
INFLUENCE OF HISTORY EDUCATION ON MENTAL HEALTH AND PERSONALITY FORMATION OF COLLEGE STUDENTS BASED ON COGNITIVE NEUROSCIENCE

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Abstract

The mental health of college students is an important aspect of college education. From the perspective of cognitive neuroscience, this paper mainly explores the influence of history education on the mental health and personality formation of college students. A total of 450 students were selected from a university for mental health survey against the Symptom Checklist 90 (SCL-90). Then, the subjects were divided into two groups. One of the groups received history courses with elements of mental health education, and the other received traditional history courses. The experimental results of the two groups were compared in details. The results show that the history education based on cognitive neuroscience can effectively improve the mental health of college students, especially in terms of interpersonal sensitivity, depression and hostility. The research findings offer a new direction for the reform of history education and the improvement of mental health of college students.

Key words: Cognitive Neuroscience, History Education, Mental Health, Personality Formation.

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INTRODUCTION

As the social competition is becoming increasingly fiercer, the talents needed in today's society must not only have rich knowledge reserves and master modern scientific technologies, but also need to have healthy psychological diathesis and a sound personality. College students are at an important stage of physical and mental development and they are at the turning point of life, so when facing the increasingly fast pace of life, the intricate value system, and the pressures from study, employment and other aspects, college students generally have psychological problems of varying degrees, and incorrect guidance will hinder the healthy development of students. At

present, all colleges and universities have set up psychological counseling classrooms and mental health courses for college students, but these can not meet the actual needs of students; so infiltrating mental health education in history education is in line with the needs of current educational forms, and it is also a new reform direction for the history education.

China has a wealth of psychological thoughts since the ancient times, for instance, Dong Zhongshu attached great importance to the education of mind and pointed out that "the nature of average people should be cultivated" (Davidson, 1964). Confucius emphasized the role of the will in the *Analects of Confucius* (Dalzell-Ward, & Porter, 1961). Zhu Xi taught his students that one must have great and clear ambitions (Edwards, 2005). However, it was not until the 1980s that China began to develop the modern mental health education in its true sense. In 1986, Professor Ban Hua proposed the concept

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of “mental education” (Clegg, 2012). In 1989, Professor Hu Shoufen proposed that the education should combine the cultivation of students’ personality and psychological quality with their morality (Rutherford, 2004); since the 1990s, China’s mental health researchers have developed rapidly and achieved remarkable results. Wang Jinli pointed out that psychological education should be integrated into the education of various subjects (Lefley & Bestman, 1991), Guo Jingbo believes that middle school history teachers should explore materials that are related to the mental health education in their teaching materials and infiltrate mental health education in history teaching (Barkil-Oteo, Silva, Ramos et al., 2014). Yang Ming proposed to use the heroic deeds in the high-school history textbooks to cultivate students’ healthy personality and psychological quality (Danziger, 2000), Yang Jing believes that high school history teachers should apply psychological theory and practice, and the contents in teaching materials to cultivate good psychological quality of students (Strong, Welsh, Corcoran et al., 1992). As early as the end of the 19th century, foreign countries began to infiltrate mental health education in school education. In 1879, the German psychologist Wundt established the world’s first psychological laboratory. In 1894, French scholar Binet incorporated psychology into school education. After entering the 20th century, schools in many developed countries began to provide psychological counseling services for students. The governments and various schools in developed countries such as the United States and Japan attached great importance to mental health education, as well as the integration and infiltration of mental health education with various disciplines (Khanlou, 2003).

Based on the above analysis, it can be seen that the discipline infiltration has become a trend of teaching around the world. Therefore, based on the reference literatures at home and abroad, this paper carries out researches on the influence of history education on the students’ mental health and personality establishment from the perspective of cognitive neuroscience. Using the SCL-90 scale, this paper studies the mental health status of current college students, then according to the research results, it analyzes the learning mechanism optimization strategy from a cognitive neuroscience perspective, and proposes the implementation

strategy of infiltrating mental health education into history teaching based on cognitive neuroscience. Moreover, this paper adopts comparative analysis and questionnaire survey to test the specific practical effects of the proposed method, and the results show that the history teaching based on cognitive neuroscience has a positive impact on students’ mental health and personality establishment.

INVESTIGATION AND ANALYSIS OF MENTAL HEALTH STATUS OF COLLEGE STUDENTS

Investigation of mental health status of college students

This paper selected 450 students from the first grade to the fourth grade of a university in a city as the survey objects, a total of 432 valid questionnaires were retrieved with a valid rate of 96%. The SCL-90 scale, namely the *Symptom Checklist 90*, was adopted to investigate the mental health status of college students. The scale has 10 dimensions (the first 9 dimensions were selected for this research), it can well judge the subjects’ mental health status and the severity. According to previous research experience, when the total score is ≥ 200 points, the subject is considered to have serious psychological problems and should be paid special attention; when the total score is between 160 and 200 points, the subject is classified as positive and need to be observed further; when the total score is < 160 , it is considered negative.

Figure 1. Statistics of the total scores of SCL-90 scale

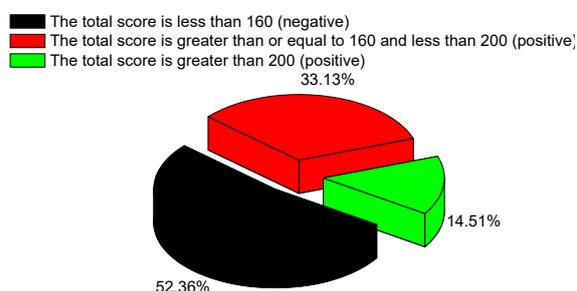
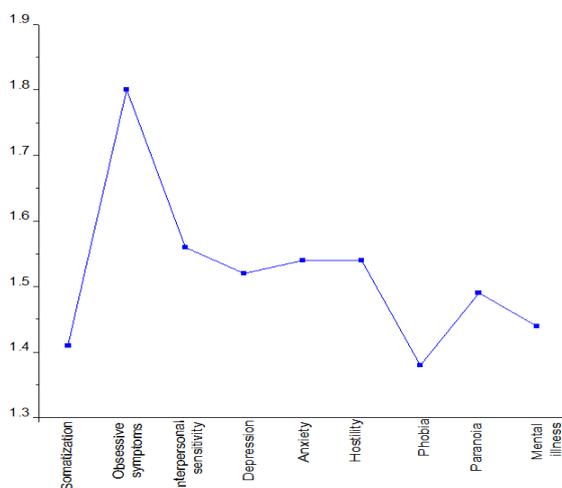


Figure 1 shows statistics of the total scores of the SCL-90 scale, it can be seen from the figure that 47.64% of the students scored more than 160 points and were positive; among them, 14.51% of the students had serious psychological problems, and 33.13% of the students might

have mild or moderate psychological problems that require further observation.

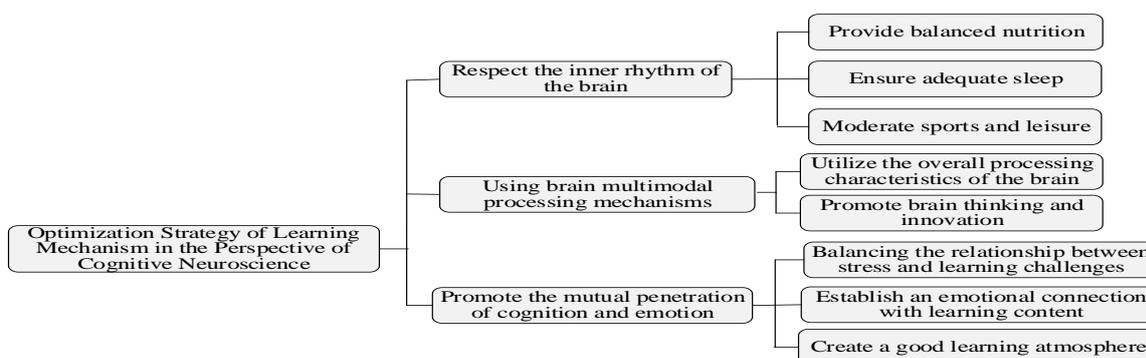
As can be seen from the survey results shown in Figure 2, obsessive-compulsive symptoms, interpersonal sensitivity, and anxiety are the top three factors with the highest scores, indicating that the psychological problems of college students in these three aspects are more prominent, which should be the focus of mental health education.

Figure 2. SCL-90 test results



In addition, the mental health counseling classrooms set up by colleges and universities are visited by students every few days, and some students choose to communicate with the counselors. This also fully shows that the mental health problems are quite common among college students, and they wish to get more guidance on their psychological problems in the school.

Figure 3. Learning mechanism optimization strategy in the perspective of cognitive neuroscience



Necessity and feasibility of infiltrating mental health education in history education

By referring to relevant literatures and combining the survey results of the mental health status of college students, we can know that the current mental health problems of college students are quite common, it is obviously not enough to rely solely on the mental health instructors to conduct mental health education for college students. Infiltrating mental health education contents in the process of history education is quite necessary. History is the long river of human civilization. The history discipline contains a large amount of historical knowledge that can be used as materials for mental health education. Therefore, history education has the unique disciplinary advantage that it can be infiltrated by mental health education.

INFLUENCE OF HISTORY EDUCATION ON STUDENTS' MENTAL HEALTH AND PERSONALITY ESTABLISHMENT BASED ON COGNITIVE NEUROSCIENCE

Learning mechanism in the perspective of cognitive neuroscience

Learning is the process of brain information processing. The learning mechanism in the perspective of cognitive neuroscience is the individual mental network's activities formed by the interaction of the brain and the environment. In order to promote the smooth implementation of learning activities in a better and more efficient way, the learning mechanism strategy should be optimized from three aspects, as shown in Figure 3.

Respect the inner rhythm of the brain

College students are in a critical period of physical and mental development and brain development, and nutrition is undoubtedly an important foundation for the physical and mental health of people, therefore, college students should pay attention to the dietary nutrition balance. Studies have shown that a hearty breakfast can reinvigorate students' brain and improve their attention and memory. Secondly, adequate sleep can keep the individual awake and alert, and improve the sensitivity of the brain; while moderate leisure and exercise can alleviate the nervousness of the brain and stimulate the students' motivation for learning. The family, school, teachers and students should actively understand these knowledges.

Make use of the brain's multi-mode processing mechanism

Teachers should understand the function and operation mechanism of the brain, and use scientific learning concepts to guide students to conduct contextualized and dynamic overall mesh processing on the knowledges, so as to evoke the left and right brain of the student, enhance experience interaction, and exert the overall effect of the brain; moreover, they can also use mind maps and other effective thinking training methods to promote the creative vitality of the students' brain thinking.

Promote mutual infiltration of cognition and emotion

Some studies have verified from the perspective of brain science that negative emotions have a hindering effect on learning. Therefore, teachers should help students balance the relationship between stress and learning challenges in the teaching process, and help them correctly understand cognition stress and enhance their resistance to stress; teachers should also help students establish emotional connections with the learning content, so as to connect the learnt knowledge with their daily life; and teachers should also let students participate in curriculum design, for example, when teaching the historical knowledge of Lin Zexu's deeds of destroying opium at Humen Beach, teacher can ask students to participate in the course learning via research report writing, scene play performing and other methods. In addition, teachers should also create a good learning environment and comfortable

interpersonal relationship atmosphere for students, so that they can devote to the classroom learning and have good emotional communication with teachers and other students.

Implementation strategy for infiltrating mental health education in history teaching based on cognitive neuroscience

Combining with the learning mechanism optimization strategy based on cognitive neuroscience introduced above, this paper proposes an implementation strategy for infiltrating mental health education in history teaching based on cognitive neuroscience:

Reasonably set the teaching goals

At present, in many historical classrooms, the infiltration of mental health education is random and optional; to improve the effectiveness of infiltrating mental health education in history teaching, we should take the disciplinary characteristics of university history teaching and the psychological characteristics of college students as basis, and fully respect the personality and give correct guidance, so as to reasonably set the goals for mental health education.

Adopt historical empathy teaching method to optimize the infiltration effect

The historical empathy teaching method means that, in the teaching process, the teacher creates a corresponding teaching scenario and lead the students into the historical scenario as a guide, let them experience, restore, and analyze the historical figures and events in an immersive way. Specifically, teachers can impress students with emotions and stimulate their emotions, create a historical atmosphere and cultivate the students' sentiments, and let them be the "judge" of history, so as to achieve empathy teaching and thereby improving the effects of infiltrating mental health education in history teaching.

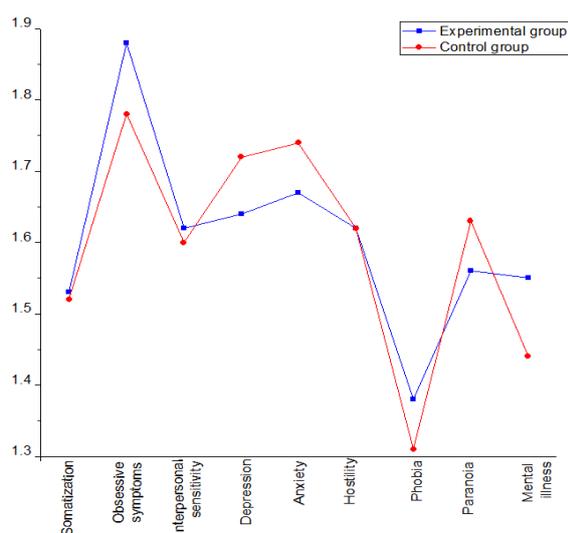
Enhance the mental health education ability of history teachers

Current society needs inter-disciplinary talents, similarly, teachers who only have knowledge of one subject cannot adapt to the requirements of the times. The responsibility of history teachers is not just to teach historical

knowledge, and mental health education cannot rely solely on the mental health teachers. The teaching concept of subject infiltration has become an inevitable trend for the development of education. Therefore, besides strengthening the study of professional knowledge, history teachers should also reserve knowledges of educational psychology, psychology, educational theory and other related skills by participating in various trainings or self-learning, thereby improving their own mental health education ability.

Analysis of the practical results of the influence of history teaching based on cognitive neuroscience on students' mental health and personality establishment

Figure 4. SCL-90 results of the two classes before the experiment



In order to detect whether the history teaching based on cognitive neuroscience has certain influence on students' mental health and personality establishment, this paper selected sophomore students from two elective history classes as the subjects, one class was taken as the experimental group, and the other was taken as the control group. Subjects were not informed that they were chosen as the experimental objects; before and after the experiment, the SCL-90 scale was used to test the two groups. Figure 4 shows the SCL-90 test results of the two groups before the experiment, it can be seen from the figure that, for the scores of the factors of the two classes, the differences are small, and

the results of the significance test of difference show that $p < 0.05$, indicating that there was no significant difference in the scores of the two groups, which were suitable for the comparison analysis.

Figure 5 shows the SCL-90 scores of the experimental group before and after the experiment, it can be seen from the figure that the scores of the factors of the experimental group after the experiment are significantly lower than those before the experiment, except for obsessive-compulsive symptoms, anxiety, phobia, and paranoia, for the other factors, the p values are less than 0.05, showing significant differences, indicating that the history teaching based on cognitive neuroscience has a certain influence on students' mental health and personality establishment.

Figure 5. SCL-90 scores of the experimental group before and after the experiment

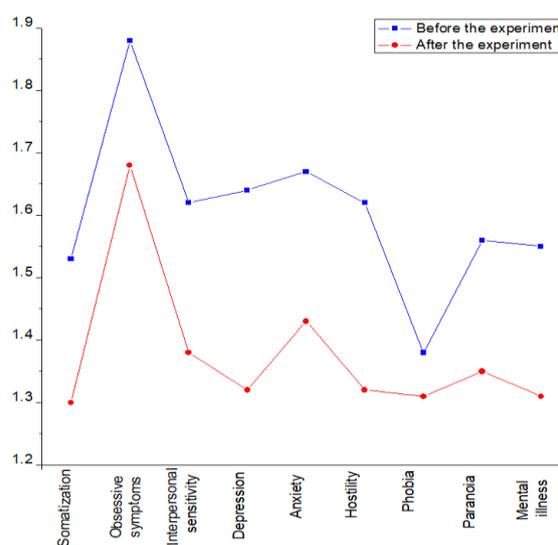


Figure 6 shows the SCL-90 scores of the control group before and after the experiment, it can be seen from the figure that, except for the phobia factor, the scores of the other factors are reduced to different degrees, but the p values are greater than 0.05, indicating that there is no significant difference in the control group before and after the experiment, indicating that infiltrating mental health education in history teaching has no obvious effect on improving the students' mental health status.

Figure 7 shows the SCL-90 scores of the experimental group and the control group after

the experiment, it can be seen from the figure that the scores of the factors of the experimental group are significantly lower than those of the control group, while as shown in Figure 3 the scores of the two groups before the experiment do not have much difference, indicating that consciously infiltrating mental health education in history teaching can effectively improve the mental health status of college students, especially, the improvement of the three factors of interpersonal sensitivity, depression and hostility is most obvious.

Figure 6. SCL-90 scores of the control group before and after the experiment

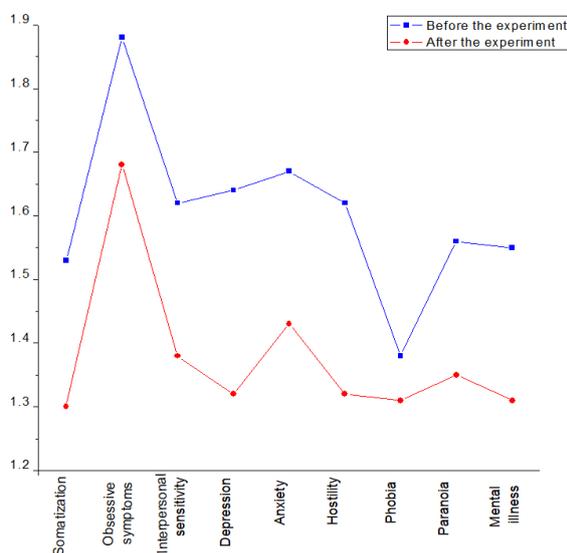
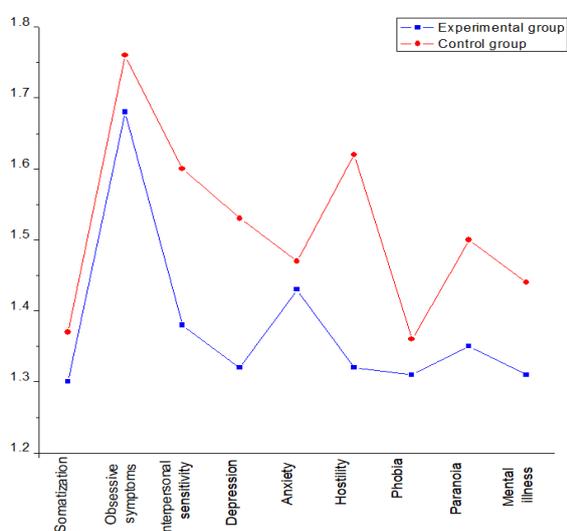


Figure 7. SCL-90 scores of the experimental group and the control group



CONCLUSIONS

(1) The SCL-90 questionnaire survey results show that the mental health status of college students is not optimistic. The problems of obsessive-compulsive symptoms, interpersonal sensitivity, and anxiety are relatively prominent. At the same time, college students wish to obtain more guidance on their mental health problems in schools.

(2) This paper analyzed the learning mechanism optimization strategy in the perspective of cognitive neuroscience, it proposed the implementation strategy of infiltrating mental health education in history teaching based on cognitive neuroscience, and applied it to the teaching practice.

(3) The comparative analysis results of teaching practice showed that the history teaching based on cognitive neuroscience can effectively improve the mental health status of college students, especially the improvement of the three factors of interpersonal sensitivity, depression and hostility is particularly obvious.

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