

Acknowledgement: The research is supported by: The Project of Philosophy and Social Science Research in Colleges and Universities in Jiangsu Province, “Research on the mechanism and response Countermeasures of college students’ online public opinion communication from the perspective of media integration” (No. 2019SJB661).

* * * * *

INVESTIGATION ON ENGINEERING QUALITY SATISFACTION OF SCIENCE AND ENGINEERING SPECIALTY BASED ON SEM FROM THE PERSPECTIVE OF EDUCATIONAL PSYCHOLOGY

Weixia Chen*, Xinyue Zhang & Qipeng Xiang

Changshu Institute of Technology, Changshu 215506, China

Background: Educational psychology is an important branch of psychology. The core of its research is human learning psychology, the effect of educational intervention, the psychology of teachers and the social environment of teaching. The main research objects of educational psychology are students and teachers and the learning process, while the research problems are the psychological phenomena and problems of students and teachers in the learning process, as well as the correlation and laws between objects and problems. The research of educational psychology on students’ learning motivation, emotional factors, cognitive structure and other psychological activities is of great significance to the improvement and development of teaching activities. So far, educational psychology has been widely used in many fields. Some studies have shown that curriculum design based on educational psychology can effectively improve students’ autonomous learning ability and efficiency, and also has a positive effect on students’ psychological state. In the current context of intelligent teaching, most professional courses have adopted mixed teaching, and the traditional teaching methods have been difficult to meet the increasingly complex learning. For college students majoring in science and engineering, the relevant teaching methods need to be reformed and innovated.

Structural Equation Model (SEM) is a common analysis and calculation model, which integrates a variety of algorithms, including factor analysis, variance analysis and multiple regression. SEM has many functions, such as analyzing models with multiple dependent variables, analyzing complex intermediary models, estimating potential variables to explain measurement errors, estimating potential factors of binary variables, testing cross group model invariance, and the development trajectory of repeated measured data. As a complex model, SEM has many advantages, including that it can complete the analysis of a complex model at one time, and is applicable to various data with different distributions—non normal distribution and different types of data—discontinuous data. It can test the stability of individuals for long-term data. For science and engineering students, their engineering quality is very important for learning and application. The courses of science and technology majors are usually based on the theory of educational psychology and adopt hybrid teaching for intelligent learning. Therefore, applying educational psychology to the study of science and engineering majors to improve their professional engineering quality has certain research value.

Objective: To analyze and explore the role of relevant theories of teaching psychology in the learning of science and engineering majors, in order to improve students’ engineering quality and professional learning ability.

Subjects and methods: 80 junior students were randomly selected from the same university of science and technology, and they were divided into two groups on average. One group continued to study in accordance with the conventional method as the control group, and the other group integrated the relevant theoretical knowledge of educational psychology into professional learning and organically combined in teaching. This group was used as the experimental group. The experiment lasts for 4 months, i.e., one semester. Before the experiment and every month during the experiment, a questionnaire survey will be conducted on the students and the test results will be recorded. At the same time, the relevant factors of the students will be recorded. The correlation analysis of all factors will be carried out with SEM tools to obtain the overall engineering quality results of the students after each statistic. Engineering quality is quantified by the percentage system. The higher the score, the higher the engineering quality. At the end of the experiment, SEM was used to analyze the differences between the two groups of students to judge the role of the reformed teaching model compared with the traditional teaching model.

Results: The total scores of the two groups before and after the experiment are shown in Table 1. It can be seen from Table 1 that there is little difference in the engineering quality level between the two groups

before the experiment, but the engineering quality level of the experimental group is significantly higher than that of the control group after the experiment. According to the analysis of significant results, there was a significant difference in the overall result scores between the two groups after the end of the experiment ($P < 0.05$), but not before the beginning of the experiment.

Table 1. Results of two groups before and after the experiment

	Before the experiment	After the experiment
Control group	72.625	74.685
Experimental group	73.105	92.125

Conclusions: Educational psychology is a psychological subject specialized in the study of human learning. It has been applied in various fields, including related science and engineering majors. The engineering quality of science and engineering majors is one of the important qualities of students, which can reflect students' learning situation and application ability. The experiment organically combines the theory of educational psychology with the relevant teaching of science and engineering, and analyzes its influence by means of SEM and other tools. The experimental results show that the reformed teaching mode has a significant effect on improving students' engineering quality.

Acknowledgement: The research is supported by: General Research Project of Philosophy and Social Sciences in Colleges and Universities of Jiangsu Province: The promotion strategies of teaching staff in application-oriented colleges and Universities based on the concept of engineering education certification (No. 2020SJA1422).

* * * * *

ANALYSIS OF THE INFLUENCE OF THE REFORM AND INNOVATION OF IDEOLOGICAL AND POLITICAL EDUCATION ON COLLEGE STUDENTS' LEARNING ANXIETY

Duyun Kong

Sanjiang University, Nanjing 210012, China

Background: As a special group of teenagers, their physical and mental development is not yet fully mature, which makes them prone to show a certain degree of anxiety, depression, decline, pessimism and other negative emotions, even suicidal thoughts, when they encounter various setbacks, pressures and misfortunes in life. The frequent anxiety disorder in this period is regarded as "growth storm" or "growth pain", which has become a common problem among adolescents, and the etiology and pathological mechanism of adolescent anxiety disorder will be affected by factors such as personal genetics, personality, attribution style, family factors, social support and peer relationship. According to statistics, in the past 30 years, the global incidence rate of adolescent mental disorders has increased significantly. Anxiety disorder is one of the most common mental disorders. The prevalence of adolescent anxiety disorder is as high as 19%. Students' attention to individuals gradually turns to their own interior, but there is a big gap between the surrounding environment and their own heart, which is easy to produce negation of the outside world and themselves, leading to a series of psychological problems and behavioral disorders, of which learning anxiety is the most significant. The change of learning environment and the change of learning methods make it difficult for college students to have a good grasp of teaching methods and knowledge learning content when they are learning activities, and then show learning anxiety in the learning process. Learning anxiety refers to the psychological imbalance caused by the students' individual difficulty in absorbing the teaching content due to the influence of teaching difficulties, teaching classes, teachers' teaching ability and other factors in the teaching process, or the inability to keep up with the teaching progress and the differences of students' individual qualities. Mild learning anxiety can make students keep a high mood all the time, and then constantly alert themselves to strengthen their own constraints. However, excessive learning anxiety will cause students' individual learning resistance and rebellious psychology, and then affect their learning psychology, learning attitude and learning psychology in the learning process. It will also have a negative impact on their own value affirmation and confidence enhancement, which is not conducive to the development of their physical and mental health and the improvement of their learning quality. At present, the ideological and political teaching in colleges and universities ignores the laws of students' psychological quality and learning characteristics in the teaching process, which makes the