

## **Relationship between Critical Thinking and Personality Based on the History of Psychology Teaching**

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### **Abstract**

*The present study focuses teaching reform of the history of psychology for applied psychology of 35 university students which largely pays attention to psychological theory and viewpoint and background story, and uses the critical thinking questionnaire for investigation before and after intervention, the purpose is to understand the students' critical thinking situation, and the relationship between the effect of teaching reform of the history of psychology on College Students' critical thinking and personality. The results suggest: the university students' critical thinking was in good condition on the whole, close to the norm. For specific performance, extraversion (E), agreeableness (A), openness (O) are all close to normal level. Conscientiousness (C) is slightly lower than the norm, and neuroticism (N) is slightly higher than the norm. The teaching reform of the history of psychology has a significant effect on the students' critical thinking. And the change of critical thinking of college students is related to their personality.*

**Keywords:** The history of psychology; critical thinking; personality

### **1 Introduction**

Critical thinking refers to the active thinking, and learning the knowledge of the individual judgment and cognitive process to make reasonable decisions. Because of the reversible nature of thinking, it has the trainability. The history of psychology is the core curriculum of professional psychology and shows that the history of psychology has appeared the development of various schools or research models. Importantly, psychology theories and ideas developed in the mutual criticism, debate and collision, and recorded the thought production and forming process of different factions of the psychology theories and viewpoints. The essence of study psychology history curriculum is a process of thinking training, which is a reverse process of tracing its theoretical background from psychology theories. But studies suggest that learning the history of psychology can help students to form theoretical literacy and critical thinking.

At present the study on critical thinking mainly discusses the relationship among the personality tendency, the quality of students, religious beliefs, national character and critical thinking. That sense of accomplishment, knowledge of critical thinking ability and scientific world outlook and methodology is an important factor affecting the improvement of students' critical thinking ability. However, until recently the search for critical thinking has been less fruitful. The study suggests that the best ways to cultivate critical thinking is to combine the cultivation of critical thinking to the discipline teaching organically. Therefore, to change the traditional teaching mode, and set up a new teaching mode in line with the development of the times, to explore their significant effect on the cultivation of critical thinking, no doubt forming a positive attitude towards the teaching of teachers and students, plays an important role in shaping the core status in the history of psychology really.

## 2. Method

### 2.1 The Object of Study

The study conducts teaching reform with 35 undergraduates who are major in the Applied Psychology. This study pays attention to psychological theory and viewpoints and background.

A questionnaire survey was conducted on the critical thinking and the personality characteristics. Retrieve 32 questionnaires, a total of 30 valid questionnaires after excluding invalid questionnaire, of which 5 were male, 25 female.

### 2.2 The Survey Instrument

#### 2.2.1 The Big Five Personality Questionnaire

The big five personality questionnaire is the five factor models by McCrae and Costa through establishing questionnaire research. Each dimension table is made up of 6 measurement level of sub scale. Extraversion (E): Enthusiasm, warmth, assertive, active, positive emotion, sensation seeking. Agreeableness (A): Trust, honesty, altruism, compliance, modest, gentle; Conscientiousness (C): organization, responsibility, dedication, self-discipline, cautious. Nervous (N): Anxiety, anger, hostility, depression, self-consciousness, impulsive, fragile. Openness (O): Imagination, aesthetic, emotional, action, concept, value. The big five personality traits Chinese version is by Professor Jian-xin Zhang Chinese Academy of Sciences translation revised.

#### 2.2.2 CCTDI

Tools for the investigation of critical thinking disposition generally adopted abroad for Febaren (Facione P A) design "California Critical Thinking Disposition Inventory" (Referred to as the CCTID). The Tools of CCTDI (The California Critical Thinking Disposition Inventory) for the investigation of critical thinking disposition generally adopted abroad for "California Critical Thinking Disposition Inventory" (Referred to as the CCTID) designed by Febaren (Facione P A). CCTDI (The California Critical Thinking Disposition Inventory) divided individual inclination of critical thinking into seven dimensions: (1) Truth-Seeking; (2) Open-Mindedness; (3) Analyticity; (4) Systematic; (5) Self-confidence; (6) Inquisitiveness; (7) Maturity

Each dimension contains a number of sub projects to form 7 sub scales. The name of the sub scales are referred to as T, O, A, S, C, I, M, which constitute critical thinking disposition questionnaire.

This study adopts Chinese revised version that was translated by Professor Qing-xu Luo of Wuyi University, Guangdong. CCTDI in Chinese revised edition offers eight fraction: Seven sub scale scores and a total scale score. Each sub scale scores range from 10 to 60, the total scale scores ranged from 70 to 420. Sub scales cut-off point for 40 points. A score below 30 indicates that the critical thinking disposition is negative. For the next level of 30-40, 40-50 is above the average. More than 50 shows that critical thinking disposition is highly positive. The total scale cut-off point was 280, lower than 210 indicate that critical thinking is very weak, 210 to 280 for the next level, 280 to 350 on average, more than 350. Critical thinking is a very strong tendency. The Cronbach coefficient of the questionnaire, and the questionnaire of the construct validity is 0.86.

#### 2.2.3 Data Analysis Model

This study uses SPSS 18.0 software for statistical analysis and the used main techniques are respectively descriptive statistics; Pearson correlation analysis and paired samples t test etc. their relationships between personality and critical thinking, and personality status before and after intervention of the subjects are analyzed, and focuses on several problems as follows:

- (1) Present situation of personality of college students, focusing on the description of the current students in extraversion (E), agreeableness (A), conscientiousness (C), neuroticism (N), open (O), a total of five aspects.
- (2) Whether are there differences before and after the intervention of psychological history teaching critical thinking of college students?
- (3) What is relationship between critical thinking and change of personality before and after the intervention of psychology teaching history between critical thinking and personality of college students?

### **3. Results and Analysis**

#### **3.1 The Status of all Dimensions of Personality**

Scale with 5 score method. When subjects choose 4 or 5, it shows that subjects are quite accordance with the situation reflected by the questions, if the choice of 1 or 2, that is not in line with the situation.

If you select 3, it shows that it is not too sure. After statistical treatment of college students personality scale and sub scale scores and the factor scores of mean, standard deviation, the results are showed in table 1.

We can see from table1, the personality level of college students overall is close to the norm. Specific say, Extraversion (E) mean value is 107.17, and Agreeableness(A) mean value was 111.37, Open (O) mean value was 106.97, are close to normal level. Conscientiousness (C) mean value is 107.80, slightly lower than the norm, and Neuroticism (N) mean value is 96.03, slightly higher than the norm.

#### **3.2 Analysis of Critical Thinking Disposition**

Scale with 6 scoring method. Mean, standard difference of subscores and total scores of 7 scale, are obtained, and the results are showed in Table2.

As is showed in table 2, subjects' critical thinking tendency is in the range of contradiction before the intervention and critical thinking disposition is relatively weak. Especially in the pursuit of truth, analysis, system, self-confidence, curiosity, etc. The intervention of critical thinking tendency is enhanced, especially in seeking truth, open-minded, cognitive maturity.

##### **3.2.1 Mean Comparison Before and After the Intervention of Critical Thinking Disposition**

T test of paired samples of critical thinking disposition before and after the intervention, the results are showed in Table3.

#### **3.3 The Relationship between Critical Thinking Disposition and Personality Before and After Intervention**

Correlation analysis of differences on before and after the intervention of critical thinking disposition and personality, the results are as follows.

**Table 1: The Big Five Personality (n=30)**

	Min	Max	Mean	SD	Man Mean/SD	Woman Mean/SD
N1	8	28	15.80	4.197	14.15/5.7	14.81/5.45
N2	5	28	15.10	5.486	13.82/5.24	13.99/5.16
N3	7	26	15.27	4.741	14.37/5.7	14.46/5.45
N4	10	27	17.20	3.680	15.35/4.73	16.38/5.27
N5	7	27	17.43	3.892	14.86/4.88	14.89/5.1
N6	9	24	15.23	3.928	11.23/5.09	12.73/5.18
E1	12	31	21.43	4.725	21.53/4.27	22.05/4.31
E2	5	30	18.20	4.664	18.69/4.65	18.3/4.85
E3	6	20	13.93	3.321	15.1/4.37	14.59/4.67
E4	6	22	15.63	4.098	18.33/4.74	18.01/4.93
E5	8	24	17.03	3.368	17.24/4.64	14.25/5.35
E6	11	32	20.93	4.712	19.07/4.85	18.94/5.09
O1	9	22	15.90	3.325	15.19/4.19	15.89/4.78
O2	13	28	19.63	3.518	20.7/4.88	20.45/4.78
O3	10	28	20.23	4.305	19.47/3.95	19.59/4.32
O4	7	21	14.20	3.284	15.02/3.61	15.02/3.88
O5	6	26	17.17	4.579	19.62/4.98	17.68/5.33
O6	14	27	19.83	3.239	20.64/3.97	20.68/3.76
A1	13	26	19.20	3.231	21.07/3.94	21.84/4.43
A2	12	31	19.23	4.066	19.03/5.11	21.54/4.97
A3	14	27	19.47	3.170	20.99/3.53	21.19/3.88
A4	11	28	16.00	3.723	15.33/4.64	16.19/4.72
A5	12	23	17.67	2.721	16.67/4.06	17.68/4.62
A6	13	29	19.80	3.809	19.91/3.59	20.56/3.76
C1	8	22	16.20	2.952	20.8/4.34	20.44/4.33
C2	13	23	17.97	2.871	18.39/4.21	19.32/4.75
C3	15	31	21.13	3.421	23.47/4.22	24.18/3.48
C4	5	23	16.83	3.435	20.02/4.34	19.69/4.07
C5	10	23	17.87	3.461	20.48/4.66	21.01/4.03
C6	6	28	17.80	3.995	20.72/4.63	20.43/4.66
N	69	147	96.03	17.727	83.8/24.41	87.26/24.57
E	66	144	107.17	17.229	109.97/18.27	107.13/18.85
O	79	139	106.97	12.475	110.65/15.88	110.31/17.26
A	90	141	111.37	12.675	113/14.9	119/15.79
C	62	136	107.80	14.197	123.89/20.32	125.08/17.67

**Table 2: The Critical Thinking Scale Score of Each Dimension**

	N	Min	Max	Range	Mean	SD
Truth-Seeking1	30	22	52	30	38.10	6.461
Open-Mindedness1	30	30	47	17	40.23	3.980
Analyticity1	30	19	45	26	33.50	5.888
Systematic1	30	19	50	31	34.37	7.020
Self-confidence1	30	23	43	20	34.03	5.411
Inquisitiveness1	30	19	44	25	32.63	6.631
Maturity1	30	33	52	19	41.83	4.549
Total score of critical thinking 1	30	185	304	119	254.70	27.126
Truth-Seeking2	30	27	53	26	43.93	5.866
Open-Mindedness2	30	35	55	30	45.57	4.158
Analyticity2	30	19	46	27	34.03	6.267
Systematic2	30	19	50	31	35.47	7.026
Self-confidence2	30	28	48	20	38.63	5.314
Inquisitiveness2	30	24	49	25	37.90	6.530
Maturity2	30	38	56	18	47.67	4.766
Total score of critical thinking 2	30	213	323	110	276.27	26.161

**Table 3: Comparison of Mean Values before and After the Intervention of Critical Thinking Disposition**

Differences dimension	Mean	SD	SE	<i>t</i>	<i>df</i>	Sig.( Bilateral)
Truth-Seeking	-5.833	2.705	.494	-11.812	29	.000***
Open-Mindedness	-5.333	2.155	.393	-13.556	29	.000***
Analyticity	-.533	1.383	.252	-2.112	29	.043*
Systematic	-1.100	2.295	.419	-2.626	29	.014*
Self-confidence	-4.600	2.143	.391	-11.756	29	.000***
Inquisitiveness	-5.267	2.227	.407	-12.951	29	.000***
Maturity	-5.833	2.437	.445	-13.113	29	.000***
Critical Thinking Scale score difference	-21.567	9.062	1.654	-13.036	29	.000***

Note: \*\*\* mean significant at 0.001 level, \* indicates significant at 0.05 level.

As is showed in table 3, teaching the history of psychology has significant effect on the score of critical thinking scale score and each dimension. Especially the impact in the search for truth ( $t = -11.812, p < .001$ ), open mind ( $t = -13.556, p < .001$ ), confidence ( $t = -11.756, p < .001$ ), curiosity ( $t = -12.951, p < .001$ ), the cognitive maturity ( $t = -13.113, p < .001$ ) is very significant.

**Table 4: Relationship between Critical Thinking and the Big Five Personality ( $n=30$ )**

Differences dimension	N	E	O	A	C
Truth-Seeking(T)	.017	.235	.086	.195	.197
Open-Mindedness(O)	.027	.057	.079	.260	.060
Analyticity(A)	.003	.117	-.017	.022	.068
Systematic S)	-.078	-.217	-.129	.038	.057
Self-confidence(C)	-.025	.015	.139	.268	.039
Inquisitiveness(I)	.228	-.078	-.136	-.269	-.131
Maturity(M)	-.065	.191	-.083	.253	-.001
Critical Thinking Scale score	-.005	-.117	-.035	-.051	-.117

We can see from table 4, the correlation between critical thinking disposition and scale total score and the scores of each dimension is weak. There is no correlation. Therefore, the cultivation of critical thinking does not lie in the personality characteristics and the key lies in the training method.

#### 4. Conclusions

According to the above results, we can draw a conclusion as follows:

- (1) Pay attention to psychology theory, viewpoint and background, put the knowledge in certain situations, and let the knowledge reduction to a certain context, which helps to improve students' critical thinking. The teaching reform of the history of psychology has significant effect on critical thinking.
- (2) The personality level of university students are similar to norm on the whole.
- (3) Enhancing critical thinking and personality is not related. The key of Whether critical thinking can be improved, mainly lies in the method.

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