and happiness and negatively associated with depression and anxiety (Cheng and Furnham, 2004; Gilbert et al., 2008). As positive childhood experiences increase, psychological resilience increases (Doğan and Aydın, 2020). The findings obtained from this study can be said to be supported by both the literature and similar studies. Considering that the first and most important experiences are acquired during childhood, having positive childhood experiences will have positive effects on individuals' acquisition of family values. In this respect, it can be said that the importance of family relations in transferring the value given to the family from generation to generation has once again emerged.

CONCLUSION AND SUGGESTIONS

In this study, in which positive childhood experiences and family values of young people were examined, 753 university students between the ages of 18-25 were reached. The results and recommendations obtained in line with the sub-problems of the study are mentioned. This study found that females had more positive childhood experiences than males, positive childhood experiences increased as the family income of individuals

increased, positive childhood experiences of individuals did not differ according to the family structure variable, and positive childhood experiences of individuals who wanted to start a family were more positive.

In terms of family values, it was observed that males attribute more importance to the mother in terms of childcare, believe that there should be a strong mother-child connection, are in favor of more freedom in terms of sexuality, attach more importance to the role of raising children, have a more emotional attachment to the family, attach more importance to the institution of marriage, perceive the family more as a social and economic structure, and consider violence more legitimate for "family well-being"; whereas females think that they should be more involved in decision-making processes. It was concluded that individuals with extended families attach more importance to the role of raising children, the institution of marriage, and traditional family values and evaluate females from a conventional perspective; individuals with single-parent families adopt unconventional values more, attach importance to democratic participation in decision-making processes and favor freedom in matters related to sexuality; and individuals with nuclear families attach more importance to fidelity between spouses.

As a result of the study, in terms of family values, it can be said that low-income individuals favor more freedom in matters related to sexuality and care more about strong mother-child connections and traditional family values.

In this study, in terms of family values, it was determined that individuals who want to start a family attribute more importance to the mother in terms of childcare, have a more positive view of relative relations and extended family, attach more importance to the role of raising children in the family, attach more importance to emotional attachment to the family and the institution of marriage, have more traditional family values, and do not favor freedom in matters related to sexuality.

When the relationship between positive childhood experiences and family values is analyzed, it was observed that as the individuals' positive experiences with children increased, they attributed more importance to the mother in childcare in terms of family values, gave more importance to relatives, and had a more positive view of extended family, believed that there should be a strong mother-child connection more, gave more importance to the role of child-rearing in the family, and their emotional attachment to the family increased, the importance they attached to marriage and the institution of marriage increased, they adopted unconventional values more, they evaluated the family as conventional, and their view that the decision-making process in the family should be democratic/participatory increased, justifying violence for "family well-being" and being in favor of more freedom in matters related to sexuality decreased.

Since the period of childhood is a period in which individuals acquire experiences that will affect their entire

lives, parents should exhibit attitudes and behaviors in raising children by taking this situation into account. There is growing recognition of the importance of protecting family values, and there is a growing view that society's values are degenerating. Without forgetting that a child's possession of family values is also a part of the continuation of family values in society, parents should raise their children in a supportive and reassuring environment. School-age also covers a certain period of childhood. For this reason, educators need to give importance to children's value acquisition and contribute to their value acquisition through various activities. The study was conducted with university students and this can be considered a limitation of the study. The relationship between positive childhood experiences and family values can be examined in similar studies by including a wider age group from childhood to old age. Educational and experimental studies can be conducted to contribute to individuals' value acquisitions. In addition to quantitative data, the findings of the study can be supported by qualitative data.

CONFLICT OF INTERESTS

The authors have not declared any conflicts of interests.

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Full Length Research Paper

Locus of control on mental health of college students in Guangxi, China: The chain mediating effect of grit and self-esteem

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This study aims to explore the relationship between locus of control, grit, self-esteem and mental health among college students. A questionnaire survey was used to conduct a study on the mental health of 923 E-learning college students from 10 universities in Guangxi, China. In this study, Pearson correlation analysis was used to test the correlation between the study variables, and Bootstrap was used to test the mediating effect and effect ratio of grit and self-esteem. The results show that, locus of control, grit, and self-esteem can predict the mental health of college students. Grit plays a mediating role between locus of control and mental health; self-esteem plays a mediating role between locus of control and mental health; grit and self-esteem have a chain mediating effect between locus of control and mental health. Specifically, internal locus of control can effectively prevent college students from mental health problems through the chain mediation effect of grit and self-esteem. Powerful others and opportunity as the external locus of control will not only reduce the grit and self-esteem of college students, but also lead to more psychological problems. These research results provide suggestions to the university management on how to manage the mental health of E-learning students, especially those with psychological problems.

Key words: E-learning, locus of control, grit, self-esteem, mental health.

INTRODUCTION

Before the outbreak of Covid-19, the E-learning model was not a strategy that was externally imposed on universities (Abdelazim and Georgieva, 2020). Although many universities around the world have developed E-learning, they focus on a limited number of traditional courses, and traditional models. Until 2020, the Covid-19

pandemic has brought unprecedented changes and challenges to higher education; especially, the teaching process has been severely disrupted (Dwivedi et al., 2020; Sharin, 2021). To continue teaching/learning, universities quickly adopted the E-learning model and it has become an essential learning method for college

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students and a viable alternative to traditional teaching (Moy and Ng, 2021). It has become the best way of continuing education to some extent.

Although network technology has brought many conveniences to human beings, it has also adverse effects on human physical and mental health (Karakose and Ozdemir, 2022a). E-learning is a mode of interaction among participants in the educational process. It compensated, to a certain extent, for the teaching relationship between teachers and students during the Covid-19 period. But, sudden shifts in learning methods can have an impact on students' mental health (Baticulon et al., 2021). The transition to distance education presents both opportunities and challenges for students, teachers, and school administrators. With the further increase in the use of Internet learning platforms, the time for students to use online platforms for learning will inevitably increase. Improper use or excessive use of social media platforms will directly and indirectly have negative psychological effects on students, such as their happiness levels (Karakose et al., 2022c).

Studies have shown that most students claimed that using E-learning tools for a long time usually leads to boredom, tension, and anxiety (Haider and Al-Salman, 2020). A study found that 11.32% of Chinese college students experienced anxiety while studying via E-learning, and 55.42% of students experienced depression while studying via E-learning (Shao et al., 2021). It was found that 11.32% of Chinese college students had anxiety and 55.42% suffered depression. Students' level of negative psychology is much higher in China in recent years (Shao et al., 2021). In general, with the implementation of online teaching, students have felt more negative impacts than positive ones, resulting in a decline of their mental health (Chu and Li, 2022). Therefore, the mental health of college students involved in E-learning should be given great attention. In order to protect the mental health of students, they should be told the right time to use the network for learning. It is only when the mental health of students is maintained that is when they will be interested and willing to continue learning, thereby improving their learning satisfaction and learning outcomes (Tatiana et al., 2022; Karakose et al., 2022a, b).

There are many factors that affect an individual's mental health, including interest; self-control (grit), adaptability, self-efficacy, self-identity, and self-regulation. Locus of control is a psychological concept, divided into internal control and external control of behavior results (Rotter, 1990). Internal controllers attribute behavioral results to internal factors such as their own abilities and efforts. In contrast to internal controllers who attribute outcomes to their own actions, external controllers attribute behavioral results to external factors such as luck, opportunity, or other people (Cobb-Clark and Schurer, 2013). To strengthen the research on the locus of control of college students, it is critical to

explore the psychological elements that affect students' learning process, accurately define the attribution of students' learning, and help students control their negative psychology in learning (Da and En, 2018).

However, E-learning is a process that requires long-term persistence, and the results can only be seen after a lot of time and energy are invested. It was found that students with high grit will put in more effort in learning; thus they achieve better grades and learning goals more easily in non-traditional educational settings (Aparicio et al., 2017; Weisskirch, 2018). Duckworth et al. (2007) believe that grit is an individual's perseverance and enthusiasm for the pursuit of long-term goals. It is a non-cognitive individual characteristic, which is reflected in the long-term pursuit of psychological ability. Individuals with high grit will use their strong will to reduce the psychological harm caused by the outside world, help improve their mental health, and thrive even in the face of adversity (Bono et al., 2020; Montano, 2021).

Similarly, self-esteem, as an individual's overall subjective feeling and evaluation of one's own value, is a relatively stable personality constitution that is closely related to mental health (Kannangara et al., 2018; Douglass et al., 2019; Yilmaz and Dundar, 2022). It is regarded as an effective indicator for measuring an individual's mental health. People with higher self-esteem report better mental health, and vice versa, their mental health are worse. Students with high self-esteem will increase the possibility of being accepted by others and buffer negative psychological emotions when interacting with others (Bi et al., 2016).

Therefore, this study focuses on the influence of college students' locus of control, grit and self-esteem on their mental health, hoping to provide targeted guidance for the prevention and intervention of E-learning college students' mental health problems.

The effect of locus of control on mental health

Many studies have shown that the locus of control is significantly associated with mental health problems such as anxiety, and stress, and it has a predictive effect (Xia and Ma, 2020). The locus of control is an important structure for coping with mental health problems (Rashid, 2021). Regarding the performance of internal control and external control in coping with setbacks and pressure, internal control individuals have a stronger ability to resist stress than external control individuals; that is, in the face of the same huge pressure, internal control individuals will subjectively perceive less pressure. They will be more focused on the behavior of accomplishing the goal task, while the external control individual will be more focused on the behavior of venting emotions. Compared to internal control individuals, external control individuals feel more negative psychology during the learning process, and vice versa (Chisholm-Burns, 2021).

It can be seen that the existing research supports the effects of an individual's locus of control on his mental health. The negative psychological emotions perceived by internal control individuals are lower than those of external control individuals, and external control individuals will feel more negative psychological emotions in negative events, compared to internal control individuals. Therefore, students' ability to cope with stress can be improved by enhancing their internality, so as to form a good mental health state. This study attempts to propose the following research hypotheses:

H1: Locus of control significantly affects mental health

The mediating role of grit between locus of control and mental health

In previous studies, many literature shows that grit has an impact on individuals' psychological feelings, academic performance, academic performance (Datu et al., 2016; Ponikiewska et al., 2017; Jiang, 2019). Also, grit can affect the mental health of individuals (Vainio and Daukantait, 2016). Tang et al. (2020) investigated the influence of grit on students' mental health and confirmed that grit can affect students' mental health (loneliness, depression and anxiety).

Grit, as a positive personality characteristic, is influenced by an individual's internal psychological characteristics, such as locus of control. Grit levels of individuals with different types of locus of control are also different. The internal controller is positively correlated with grit, while the external controller is negatively correlated with Grit (Celik and Saricam, 2018). On the contrary, people with different grit levels have different attributions in the face of difficulties (Duckworth and Yeager, 2015). High grit will attribute the results to internal factors, while low grit will attribute the results to external factors. Therefore, the influence of locus of control on grit is significant. We can infer that the locus of control of college students will affect their mental health through grit. Therefore, this study attempts to put forward the following assumptions:

H2: Grit plays a mediating role between locus of control and mental health

The mediating role of self-esteem between locus of control and mental health

In previous studies, self-esteem is considered to be an important personality trait; it is not only directly affected by some external factors (Bai et al., 2021; Alvani et al., 2021), but also directly by an individual's Psychological feelings, such as happiness, life satisfaction, mental health, etc. (Jie et al., 2018; Bai et al., 2021; Yang et al.,

2021). That is to say, self-esteem will be used as a dependent variable and it is influenced by external factors; individual internal factors will also be used as independent variables that affect individuals' mental health.

In the category of locus of control, the internal controller will attribute the success or failure to the inside, and vice versa, and then these attributions will affect an individual's self-esteem level (Duval and Silvia (2002)). People with higher self-internal control tend to show higher self-esteem than those with lower self-external control (Tangney et al., 2004; Timenes et al., 2021); that is, individuals with internal control are positively correlated with high self-esteem (Leung and Tan, 2018). Therefore, we can infer that the college students' locus of control will affect their mental health through self-esteem:

H3: Self-esteem plays a mediating role between locus of control and mental health

The mediating role of grit and self-esteem between locus of control and mental health

From the above discussion, it is seen that grit and self-esteem are important factors that influence students' mental health. They do not only have direct impact on students' mental health, but they can also affect students' mental health in conjunction with their locus of control (Vainio and Daukantait, 2016; Tang et al., 2020; Lee et al., 2014; Nguyen et al., 2019). Till date, although a few studies have explored the direct relationship between grit and self-esteem, they have not yet found the intermediary role between college students' locus of control and their mental health.

Grit is an individual's grit and enthusiasm for long-term goals. Although there is a risk of failure in the pursuit of goals, people with high grit will persist. Self-esteem refers to the feeling of positive or negative evaluation of oneself (Smith and Mackie, 2007). High self-esteem will stimulate self-potential and enhance the initiative and pleasure of pursuing one's goals (Weisskirch, 2018). In the face of failures and setbacks, strong self-esteem can make people persist for a longer time. When they persist in their long-term goals, they may be more satisfied with themselves because of their grit. From this, we can say there is a relationship between grit and self-esteem, which are closely related and complementary to each other (Campbell et al., 1996). Grit can significantly and positively predict one's self-esteem (Datu et al. 2016; Jie et al. 2018): the higher a student's self-esteem is, the more tenacious would be his academic performance (Coker, 2021; Oducado, 2021).

From the above discussion, we find that grit has a significant positive effect on self-esteem. Combining the relationship between locus of control, grit, self-esteem and mental health, we can conclude that the locus of

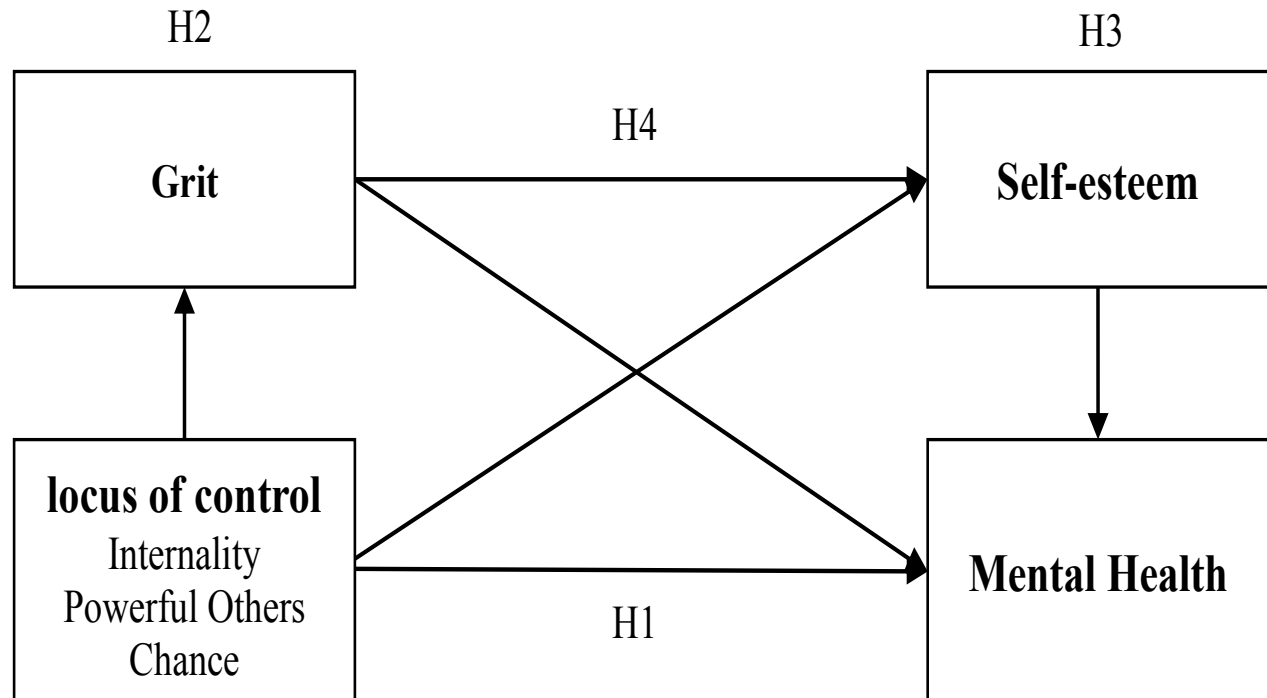


Figure 1. Research work.
Source: Author.

control of college students can jointly affect their mental health through grit and self-esteem. Therefore, this study attempts to put forward the following assumptions:

H4: Grit and self-esteem play mediating roles between locus of control and mental health.

While studies have explored the relationship among locus of control, grit, self-esteem, and mental health, the role of grit and self-esteem in the impact of locus of control on mental health has not been studied. This study aims to explore the chain mediation role of grit and self-esteem in the influence of locus of control on students' mental health.

RESEARCH FRAMEWORK

According to the research purpose and literature review, a research framework was developed for this study (Figure 1).

Research objects

In this study, 1000 questionnaires were actually collected: 77 invalid questionnaires were excluded, and 923 valid questionnaires were used. The basic data of the college students set in this study include their gender, grade and ethnic minorities. They are 142 males, accounting for 15.4%; 781 females, accounting for 84.60%;

308 freshmen, accounting for 33.4%; 335 sophomores, accounting for 36.3%; 236 juniors, accounting for 25.6%; 44 senior students, accounting for 4.8%; 260 ethnic minority students, accounting for 28.2%; 663 non-ethnic minority students, accounting for 71.8%.

Tool locus of control

We used Levenson (1975)'s "Internality Powerful Others, Chance" scale (IPC); it contains three dimensions, Internality, with 24 items in total. A Likert scale of 6 points was used to score the items. In this study, the index values of the scale are $\chi^2/df(4.901)$, PGFI(0.786), PNFI(0.720), GFI(0.918), CFI(0.921), IFI(0.921), NFI(0.921), SRMR(0.044), RMSEA(0.065).

Grit

We used Duckworth and Quinn (2009)'s Short Grit Scale (GRIT-S). The scale is divided into two dimensions: Consistency of Interest and Persistence of Efforts, with 8 items; they were scored by a Likert scale of 5 points. In this study, the fitting index values of the scale are $\chi^2/df(4.415)$, PGFI(0.515), PNFI(0.666), GFI(0.977), CFI(0.985), IFI(0.985), NFI(0.981), SRMR(0.981) and RMSEA(0.061).

Self-esteem

We used Rosenberg (1965)'s Self-Esteem Scale (SES). The scale contains 10 items, which were scored on a Likert scale of 5 points. In this study, the index values of the scale are $\chi/df(4.415)$,

Table 1. Pearson correlation analysis.

Path	M	SD	1	2	3	4	5	6
1. Loc-Int	5.174	0.623	1					
2. Loc-PO	3.653	0.807	-0.469**	1				
3. Loc-Ch	3.930	0.712	-0.520**	0.638**	1			
4. Grit	3.701	0.713	0.753**	-0.498**	-0.538**	1		
5. SE	3.716	0.529	0.779**	-0.456**	-0.509**	0.650**	1	
6. MH	5.767	6.346	-0.598**	0.555**	0.640**	-0.541**	-0.658**	1

Loc-Int, Internality; Loc-PO, Powerful Others; Loc-Ch, Chance; SE, Self-Esteem; MH, Mental Health; ** $p < 0.01$.
Source: Author.

PGFI(0.515), PNFI(0.666), GFI(0.977), CFI(0.985), IFI(0.985), NFI(0.981), SRMR(0.022) and RMSEA(0.061).

Mental health

We used Lovibond and Lovibond (1995)'s Depression-Anxiety-Stress Scale (DASS-21). This scale has three dimensions, 21 items in total. A four-level scoring method of 0–3 was used for the items. The score of each dimension is the sum of seven items multiplied by 2, and the score ranges from 0 to 42. In this study, the index values of the scale are χ^2/df (4.957), PGFI(0.711), PNFI(0.816), GFI(0.921), CFI(0.957), IFI(0.957), NFI(0.946), SRMR(0.015) and RMSEA(0.066).

Data collection and analysis

This study used convenience sampling to distribute electronic questionnaires to the subject group. The consent of each subject was obtained to anonymize their personal information. After getting the data, SPSS plug-in Process was used for the descriptive statistics. Pearson correlation analysis was used to test the correlation between the study variables. Bootstrap method was used to estimate the 95% confidence interval of 5000 repeated sampling for analyzing the mediation effect.

RESULTS

Correlation analysis

Correlation analysis results show that, the internality, powerful others, and opportunities are significantly related to grit, self-esteem, and mental health. Grit is significantly correlated with self-esteem, and mental health. Self-esteem is significantly correlated with mental health (Table 1).

The mediating role of grit and self-esteem

In this study, Bootstrap was used to test the mediating effect and effect ratio of grit and self-esteem. 5000 Bootstrap samples were randomly selected from the original data. For example, the 95% confidence intervals

of the deviation-adjusted non-parametric percentiles of the path do not contain 0, indicating that the mediation effect is established.

The mediation effect analysis results of model 1, the total indirect effect value of Bootstrap is -0.467 ($p < 0.001$), and the 95% confidence interval does not contain 0 [Bootstrap95% CI: -0.541, -0.404], accounting for 78.60% of the total effect. The three mediating pathways also significantly affected the relationship between internality and mental health.

The mediating effect value of path 1 (internality → grit → mental health) is -0.115, and the 95% confidence interval does not include 0 [Bootstrap95% CI: -0.172, -0.059], accounting for 19.24% of the total effect. Path 2 (internality → grit → mental health) has a mediating effect value of -0.313 [Bootstrap95% CI: -0.382, -0.251], accounting for 52.34% of the total effect. Path 3 (internality → grit → self-esteem → mental health) has a mediating effect value of -0.042 [Bootstrap95% CI: -0.067, -0.021], accounting for 7.02% of the total indirect effect. The 95% confidence intervals of the three paths do not contain 0. From this we can know, that grit and self-esteem have a mediating effect between internality and mental health alone, and have also a chain mediating effect between internality and mental health (Table 2).

The mediation effect analysis results of model 2, the total indirect effect value of Bootstrap is 0.257 ($p < 0.001$), and the 95% confidence interval does not include 0 [Bootstrap95% CI: 0.219, 0.299], accounting for 46.31% of the total effect. The three mediating influence pathways also significantly affected the relationship between powerful others and mental health. Path 1 (powerful others → grit → mental health) has a mediating effect value of 0.052 [Bootstrap95% CI: 0.023, 0.079], accounting for 9.36% of the total effect. Path 2 (powerful others → self-esteem → mental health) has a mediating effect value of 0.081 [Bootstrap95% CI: 0.051, 0.115], accounting for 14.59% of the total effect. Path 3 (powerful others → grit → self-esteem → mental health) has a mediating effect value of 0.124 [Bootstrap95% CI: 0.099, 0.149], accounting for 22.35% of the total indirect effect. The 95% confidence intervals of the three paths do not

Table 2. Mediation effect analysis.

Model	Path	Standardized β	95% CI		The size of effects (%)
			Low	Up	
Model 1	Total	-0.598	-0.640	-0.555	
	Direct	-0.128	-0.205	-0.055	
	Total Ind	-0.470	-0.541	-0.404	78.60
	Ind1:Loc-Int→Grit→MH	-0.115	-0.172	-0.059	19.24
	Ind2:Loc-Int→SE→MH	-0.313	-0.382	-0.251	52.34
	Ind3:Loc-Int→Grit→SE→MH	-0.042	-0.067	-0.021	7.02
Model 2	Total	0.555	0.505	0.600	
	Direct	0.298	0.245	0.349	
	Total Ind	0.257	0.219	0.299	46.31
	Ind1:Loc-PO→Grit→MH	0.052	0.023	0.079	9.36
	Ind2:Loc-PO→SE→MH	0.081	0.051	0.115	14.59
	Ind3:Loc-PO→Grit→SE→MH	0.124	0.099	0.149	22.35
Model 3	Total	0.640	0.602	0.679	
	Direct	0.398	0.348	0.451	
	Total Ind	0.242	0.202	0.286	37.81
	Ind1:Loc-Ch→Grit→MH	0.033	0.002	0.062	5.15
	Ind2:Loc-Ch→SE→MH	0.094	0.062	0.128	14.69
	Ind3:Loc-Ch→Grit→SE→MH	0.115	0.093	0.140	17.97

Loc-Int, Internality; Loc-PO, Powerful Others; Loc-Ch, Chance; SE, Self-Esteem; MH, Mental Health.
Source: Author.

contain 0. From this we can know, that grit and self-esteem have a mediating effect between powerful others and mental health alone, and have also a chain mediating effect between powerful others and mental health (Table 2).

The mediation effect analysis results of model 3, the total indirect effect of Bootstrap is 0.242 ($p < 0.001$), and the 95% confidence interval does not include 0 [Bootstrap 95% CI: 0.219, 0.297], accounting for 37.81% of the total effect. The three intermediary influencing paths also significantly affect the relationship between chance and mental health. The mediating effect of Path 1 (chance → grit → mental health) is 0.033 [bootstrap 95% CI: 0.002, 0.062], accounting for 5.15% of the total effect. The mediating effect of path 2 (chance → grit → mental health) is 0.094 [bootstrap 95% CI: 0.02, 0.128], accounting for 14.69% of the total effect. Path 3 (chance → grit → self-esteem → mental health) has a mediating effect value of 0.093, and the 95% confidence interval does not include 0 [Bootstrap 95% CI: 0.093, 0.140], accounting for 17.97% of the total receiving effect. The 95% confidence interval of the three paths does not include 0. From this we can know, that grit and self-esteem have a mediating effect between chance and mental health alone, and have also a chain mediating effect between chance and mental health (Table 2).

DISCUSSION

Using a chain mediation model, this study explores the influence of locus of control, grit, self-esteem on the mental health of college students in Guangxi, China. The results support these hypotheses and test the mediating roles of grit and self-esteem between locus of control and mental health.

Regarding the relationship between locus of control, grit, self-esteem and mental health, the results of this study are in line with those of previous studies. The three factors of locus of control: internality, powerful others, and chance are all significantly related to mental health (Rashid, 2021). Among them, internality of college students will show lower symptoms of depression, anxiety and stress, while powerful others and chance will lead to higher symptoms of depression, anxiety and stress. This conclusion is consistent with previous studies (Khumalo and Plattner, 2019; Chisholm-Burns et al., 2021). Internally controlled students are stronger than externally (powerful others, opportunities) controlled students in terms of their ability to resist stress during E-learning. When faced with the same negative psychological emotions, internally controlled students will focus on how to overcome the problem.

External controlled students (powerful others,

opportunities) think less about their own problems, attribute problems to external uncontrollable factors, and focus more on venting negative emotions (Khumalo and Plattner, 2019). University administrators or teachers can help students develop internally, when they encounter setbacks and difficulties in learning; they should teach students how to discover their problems themselves, and find solutions to them. This will help to improve their learning.

Internality, powerful others and chance are all significantly related to grit and self-esteem. Internality predicts high grit and high self-esteem, while people with powerful others and chance have lower grit and self-esteem than those with internality (Celik and Sariçam, 2018; Ng and Meena, 2021). Grit and self-esteem are important factors affecting students' mental health; if they are too low, college students will encounter more psychological problems in E-learning. When the self-esteem of college students in E-learning is weakened, they will doubt their ability and value, their learning satisfaction will decrease, symptoms of depression, anxiety and stress will also become prominent, which will easily lead to mental health problems (Nordstrom et al., 2014; Ron and Rovner, 2014). University administrators or teachers should improve the grit and self-esteem of college students for them to be able to resist and cope with depression, anxiety and stress. Even in the face of difficulties and setbacks, they can still show positive optimism and perseverance, and have learning satisfaction.

In addition, there are three findings in this study. First, grit plays a mediating role between locus of control and mental health of college students in Guangxi, China. Second, self-esteem has a mediating role between locus of control and mental health in college students in Guangxi, China. Combining the above analysis, it can be found that in the influence of locus of control on mental health; the mediating effect of self-esteem is greater than that of grit. There is also a path, that grit and self-esteem have a chain mediating effect between E-learning locus of control and mental health of college students in Guangxi, China, which is the main theoretical contribution of this study. Internality, powerful others, and opportunities can respectively predict mental health through grit and self-esteem. From the grit of path comparison, the chain mediation effect of grit and self-esteem is more obvious in the impact of powerful others and chance on mental health, accounting for 22.35 and 17.97% of the total utility, respectively.

Based on the background of E-learning, this study takes college students in Guangxi, China as the research object, and explores the influence of locus of control, grit, self-esteem on their mental health. It confirmed the important role of grit and self-esteem in this relationship. It further enriched the content of the locus of control theory, which has provided a meaningful reference for preventing and alleviating the mental health of college

students in E-learning. School administrators and teachers should not only help students form correct self-cognition and well learning attributions in terms of psychological control sources, they should also pay attention to enhancing their grit in learning and build their self-esteem. It can more effectively reduce their feelings of depression, anxiety and stress, thereby forming a better mental health state and ultimately achieving better learning outcomes.

Conclusion

This study examines the correlation among locus of control, grit, self-esteem, and mental health among college students in Guangxi, China, during the process of E-learning, and also confirms the chain mediation role of grit and self-esteem between locus of control and mental health. Specifically, the three factors of locus of control can directly or indirectly affect mental health through grit and self-esteem. We confirmed the chain mediation effect of grit and self-esteem between locus of control and mental health.

At present, college students have more and more mental health problems in E-learning. University administrators and teachers should strengthen the screening of students with serious mental health problems, and deeply understand the factors of mental health problems, especially internal symptoms, such as their locus of control, grit, or self-esteem, with due regard for their interrelationships. For example, focusing on improving E-learning grit and self-esteem, while focusing on their impact on mental health, may aid recovery or prevent further progression of symptoms.

Research limitations and deficiencies

First of all, due to the impact of Covid-19, this study mainly distributed questionnaires online through convenient sampling. The selected samples are not targeted, and it is easy for the subjects to answer inaccurately or be biased. Secondly, the sample proportion of male students and fourth-grade students is too small, which could impact the representativeness of the research results. Third, this study found that other factors also have an impact on the mental health of college students, such as parents, teachers, and classmates (Zhang et al., 2012; Lei et al., 2022). In future studies, researchers can combine subjects' personal internal and external factors, and explore their mediating or regulating effects on the mental health of college students.

CONFLICTS OF INTERESTS

The authors have not declared any conflicts of interests.

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Full Length Research Paper

The relationship between innovative self-efficacy and innovative ability of dance majors' students in Chinese Universities research

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The cultivation of innovative ability is an important part of China's current long-term education planning and innovative development-driven strategy, as well as an important issue of university teaching reform. The cultivation of innovative ability of dance professionals in colleges and universities is a problem of great concern for dance majors in terms of innovative teaching and new curriculum reform. The purpose of this study is to analyze the relationship between innovative self-efficacy and innovative ability of dance majors, as well as the gender differences between the two. Through a questionnaire survey of dance majors in 6 universities in central China, 565 valid questionnaires were collected, and the relationship between variables was tested by difference analysis and Structural Equation Model model. The research results show that there are significant differences between genders in terms of innovative self-efficacy and innovative ability of dance majors; the innovative self-efficacy of dance majors has a positive impact on their innovative ability.

Key words: Dance majors' students, innovative self-efficacy, and innovative ability.

INTRODUCTION

Higher education plays a central role in disseminating the latest knowledge and promoting innovation growth. Colleges and universities are the source of innovative information and an important provider of innovative talents. They promote innovation and train future innovators by teaching skills through courses (Biasi et al., 2020). Today's higher education in dance not only emphasizes technical performance but also conveys a higher level of artistic expression and innovation, and

students are expected to develop the dance skills and creative abilities needed to face the challenges of the future (Sööt and Viskus, 2014). Innovation was first introduced in the field of management as the ability of organisations to adopt new ideas, implement new technologies and develop new products (Burns and Stalker, 1961), and Csikszentmihalyi (1999) proposed that the innovative ability needs to be understood in specific fields (such as literature, art, music, or physics).

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It is not only the individual's capacity for artistic innovation that is enhanced by artistic training, but also the multiple cognitive foundations that lie behind this capacity, which, as an overarching concept, is often largely seen as the depository of artistic activities such as dance, music, theatre and art. And dance experience is closely related to certain aspects of creative work, such as sensory perception, spatial perception, imagination and self-regulation (Bond and Deans 1997; Bond 2001). In relation to dance innovation, Bergmann (1995), states that the expression of emotion through movement is the basis of innovative dance and defines dance innovation as the expression of the inner self through movement. When dance education is reinforced by an innovative thinking environment, developing the creative potential of each student is what satisfies a complete education (Schupp, 2014) and can also have additional positive effects on it, which include: 'critical thinking' 'dealing with ambiguity and complexity' " and "integrating multiple skill sets" among other positive skills (Petrie, 2020). As future practitioners of dance skills in society, implementers of dance education and purveyors of the art of dance, university dance students need to have a certain level of creative awareness, thinking and ability in order to better perform these roles and play an active role, which is a fundamental requirement of university dance education.

Self-efficacy has a very important impact on students' ability to express and innovate, especially in the academic environment (Stone and Hess, 2020), as a determinant of motivation (Van et al., 2011), and also a key indicator in the evaluation standard of dance education. Motivation can potentially engage students in dance learning with clear goals, and their dance self-efficacy encourages them to set better goals for learning and practising dance performance (Kane et al., 2013). Tierney and Farmer (2002), based on the idea of domain-specific self-efficacy research, combined with innovation theory in "The concept of 'innovation self-efficacy' was explicitly introduced on the basis of 'self-efficacy' and showed that innovation self-efficacy has a positive impact on innovation. The subjective assessment of an individual's level of beliefs about his or her own innovation efficacy is an important indicator of an individual's willingness to engage in innovative activities (Bandura, 1997), and students with high innovation self-efficacy are motivated to gather task-related information, think outside the box, view problems from different perspectives, and come up with innovative ideas (Deci and Ryan, 1987).

Oldham and Cummings (1996) suggests that an individual is more innovative if he or she has innovative personal traits. Students with innovative self-efficacy are able to sustain their efforts, face difficulties and pressures with a positive attitude, and proactively seek resources to solve them (Tierney and Farmey, 2002). Students can increase their self-efficacy and motivation in order to maintain their enthusiasm for dance, and by increasing

their creative self-efficacy, they can promote demonstrated performance in creative activities (Mainwaring and Krasnow, 2010).

Wu et al. (2021) in a study on gender and innovation, it was pointed out that there were significant differences in the impact of different genders on innovation, Shinnar et al. (2014) also found that there are significant differences between men and women in the study of innovation education. Some studies believe that compared with men, women usually lack confidence in their creativity and the quality of creative products (Karwowski, 2011). On the contrary, Reis and Holinger (2021) believes that women have strong innovation self-efficacy, which stems from their love and passion for the selected work. Women actively work hard and overcome obstacles to achieve high-level innovation. In the field of colleges and universities, women seek environmental conditions to enable them to focus on innovation tasks. Women with great innovation ability have strong innovation self-efficacy, desire to develop their intelligence, innovation ability, art or leadership ability, and focus on hard work (Reis, 2021). In summary, this study intends to investigate the differences in creative self-efficacy and creative ability among dance undergraduates of different genders, leading to the hypothesis that:

H1: Significant gender differences in creative self-efficacy among dance undergraduates

H2: There are significant differences in innovation ability between different genders of dance majors

Innovation ability is a necessary condition for the development of everything, and the influencing factors of innovation self-efficacy are recognized and promoted (Raihan and Uddin, 2023). Thomas (2021) argues that innovation self-efficacy is a powerful precursor to idea generation and facilitates the creation of innovation, that the innovation process is fraught with obstacles and that individuals who are confident in their ability to innovate should be more motivated to engage in innovation generation and that they expect to perform well in the innovation process (Anderson et al., 2014). Bandura (1997) suggests that innovation self-efficacy has a stronger explanatory power than general self-efficacy for innovation outcome variables. This is supported by the findings that innovation self-efficacy has a significant impact on innovativeness when explained by subjective beliefs and evaluations of innovativeness outcomes (Tierney and Farmer, 2002; Hsu et al., 2011).

In the field of educational research, Deci and Ryan (1987) proves that students with high innovation and self-efficacy should actively collect task-related information, break the thinking pattern, look at problems from different perspectives, and put forward innovative ideas. Beghetto (2006), taking a sample of 1322 students, considering the relationship between students' confidence in their academic ability and academic achievements, it verified

the relationship between different innovative self-efficacy and students' confidence in academic ability, and behaviors inside and outside the classroom. The study found that students with high innovation self-efficacy are more confident in their academic research ability in all disciplines; students with high innovation self-efficacy are more positive about their academic ability in all disciplines and take more part in after-school academic and team activities conducive to innovative research and practice. Dance major teaching requires students to develop their own thinking and creativity through repeated training of professional skills (Sims and Erwin, 2012; Soot and Leijen, 2012). There is a positive correlation between innovation self-efficacy and the innovation ability of art college students. It can be seen from the examples of many artists that highly creative art works are often considered to be unconventional. Only by showing a high degree of self-belief can they be optimistic about all kinds of doubts and obstacles and achieve success.

In view of the previous research and practice results, this study believes that innovation ability is an important part of dance teaching, and innovation self-efficacy is an important cause affecting the innovation ability of dance students. The innovative self-efficacy of college students majoring in dance will have a positive prediction effect on their own creativity, so the hypothesis is proposed:

H3: Innovative self-efficacy of dance majors has a significant positive impact on innovative ability

In previous studies, it has also been found that there are few studies on the impact of innovative Self-efficacy on innovative ability of dance majors, and the research in this field focuses on qualitative research, and the relevant variables involved in the research are many, and the results obtained are different (Kuh, 2003). Most of the four learning systems applied to dance education have no quantitative data for evaluation. Although a few studies have evaluated the system using questionnaires or interviews based on more subjective evaluation, there is still a lack of quantitative data (Dania et al., 2011; Hsia et al., 2016). This also leads to the diversity and complexity of the innovation ability of Chinese college students. In particular, the research on the current situation of the innovative ability of Chinese dance majors is urgent to be supplemented and improved. Therefore, this study takes the dance majors in colleges and universities in central China as the subjects, and attempts to use quantitative methods to study the factors that affect the innovative ability of dance majors.

In conclusion, innovation self-efficacy is helpful to the development of college students' innovation ability. This study attempts to analyse whether there is a significant difference between genders in terms of the influence of innovation self-efficacy on the innovation ability of university students, and aims to investigate the

relationship between innovation self-efficacy and innovation ability of university dance students in Chinese universities. It is hoped that the study will provide reference and help for future research related to the development and promotion of dance major education in Chinese universities, as well as the scientific and rational development of talent training programme plans.

METHODOLOGY

Research framework

Based on the research motivation, purpose and analysis of the above documents, this research framework is designed to sort out the gender differences in the impact of dance majors' innovative self-efficacy and innovation ability, as well as the relationship between innovative self-efficacy and innovation ability of dance majors in Chinese universities. The frame is shown in Figure 1.

Research subjects

A questionnaire survey was conducted using a purposive sampling method, taking dance majors in universities and colleges in central China as the research object. First, 122 college students were pre-tested with the questionnaire to test the reliability and validity of each scale, and to test whether it is applicable to the five research samples. 6 universities were selected from the formal survey. Each university distributed 100 questionnaires, a total of 600, and 565 valid questionnaires were recovered. The data of the valid questionnaires were analyzed statistically.

Research tools

After item analysis, exploratory factor analysis and reliability analysis of the pretest data, the items of the Innovation Self-Efficacy Scale and the College Student Innovation Competence Scale were determined for this study, and the official questionnaire was finalized. To ensure the reliability of the measurement instruments, Cronbach's α is still used. The coefficient tests the internal consistency reliability of the scale.

According to Cuieford (1965), in this study, CFA for confirmatory factor analysis was used to test the construct validity of the questionnaire. Hu and Bentler (1998) systematically explored the performance of fit indices under different estimation methods and different distributions, using SRMR, and a combination of seven indices such as NFI, IFI, RNI and CFI to determine model fit, which will also be considered in this study. Other fit indices (RMR, SRMR, CFI, IFI, PNFI, PGFI) are also used to assess the fit of the theoretical model to the observed data. The structural validity of the measurement needs to be considered based on the overall fit of the measurement model to the sample data. The CR of a latent variable measures the degree of consistency between observed variables of the same latent variable; a higher CR indicates a higher degree of correlation between the observed variables. A CR value greater than 0.7 is generally considered necessary, although Raine (2000) suggests that a CR of 0.5 is an indication of the stability of the measure. The average variance extracted for a latent variable is the total average variance of the observed variables explained by the latent variable relative to the measurement error; a value of AVE greater than 0.5 indicates that the observed variable is a valid reflection of the corresponding latent variable.

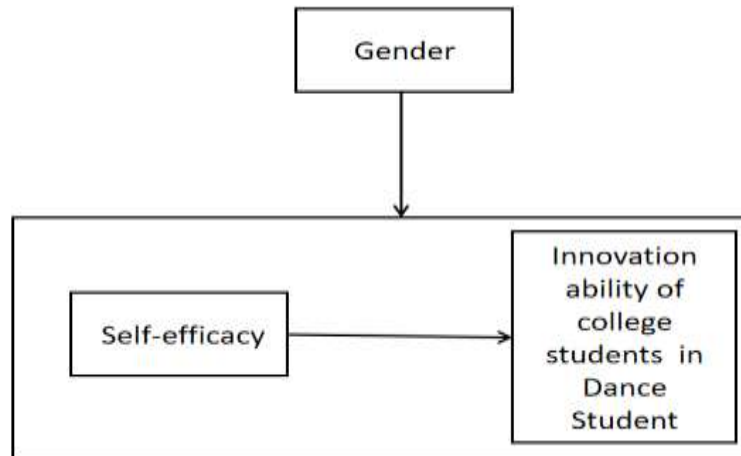


Figure 1. Research framework.
Source: Author

Table 1. Reliability and validity of the innovation self-efficacy scale.

Factor name	Item	Standardized regression weights	CR	AVE	Cronbach's α
Creative thinking beliefs	XN1_1	0.813	0.812	0.590	0.811
	XN1_2	0.753			
	XN1_3	0.737			
Creative finished product belief	XN2_1	0.733	0.820	0.532	0.820
	XN2_2	0.765			
	XN2_3	0.742			
	XN2_4	0.675			
Anti-negative evaluation belief	XN3_1	0.805	0.832	0.624	0.830
	XN3_2	0.846			
	XN3_3	0.713			

Source: This study

Innovation self-efficacy scale

In this study, Chang (2016) revised the 10-question scale of "Students' Sense of Innovative Self-efficacy" compiled by Hong Suping et al. (2008). The scale has been used to measure the innovative self-efficacy of college students majoring in design. It includes three dimensions of creative thinking strategy belief, creative finished product belief and anti-negative evaluation belief, including three questions of creative thinking strategy belief ("When I encounter problems in learning, I believe I can quickly associate with many solutions", etc.), four questions of creative finished product belief ("When I face difficult problems, I believe I can always think of unexpected answers", etc.) Three questions about anti-negative evaluation beliefs ("Even if the teacher does not encourage innovative ideas, I will still think about problems and find different solutions"). Using the Likert-5-point scoring method, the higher the score indicates the higher the innovation self-efficacy. According to the reliability test, Cronbach's $\alpha=0.811$, and Cronbach's $\alpha=0.820$. Cronbach's $\alpha=0.830$, The overall Cronbach's α value was 0.781, which is greater than the standard value of 0.70, which proves that the scale has good reliability in this study. Using confirmatory factor analysis, the scale has a factor load range of

0.677 to 0.846; CR values were 0.812, 0.820 and 0.832 respectively, all of which were greater than 0.7; AVE values are 0.590, 0.532 and 0.624 respectively, all greater than 0.5, indicating that the scale has good validity, as shown in Table 1 and Figure 2.

According to Table 2, RMR = 0.017, SRMR = 0.029, IFI = 0.983, CFI = 0.983, PNFI = 0.691, and PGF=0.568. Therefore, all the fit indicators of the innovative self-efficacy scale in the formal questionnaire of this study met the test criteria, indicating that the model has a relatively good fit.

College students' innovation ability scale

The innovation ability of dance majors is measured by the innovation ability scale developed by Zhou and George (2001). The scale is a single-dimension scale, which contains 13 questions, such as "I will have many innovative ideas", "I am not afraid of taking risks", "I will make detailed plans and arrangements for implementing new ideas". Using the Likert-5-point scoring method, the higher the score, the higher the degree of innovation ability. Through the reliability detection, According to the reliability test, Cronbach's $\alpha=0.958$, which is greater than the judgment standard

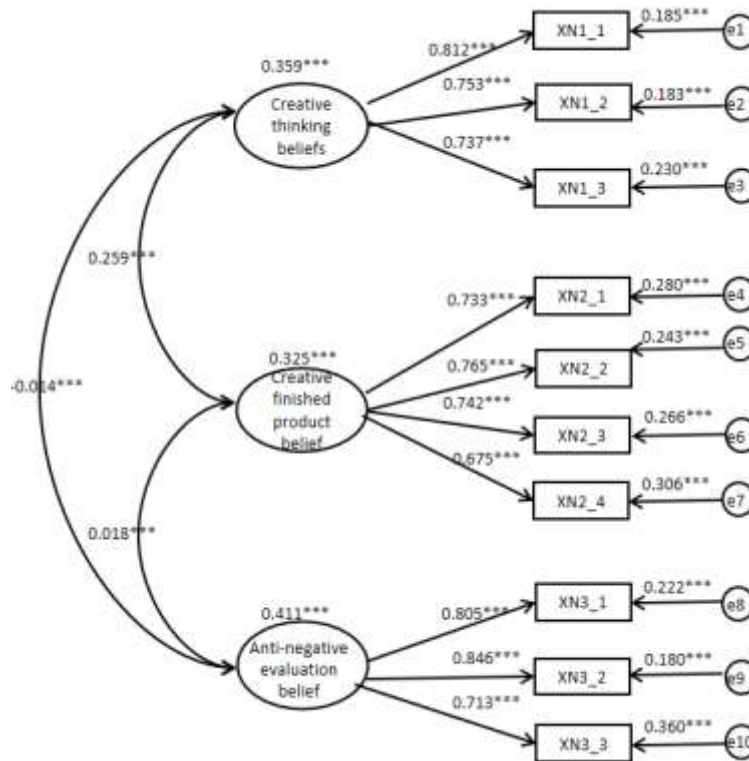


Figure 2. Innovative self-efficacy CFA.
Source: Author

of 0.70. Using confirmatory factor analysis, the scale has a factor load range of 0.722 to 0.859; The CR and AVE values were 0.958 and 0.676 respectively, which exceeded the evaluation criteria, indicating that the validity of the scale was good, as shown in Table 2 and Figure 3.

According to Table 3 and Table 4, the fitting indexes of innovation self-efficacy and innovation ability Scale RMR, SRMR, IFI, CFI, PNFI, and PGF met the test criteria, indicating that the fit degree of the model was relatively good.

RESULTS

In this study, Harman single-factor test was used to test the inter-variable CMV. The result shows that the interpreted variance of the first common factor with the characteristic value greater than 1 is 40.059%, which means that the error of the same source does not affect the data result, so it is presumed that there is no serious CMV problem.

Difference analysis

This study used convenient sampling to distribute 600 questionnaires to dance majors in six universities in central China, and recovered 565 valid questionnaires, with an effective rate of 93.08%, including 198 male students (35%) and 367 female students (65%). The

dimensions of innovation self-efficacy and innovation ability of dance majors of different genders are shown in Table 5.

Among the total number of people, the average value of "college students' innovation ability" is the highest (3.841), and the average value of "creative finished product belief" in innovation self-efficacy is the lowest (3.551). This study uses independent sample t-test to test whether there are significant differences between the sexes of dance majors in terms of innovation self-efficacy and innovation ability. Through the analysis of the sample data by independent sample t-test, it can be seen from Table 5 that the variance of each sample of innovative self-efficacy and innovative ability is not the same ($p < 0.001$; $p < 0.01$; $p < 0.05$), and there is significant difference between the sexes of dance majors in terms of innovative self-efficacy and innovative ability:

a) There are significant differences in the dimensions of creative self-efficacy between college students' genders, among which the t value of creative thinking belief is 9.958 ($p < 0.001$), the t value of creative finished product belief is 13.179 ($p < 0.001$), and the t value of creative self-efficacy is 9.870 ($p < 0.001$). Because the variance of each sample is different, the comparison of the average shows that the gender of dance majors is significantly higher than that of girls in all dimensions of innovative self-efficacy;

Table 2. Reliability and validity of the innovation ability scale for college students.

Factor name	Item	Standardized regression weights	CR	AVE	Cronbach's α
Innovation ability of college students	CX1	0.817	0.958	0.676	0.964
	CX2	0.806			
	CX3	0.836			
	CX4	0.830			
	CX5	0.842			
	CX6	0.722			
	CX7	0.749			
	CX8	0.854			
	CX9	0.859			
	CX10	0.854			
	CX11	0.859			
	CX12	0.829			
	CX13	0.818			

Source: This study.

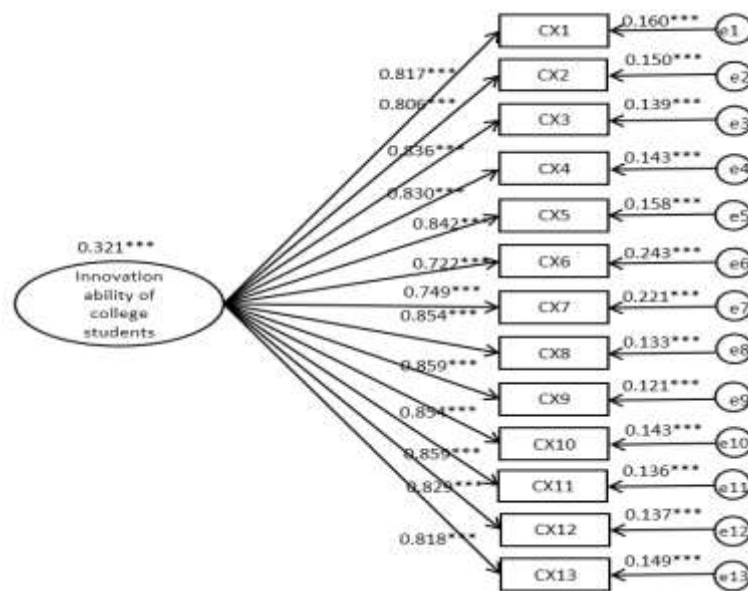


Figure 3. Innovation ability of college students CFA.
Source: Author

Table 3. Model fit of the innovation ability scale.

Model fit scaling	Index of standard	Statistic	Fits
RMR	<0.080	0.020	all right
SRMR	<0.080	0.041	
IFI	>0.900	0.904	
CFI	>0.900	0.904	
PNFI	>0.500	0.753	
PGFI	>0.500	0.584	

Source: This study.

Table 4. Validation factor model fit of the innovative self-efficacy scale.

Model fit scaling	Index of standard	Statistic	Fits
RMR	<0.080	0.017	
SRMR	<0.080	0.029	
IFI	>0.900	0.983	
CFI	>0.900	0.983	all right
PNFI	>0.500	0.691	
PGFI	>0.500	0.568	

Source: This study.

Table 5. Analysis of the average and standard differences of college students' gender in various variables (n=565).

Item	Total (n=565)		Male(n=198)		Female (n=367)		t	p
	M	SD	M	SD	M	SD		
Creative thinking beliefs	3.738	0.510	3.998	0.434	3.597	0.493	9.958	0.000
Creative finished product belief	3.551	0.533	3.894	0.431	3.366	0.490	13.179	0.000
Anti-negative evaluation belief	3.747	0.531	4.017	0.452	3.602	0.514	9.870	0.000
Innovation ability of college students	3.841	0.442	4.058	0.420	3.724	0.408	9.520	0.012

Source: This study.

Table 6. Correlation analysis of each variable.

	Creative thinking beliefs	Creative finished product belief	Anti-negative evaluation belief	Innovation ability of college students
Creative thinking beliefs	1			
Creative finished product belief	0.675***	1		
Anti-negative evaluation belief	0.504***	0.586***	1	
Innovation ability of college students	0.655***	0.635***	0.647***	1

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

Source: This study.

b) There is a significant difference in the innovation ability between the sexes of dance majors, with a t value of 9.520 ($p < 0.05$). Because the variance of each sample is different, the average is compared. It is found that the gender of dance majors is also significantly higher than that of girls in terms of innovation ability.

Therefore, in terms of gender, boys are significantly higher than girls in terms of "belief in creative thinking", "belief in creative products", "belief in anti-negative evaluation" and "innovation ability of college students".

Correlation analysis

Table 6 shows the Pearson correlation coefficient matrix between the variables involved. The correlation

coefficients reflect the degree of linear correlation between the variables and allow a preliminary judgment to be made on the validity of the hypotheses proposed in the study. The correlation analysis was used to test the relationship between creative self-efficacy and creative ability of dance students, and the results showed that there was a significant correlation between the dimensions of innovative self-efficacy and innovative ability of university students, with correlation coefficients ranging from 0.504 to 0.675, with p-values less than 0.001. In addition, the correlation coefficients between the variables were no greater than 0.8, indicating that there was no co-linearity, which also indicated that there was a correlation between the variables correlation exists and the relationship between the variables can be carried out in the next step.

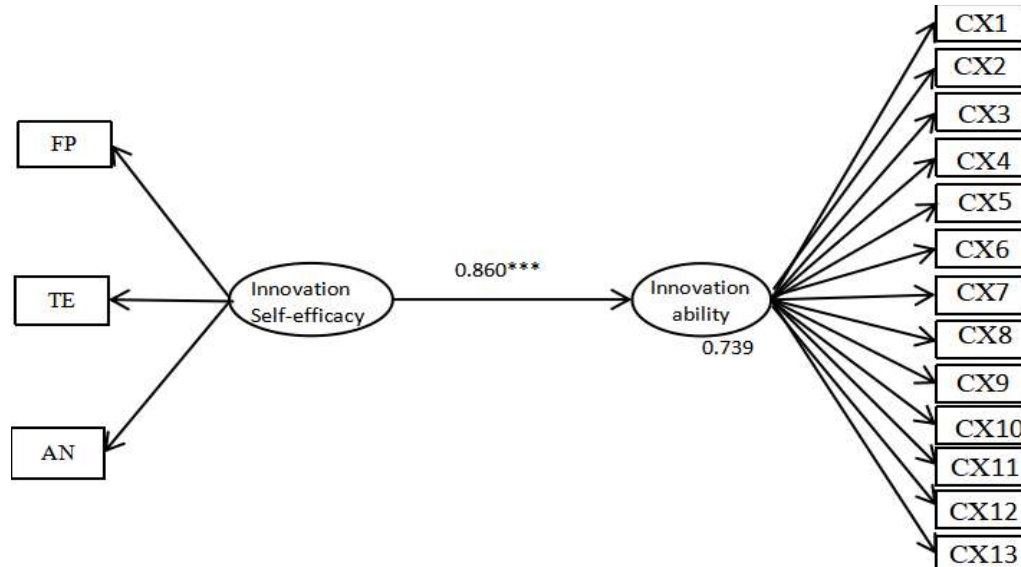


Figure 4. Model of the effect of innovation self-efficacy on college students' innovation ability.
Source: Author

Structural Equation Model (SEM)

On the basis of relevant theories and literature review, this paper proposes that innovation self-efficacy has a positive and direct impact on college students' innovation ability, and uses structural equation model (SEM) to analyze it. Figure 4 shows the corresponding structural equation model. Figure 4 show that innovation self-efficacy has a significant positive impact on college students' innovation ability. The standardized path coefficient is 0.860, ($t=16.499$, $p<0.001$), and the explanatory amount is 0.739. This means that innovation self-efficacy demonstrates faith in the innovation process and its outcomes, which promotes the development and performance of college students' innovation capabilities (Newman et al., 2018).

DISCUSSION

Gender differences in innovation self-efficacy

The results of this study show that there are significant differences between the genders of dance majors in the dimension of innovation self-efficacy. This finding is different from Shinnar et al. (2014), who found no significant gender differences in higher education, as well as ReisandHolinger (2021), who found that girls were significantly higher than boys in terms of innovative self-efficacy. This study found that there were gender differences in the innovative self-efficacy of dance majors, with boys having higher scores than girls in creative thinking beliefs, creative finished product beliefs, and anti-negative evaluation beliefs. The results show

that boys have higher creative thinking beliefs, more clear innovation attempts and intentions in the field of dance majors, are more willing to accept challenging tasks, and are better at thinking and using the knowledge and skills acquired to get better solutions through various channels and means to stimulate their own innovation potential. In terms of faith in creative finished products, boys show higher self-confidence than girls, and the knowledge and skills gained in learning make them more confident. In learning, boys can find the fun of innovation and use active exploration behavior, believing that the innovation results displayed through their own efforts will achieve the expected results. Furthermore, boys are significantly better than girls in terms of anti-negative evaluation beliefs. Even if the people around them do not accept their original innovative ideas or works, boys can still adhere to their own ideals, ideas, and practices, showing a greater resistance to external influences than girls.

Gender differences in innovation ability

The research found that there is also a significant gender difference in the innovative ability of dance majors. Girls are significantly lower than boys. The research results are similar to the past (Cheung and Lau, 2010; Baer and Kaufman, 2008). First of all, boys are more active in thinking and are more willing to explore unknown things.

Their thirst for knowledge and heterosexuality are stronger than girls. They like to be unbound and free from the broader fields beyond the knowledge they have learned. They are good at using new methods, new technologies and new ideas to improve their academic quality; boys are more practical than girls. Boys can find

problems, flexibly solve problems from other angles, and make detailed plans and arrangements. This process continues to deepen, and ultimately can produce innovation. The manifestation of gender differences in the innovative ability of dance majors may be caused by physiological differences. At the same time, family education and school education, along with the growth of college students, will also become the main factors that cause the gender differences in the innovative ability of dance majors. In addition, the major teaching form of dance professional skills courses in colleges and universities is mostly male and female classes, providing environmental conditions for the formation of gender differences in innovative ability.

The influence of innovation self-efficacy on college students' innovation ability

As expected in this study, innovative self-efficacy of dance majors has a positive impact on innovative ability, and the results confirm the findings of Beghetto (2009) that innovative self-efficacy has a significant positive impact on innovative ability of college students. Specifically, if students can quickly think of many different or new solutions when they encounter problems, and can try to solve problems with new methods, their creativity will be enhanced. That is to say, students with higher creativity will be able to come up with more different ideas or unexpected answers than ordinary students, and will be more willing to try new methods. Research has demonstrated that innovation self-efficacy has a significant impact on innovation ability (Hsu et al., 2011). Dance students are motivated by their training goals, are able to use their professional knowledge and original ideas to create innovative works, and are constantly pushing forward the process of innovation, thus demonstrating a strong capacity for creativity. Dance majors have been found to be more confident and satisfied with their creative behavior, as they are able to effectively utilize their individual creativity, actively seek solutions to any problems that arise, have faith in their ability to accomplish their creative ambitions, and take pride in presenting the work they have created. Furthermore, those with a high level of innovation self-efficacy demonstrate an optimistic and confident evaluation of their expertise in the field of dance, and are capable of taking part in a variety of activities that contribute to their innovation (Choi, 2004; Gong et al., 2009).

This study has once again demonstrated a significant positive correlation between innovation self-efficacy and innovation ability, with students who rate themselves higher in terms of innovation self-efficacy showing greater innovation ability and performing better in the actual process of innovation. Dance undergraduates tend to possess a strong sense of innovation self-efficacy, which

allows them to use innovative approaches to solve problems, stand by their ideas in the face of challenge, and remain steadfast even when encountering difficulties, thus increasing their level of innovative ability. This result establishes the key role of innovation self-efficacy on the innovation ability of university students and indicates that the development of university students' innovation ability depends on the individual.

CONCLUSIONS AND SUGGESTIONS

The purpose of this study is to better understand the relationship between innovative self-efficacy and innovative ability among college students majoring in dance, with a particular focus on the differences between males and females. Results indicate that males are significantly higher than females in all aspects of innovation, exhibiting more ideas, greater willingness to accept different opinions and suggestions, and a greater willingness to try out new methods to solve problems. Boys are better than girls at reflecting and associating on the basis of existing knowledge and experience, coming up with opinions and ideas different from conventional ones, and having the ability to solve problems innovatively in practice. Both need to encourage dance professional girls to adapt to the new environment by accepting new things, actively practicing, being good at reforming around things and developing an inventive mindset. Since girls' perceptual thinking is relatively rich, they should be exposed to more team-based learning, and focus on cultivating their innovation self-efficacy and expressing their innovative abilities. This will help them strengthen their understanding of their innovative capabilities and improve their ability to present it.

The results of this study show that there is a significant positive relationship between dance students' innovation self-efficacy and innovation ability. Therefore, in order to better promote the innovation ability of university students in the field of university dance majors, it is essential to establish the teaching concept of "student as the main body", encouraging students to be brave in developing and practicing, and to be proficient in showcasing their artistic works, in order to achieve continual improvement in their innovation ability. Dance students should be guided by the school's training objectives and innovation policy, use innovative methods, believe in their own ability to produce innovative works, and continue to promote the process of innovative activity, depending on their level of theoretical knowledge and overall quality.

Colleges and universities not only shoulder the responsibility of teaching and educating people, but also undertake the mission of cultural inheritance and innovation. The national standard for the teaching quality of dance major in colleges and universities requires that "dance major college students need to have: basic professional ability, artistic appreciation ability, artistic

practice and innovation ability. "Among them," innovation ability" proposes: on the basis of knowledge and skill accumulation, it can reflect creative thinking in learning and practice, and actively make new attempts; it can think, design, plan and summarize artistic innovation. In the face of the social demand for dance professionals, college students should first enhance the ideological and political value of the courses. Should master China's socialist literary policy and policy, various, multi-level enhance students' patriotism, in the process of discovery, understanding, practice, really into society, understand scientific and cultural knowledge, dance teaching, creation and performance and so on various aspects of the basic theoretical knowledge and professional skills, the formation of scientific and advanced discipline concept. Secondly, college students should set up innovative ideas during their study period. On the one hand, all kinds of activities held inside and outside the school are possible for students to actively participate in social practice to improve their social practice ability, enhance their awareness of innovation, and cultivate students' innovation ability. On the other hand, we can fully understand the development of The Times, and with the help of the short video platform, we can combine professional knowledge with innovative practice to fully improve the innovation ability.

CONTRIBUTIONS AND LIMITATIONS

Through the analysis of the innovative ability of college students, this study can enable the school to fully and deeply understand the current situation of the innovative ability of dance majors and the problems in the process of cultivating innovative ability, and give practical and effective suggestions for the problems encountered, so as to provide more accurate information for improving the innovative ability, so as to help the school to formulate a practical education reform plan. Innovative self-efficacy is an important factor in determining the innovative ability of dance majors. Empirical analysis can be used to explore its impact on the innovative ability of dance majors. Through this analysis, it can be concluded that the curriculum content of innovative ability education for dance majors should be set according to different genders in order to cultivate the innovative self-efficacy of college students. In addition, it can also be concluded that having full confidence in one's own innovation in learning can help to enhance the innovative ability of dance majors.

In order to improve college students' abilities to innovate and cope with the increasing need for innovative talents, I remain confident in my ability to complete tasks innovatively, even when the results of my innovation are questioned and opposed.

The results of a questionnaire survey and data analysis of dance majors from six universities in China suggest that there is a significant relationship between innovative

self-efficacy and innovative ability among these students. Future research can increase the number of samples, compare between different regions, dance skill levels, and school levels, and explore the differences of other background variables in the innovation self-efficacy and innovation ability of dance majors; Through qualitative research such as experiments and interviews, observe the relationship between innovation self-efficacy and innovation ability, so as to benefit more dance majors and provide strong support for the improvement of innovation ability of college students.

CONFLICT OF INTERESTS

The authors have not declared any conflicts of interests.

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