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Article

A Study on the Correlation between Emotional Tolerance and Self-Identity Development among College Students Aged 18-25: A Comparison Based on Different Age Groups and Gender Populations

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Abstract: Objective: To explore the influence relationship between emotional tolerance and self-identity development among college students, considering the differences in age and gender. Method: Select appropriate college student subjects, determine the measurement scales for emotional tolerance and self-identity development, collect research data through questionnaire surveys, and use SPSS25.0 as the statistical analysis tool. Results: Only 45.91% of the college student sample had a self-identity development level exceeding the overall mean. The overall situation of students' self-identity was relatively low. The emotional tolerance level of male students (M=3.976) was significantly higher than that of female students (M=3.738). In dealing with negative emotions such as anger and sadness, the overall performance of male students was stronger than that of female students, and they also showed similar performance in the overall dimensions of self-identity development. There were also significant differences in these two core variables at the age range of 18-25. Additionally, Pearson coefficient and hierarchical regression tests simultaneously revealed that emotional tolerance could positively and significantly influence the self-identity development level of college students. Conclusion: High emotional tolerance is an important promoting factor for college students to form clear and stable self-identity. Incorporating the cultivation of emotional tolerance into the college education system is crucial for promoting the healthy development of students' self-identity.

Keywords: Emotional tolerance; Self-identity development; Pearson coefficient; Hierarchical regression

1. Introduction

Emotional tolerance refers to the ability of an individual to maintain psychological balance, effectively regulate emotional responses, and maintain adaptive behaviors when facing negative emotional stimuli [1-2]. College students aged 18-25 are the main body of higher education, bearing the heavy responsibility of the country's development. They are constantly taking on more courses during their studies, and are also influenced by aspects such as making friends and self-management. Most students feel overwhelmed [3-5]. For them, emotional tolerance is of vital importance and plays a significant role in coordinating students' personality development and achieving self-identity development [6-7].

Self-identity is a complete awareness and understanding of oneself, a form of self-approval, including self-actualization and self-understanding [8-9]. Self-identity enables students to integrate themselves in a specific environment and achieve the function of adaptation, including environmental adaptation and interpersonal relationship adaptation [10-11]. For college students aged 18-25, they are in the transitional stage from adolescence to adulthood. The development of self-identity is crucial for their growth and healthy development, and emotional tolerance has an important influence on self-identity [12-14].

However, as college students grow older, their cognition, concepts, and life attitudes will also change, and so will their emotional tolerance and the development of self-identity. Therefore, based on comparisons of different age groups and gender groups, exploring the correlation between emotional tolerance and self-identity development among college students aged 18-25 is particularly important.

This study measures the structure of emotional tolerance from four dimensions: self-emotional assessment, others' emotional assessment, emotional utilization, and emotional regulation. It measures the structure of self-identity development from three domains: identity, ideology, and interpersonal relationships. A sample of college students from multiple universities in SX Province and GD Province was selected, and data was collected through the distribution of questionnaires. Statistical methods were used to analyze and test the relationships between different variables. This study used quantitative data to determine the current status of self-identity development among college students and its differences in age and gender, and to determine the relationship between emotional tolerance and self-identity. This can provide a theoretical basis for emotional education for college students aged 18-25, guiding them to better manage their emotions and adapt to their current studies and lives.

2. Research Contents and Methods

This study, based on multiple universities, employed the questionnaire survey method to reveal the current status of college students' self-identity development, and explored the correlation between the emotional tolerance of college students and their overall self-identity development under the conditions of demographic variables such as age and gender.

2.1. Participants

This study was conducted from October to December 2025, using a convenient sampling method to survey college students from multiple universities in SX Province and GD Province. A total of 586 questionnaires were distributed, and 575 valid questionnaires were retrieved. The demographic information of the respondents is shown in Table 1. Among them, there were 272 male students (47.30%) and 303 female students (52.70%); 101 freshmen (17.57%), 154 sophomores (26.78%), 185 juniors (32.17%), and 135 seniors (23.48%).

Table 1. Demographic information of the study participants

Feature		Quantity	Percentage (%)
Gender	Male	272	47.30
	Female	303	52.70
Grade	Freshman	101	17.57
	Sophomore	154	26.78
	Junior	185	32.17
	Senior	135	23.48
Age	18	71	12.35
	19	98	17.04
	20	96	16.70
	21	102	17.74
	22	88	15.30
	23	56	9.74
	24	41	7.13
	25	23	4.00
Major	Literature	68	11.83
	Education	77	13.39
	Science	134	23.30
	Engineering	145	25.22
	Economics	106	18.43
	Management	45	7.83

2.2. Research Tools

2.2.1. Emotional Tolerance Scale

This paper adopts the Emotional Tolerance Inventory (WLEIS) [15], which consists of 16 questions and uses Lilkert's 5-point scoring method. It assesses an individual's performance in four dimensions: self-emotional assessment, assessment of others' emotions, emotional utilization, and emotional

regulation. The WLEIS scale is shown in Table 2. The higher the score, the stronger the individual's ability in these four aspects, and the higher the level of emotional tolerance. The overall internal consistency coefficient and the internal consistency coefficients of the four subscales of the scale have all met the standards.

Table 2. WLEIS Emotional Tolerance Scale

Emotional Tolerance /ET	Self-Emotion Appraisal /ET1	I have a good sense of why I have certain feelings most of the time.
		I have a good understanding of my own emotions.
		I really understand what I feel.
		I always know whether or not I am happy.
	Others' Emotion Appraisal /ET2	I always know my friends' emotions from their behavior.
		I am a good observer of others' emotions.
		I am sensitive to the feelings and emotions of others.
		I have good understanding of the emotions of people around me.
	Use of Emotion /ET3	I always set goals for myself and then try my best to achieve them.
		I always tell myself I am a competent person.
		I am a self-motivated person.
		I always encourage myself to try my best.
	Regulation of Emotion /ET4	I am able to control my temper so that I can handle difficulties rationally.
		I am quite capable of controlling my own emotions.
		I can always calm down quickly when I am very angry.
		I have good control of my own emotions.

2.2.2. Self-Identity Development Scale

The self-identity development scale adopted in this article is shown in Table 3. This scale uses the Lilkert 5-point scale for empirical research on self-identity, covering three domains: identity, ideology, and interpersonal relationships. Each domain includes four types: achievement-oriented, delay-oriented, exclusive, and diffuse.

Table 3. Self-Identity Development Scale

Self-identity development /SID	Identity /SID1	Achievement-oriented /SID11
		Delayed-oriented /SID12
		Exclusive-oriented /SID13
		Diffused-oriented /SID14
	Ideology /SID2	Consciousness Achievement Type /SID21
		Consciousness Delay Type /SID22
		Consciousness Exclusion Type /SID23
		Consciousness Diffusion Type /SID24
	Interpersonal relationships /SID3	Interpersonal achievement type /SID31
		Interpersonal delay type /SID32
		Interpersonal exclusivity type /SID33
		Interpersonal dispersion type /SID34

2.2.3. Statistical Methods

The data obtained were subjected to descriptive statistics and Pearson's product-moment correlation analysis using SPSS 25.0 statistical software [16]. Meanwhile, the PROCESS program was employed to examine the correlation between emotional tolerance and self-identity development by controlling for age and gender.

3. Research Results

3.1. Test for Common Method Bias

This study intends to test the quality and effectiveness of the questionnaire through the examination of common method bias. The common method bias test is usually conducted using the Harman single-factor test [17]. The results of the common method bias test are shown in Table 4. When using this method to test that the variance explained by the first factor does not exceed 36%, it can be concluded that the common method variance is acceptable. In this study, there are 24 factor characteristic roots greater than 1. Among them, the cumulative variance explained by the first factor is 11.134%, which does not exceed

the critical value of 36%, indicating that there is no common method bias problem in this study.

Table 4. Result of the common method bias test

Component	Total	Init. %	Acc. %	Total	Extr. %	Acc. %
1	22.547	11.134	11.134	22.547	11.134	11.134
2	13.355	6.595	17.729	13.355	6.595	17.729
3	12.805	6.323	24.052	12.805	6.323	24.052
4	11.604	5.73	29.782	11.604	5.73	29.782
5	10.921	5.393	35.175	10.921	5.393	35.175
6	10.072	4.974	40.149	10.072	4.974	40.149
7	8.78	4.336	44.485	8.78	4.336	44.485
8	8.379	4.138	48.623	8.379	4.138	48.623
9	7.793	3.848	52.471	7.793	3.848	52.471
10	7.217	3.564	56.035	7.217	3.564	56.035
11	7.093	3.503	59.538	7.093	3.503	59.538
12	6.89	3.402	62.94	6.89	3.402	62.94
13	6.749	3.333	66.273	6.749	3.333	66.273
14	6.676	3.297	69.57	6.676	3.297	69.57
15	6.542	3.23	72.8	6.542	3.23	72.8
16	5.766	2.847	75.647	5.766	2.847	75.647
17	5.345	2.639	78.286	5.345	2.639	78.286
18	5.028	2.483	80.769	5.028	2.483	80.769
19	4.44	2.192	82.961	4.44	2.192	82.961
20	4.036	1.993	84.954	4.036	1.993	84.954
21	2.635	1.301	86.255	2.635	1.301	86.255
22	2.493	1.231	87.486	2.493	1.231	87.486
23	1.954	0.965	88.451	1.954	0.965	88.451
24	1.057	0.522	88.973	1.057	0.522	88.973
25	0.983	0.485	89.458	-	-	-
26	0.94	0.464	89.922	-	-	-
27	0.922	0.455	90.377	-	-	-
28	0.918	0.453	90.83	-	-	-
29	0.89	0.439	91.269	-	-	-
30	0.856	0.423	91.692	-	-	-
31	0.855	0.422	92.114	-	-	-
32	0.823	0.406	92.52	-	-	-
33	0.759	0.375	92.895	-	-	-
34	0.733	0.362	93.257	-	-	-
35	0.731	0.361	93.618	-	-	-
36	0.706	0.349	93.967	-	-	-
37	0.684	0.338	94.305	-	-	-
38	0.677	0.334	94.639	-	-	-
39	0.675	0.333	94.972	-	-	-
40	0.633	0.313	95.285	-	-	-
41	0.615	0.304	95.589	-	-	-
42	0.594	0.293	95.882	-	-	-
43	0.571	0.282	96.164	-	-	-
44	0.53	0.262	96.426	-	-	-
45	0.493	0.243	96.669	-	-	-
46	0.464	0.229	96.898	-	-	-
47	0.436	0.215	97.113	-	-	-
48	0.436	0.215	97.328	-	-	-
49	0.434	0.214	97.542	-	-	-
50	0.418	0.206	97.748	-	-	-
51	0.379	0.187	97.935	-	-	-
52	0.371	0.183	98.118	-	-	-
53	0.386	0.191	98.309	-	-	-
54	0.336	0.166	98.475	-	-	-
55	0.318	0.157	98.632	-	-	-
56	0.316	0.156	98.788	-	-	-
57	0.303	0.15	98.938	-	-	-
58	0.276	0.136	99.074	-	-	-
59	0.263	0.13	99.204	-	-	-
60	0.229	0.113	99.317	-	-	-

3.2. Description of College Students' Self-Identity Development

The overall situation of contemporary college students' self-identity is not optimistic. Self-identity is

an important part of the self-concept and also the core of personality. The overall development status of self-identity of the sample of the test subjects is shown in Table 5. If the average value of self-identity is used as the basis for the formation of self-identity, only 45.91% of the college students in the sample have self-identity above the average level, indicating that in general, contemporary college students have more than half who have not yet formed a stable and mature self-identity.

Table 5. The overall development of self-identity among the test subjects

Variable	Mean	Standard error	Above the average	
			Count	%
SID11	3.941	0.680	298	51.90
SID12	4.335	0.938	270	46.94
SID13	4.257	0.719	295	51.39
SID14	3.813	0.742	312	54.21
SID21	2.503	0.257	288	50.00
SID22	2.794	0.289	256	44.46
SID23	3.431	0.359	318	55.36
SID24	2.642	0.465	288	50.08
SID31	3.512	0.441	305	53.10
SID32	3.751	0.424	270	47.01
SID33	3.871	0.346	295	51.25
SID34	3.238	0.271	309	53.69
Total	16.346	3.079	264	45.91

Among them, the proportion of those with a higher level of dispersion than the average was 51.90%, indicating that more than half of the college students have low self-esteem, low autonomy, and low self-development levels, and they mostly experience negative emotions such as loneliness and isolation. The proportion of those with an above-average level of exclusivity was 46.94%, suggesting that nearly half of the college students are externally controlled, highly dependent, and respect authority, being reluctant to challenge, with their moral judgment levels at the level of convention or pre-conventional. The proportion of those with a higher level of delay than the average was 51.39%, indicating that more than half of the college students are in a crisis of self-identity, lacking clear personal goals and values, and are of an internal control type, with a relatively high level of self-development, and their typical characteristics are filled with inner contradictions. The encouraging aspect is that the proportion of those with an above-average level of achievement was 54.21%, indicating that most college students are autonomous, confident, stable, and optimistic, have clear values and goals, can treat others objectively, have a high level of self-development, and are of an internal control type, with a relatively high level of moral reasoning.

Overall, today's college students are confident, optimistic, and have a strong sense of achievement, but they are also confused, lost, indifferent, and pessimistic, with many inner contradictions. The main reasons for the above characteristics of college students' self-identity include: First, the diversified values in today's society have caused many college students to be confused and lost; second, the parenting style of the only-child families and the prevalence of individualism have led many college students to have a strong sense of achievement, but they are also isolated and withdrawn; third, the orientation of exam-oriented education and the age characteristic of 18-25 years old have resulted in more achievement-oriented college students, while there are also more of the dispersion and exclusivity types.

3.3. Differential Analysis

3.3.1. Analysis of Gender Differences

Using statistical software, gender-specific analysis of different variables is shown in Table 6. T-tests were conducted on the emotional tolerance levels of college students of different genders, and it was found that there was a significant difference in emotional tolerance levels between males ($M = 3.976$, $SD = 0.543$) and females ($M = 3.738$, $SD = 0.374$) ($p = 0.024 < 0.05$), indicating that males have a higher ability to handle negative emotions than females. In terms of specific dimensions, there were significant differences in the self-emotional assessment and emotional utilization levels of college students of different genders. Males' self-emotional assessment and emotional utilization abilities were significantly better than those of females. However, there was no significant difference in the assessment of others' emotions and emotion regulation between college students of different genders.

T-tests were conducted on the self-identity development of college students of different genders. It

was found that there was a significant difference in the self-identity development levels between males (M = 3.887, SD = 0.477) and females (M = 3.638, SD = 0.378) ($p < 0.001$), indicating that males have a better adjustment in self-identity development than females. From the three dimensions, there was no significant difference in ideology between college students of different genders. However, in the dimensions of identity and interpersonal relationships, there were significant differences between male and female college students, with males performing better than females.

Table 6. Analysis of gender differences for different variables

Variable	Gender	M	SD	F	t	p
ET	Male	3.976	0.543	14.396	2.695	0.024
	Female	3.738	0.374			
ET1	Male	3.669	0.666	5.477	3.251	0.000
	Female	3.459	0.531			
ET2	Male	3.793	0.56	4.178	1.237	0.345
	Female	3.715	0.453			
ET3	Male	3.753	0.655	4.741	3.586	0.000
	Female	3.606	0.568			
ET4	Male	4.098	0.704	15.47	0.865	0.741
	Female	4.007	0.555			
SID	Male	3.887	0.477	6.02	2.914	0.000
	Female	3.638	0.378			
SID1	Male	3.898	0.518	3.044	1.788	0.000
	Female	3.677	0.461			
SID2	Male	3.925	0.655	22.063	-0.947	0.442
	Female	4.042	0.528			
SID3	Male	3.236	0.572	0.562	3.077	0.000
	Female	2.953	0.575			

3.3.2. Analysis of Age Differences

This section considers the age differences among different college students and conducts a one-way ANOVA on the age-related differences of the target variable, as shown in Table 7. A one-way ANOVA was conducted on the emotional tolerance levels of college students at the ages of 18 (M = 3.911, SD = 0.522), 19 (M = 3.932, SD = 0.493), 20 (M = 3.958, SD = 0.533), 21 (M = 4.082, SD = 0.414), 22 (M = 3.334, SD = 0.454), 23 (M = 3.752, SD = 0.521), 24 (M = 3.852, SD = 0.367), and 25 (M = 4.033, SD = 0.423). The results revealed significant differences in emotional tolerance and its various dimensions among college students of different ages. The analysis of each dimension also indicated significant differences ($p < 0.001$).

A one-way ANOVA was conducted on the self-identity development levels of college students at the ages of 18 (M = 3.475, SD = 0.315), 19 (M = 3.106, SD = 0.275), 20 (M = 3.816, SD = 0.372), 21 (M = 3.389, SD = 0.414), 22 (M = 3.602, SD = 0.362), 23 (M = 3.335, SD = 0.459), 24 (M = 3.872, SD = 0.445), and 25 (M = 3.457, SD = 0.458). The results showed significant differences in self-identity development and its various dimensions among college students of different grades ($p < 0.001$).

Table 7. Analysis of the age differences of variables

Variable	Age	M	SD	F	t	p
ET	18	3.911	0.522	5.37	1.554	0.000
	19	3.932	0.493			
	20	3.958	0.533			
	21	4.082	0.414			
	22	3.334	0.454			
	23	3.752	0.521			
	24	3.852	0.367			
	25	4.033	0.423			
ET1	18	3.731	0.28	4.643	1.691	0.000
	19	3.511	0.355			
	20	4.144	0.4			
	21	3.353	0.452			
	22	3.571	0.352			
	23	3.873	0.292			
	24	3.824	0.431			
	25	3.771	0.328			
ET2	18	4.147	0.312	4.949	1.723	0.000
	19	3.948	0.52			
	20	4.046	0.539			
	21	3.943	0.403			
	22	3.769	0.377			
	23	3.749	0.396			
	24	4.014	0.514			
	25	3.482	0.507			
ET3	18	3.682	0.434	5.382	1.427	0.000
	19	3.994	0.504			
	20	4.132	0.512			
	21	4.147	0.433			
	22	3.772	0.38			
	23	3.371	0.331			
	24	3.398	0.372			
	25	3.777	0.35			
ET4	18	3.942	0.301	4.879	1.919	0.000
	19	3.449	0.512			
	20	3.425	0.28			
	21	3.852	0.536			
	22	3.378	0.32			
	23	3.315	0.276			
	24	4.154	0.334			
	25	3.621	0.501			
SID	18	3.475	0.315	4.329	1.42	0.000
	19	3.106	0.275			
	20	3.816	0.372			
	21	3.389	0.414			
	22	3.602	0.362			
	23	3.335	0.459			
	24	3.872	0.445			
	25	3.457	0.458			
SID1	18	3.466	0.49	5.776	1.972	0.000
	19	3.188	0.439			
	20	3.494	0.285			
	21	3.514	0.273			
	22	3.956	0.378			
	23	3.724	0.391			
	24	4.148	0.542			
	25	3.098	0.359			
SID2	18	3.733	0.546	5.206	2.037	0.000
	19	3.934	0.363			
	20	3.823	0.354			
	21	3.638	0.519			
	22	3.243	0.542			
	23	3.166	0.374			
	24	3.966	0.278			
	25	3.815	0.508			
SID3	18	3.161	0.526	3.57	2.095	0.000
	19	3.006	0.485			
	20	3.193	0.338			
	21	3.866	0.404			
	22	3.014	0.328			
	23	4.012	0.305			
	24	4.225	0.346			
	25	3.564	0.307			

3.4. Test of Correlation among Variables

First, the Pearson correlation coefficients between emotional tolerance and its four dimensions and the three dimensions of self-identity development were examined. The Pearson correlation coefficients among different variables are shown in Table 8. Here, ** indicates a significance p-value less than 0.05, and *** indicates a significance p-value less than 0.001. It was found that the pairwise correlations among these variables were generally significant, suggesting the possibility of complex relationships among the variables, and further examination of the underlying mechanisms of these correlations is required.

Table 8. Pearson correlation coefficient between different variables

	ET	ET1	ET2	ET3	ET4	SID	SID1	SID2	SID3
ET	0.68**	-	-	-	-	-	-	-	-
ET1	0.75**	0.73**	-	-					
ET2	0.78**	0.52**	0.42**	-	-	-	-	-	-
ET3	0.38**	0.81**	0.58**	0.7***	-	-	-	-	-
ET4	0.85***	0.50**	0.58***	0.85**	0.38**	-	-	-	-
SID	0.32**	0.32**	0.87**	0.81**	0.31**	0.64**	-	-	-
SID1	0.86**	0.63**	0.44**	0.78**	0.69**	0.34**	0.79**	-	-
SID2	0.35***	0.39**	0.71***	0.43**	0.7***	0.61**	0.77**	0.54***	-
SID3	0.55**	0.39**	0.61**	0.77**	0.54**	0.3***	0.58**	0.48**	0.51**

Further hierarchical regression tests [18] were conducted, with each dimension of emotional tolerance serving as the independent variable, while gender, age, grade, and major of college students were used as control variables, and self-identity development as the dependent variable. The regression tests of each variable on the development of college students' self-identity are shown in Table 9. The test results revealed that the influence of school category on professional satisfaction was no longer significant at this point. The significance probability of emotional tolerance was $0.000 < 0.001$, indicating that the overall independent variables could significantly affect the dependent variable, and the regression model achieved a significant level overall. The overall model explained 29.7% of the variance, and the explanatory power was good; the variance inflation factor (VIF) for all was less than 5, which indicated that there was no multicollinearity problem in the regression equation, that is, different independent variables reflected different contents. Among the four factor dimensions of emotional tolerance, the coefficients of self-emotional assessment, others' emotional assessment, emotional utilization, and emotional regulation on the development of college students' self-identity were 2.891, 3.698, 2.919, and 2.622, respectively.

Table 9. Regression of each variable on the development of self-identity

Variable	Beta	Sig	VIF	T
(Constant)		0.085		2.041
Gender	-0.246	0.074	1.552	-0.544
Grade	-0.185	0.077	1.121	-1.206
Age	-0.475	0.092	1.452	2.616
Major	-0.078	0.081	1.052	0.853
ET	4.159	0.000	2.609	4.114
ET1	2.891	0.021	2.574	5.055
ET2	3.698	0.008	1.517	6.495
ET3	2.919	0.014	2.614	6.188
ET4	2.622	0.037	1.674	4.309
R^2		0.322		
adjust R^2		0.297		

4. Conclusion

This study employed an empirical research method, following the process of subject selection - determination of research tools and methods - and the empirical research process. Through data quantification methods, the relationship between college students' emotional tolerance and self-identity development was identified. The research conclusions are as follows:

(1) The formation of college students' self-identity is not yet stable and mature. Among them, the proportions of diffuse, delayed, and achievement types are all above 50%, while only the exclusive type has a 46.94% proportion higher than the average. The college student group tends to be confident and

optimistic, but they often exhibit negative states such as confusion and alienation, presenting a certain contradiction.

(2) There is a significant difference in overall emotional tolerance among male and female college students. In the sub-dimensions, there are significant differences in self-emotional assessment and emotional utilization, but no significant differences in others' emotional assessment and emotional regulation. In the age difference of 18-25 years old, the overall and sub-dimension levels of the subjects' emotional tolerance show significant differences.

(3) There is a significant difference in the overall self-identity development of college students between male and female students. Among the sub-dimensions, only ideology does not have a significant difference. In the age difference of 18-25 years old, the overall and sub-dimension levels of the subjects' self-identity development show significant differences.

(4) The Pearson coefficient tests of each dimension of emotional tolerance and self-identity development all show significant correlations at the 0.05 or 0.001 level. Emotional tolerance can promote the positive influence of self-identity development. Good emotional tolerance is the cornerstone for building a stable and positive self-identity.

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