ideological and political education to alleviate the anxiety of college students and bring correct moral value orientation to college students.

**Subjects and methods:** This research method qualitatively and quantifies the psychological state of students through classroom observation and student interview. The subjects were 100 random students, who were divided into experimental group and traditional group. The experimental group participated in psychological ideological and political education courses, and the other group participated in traditional ideological and political education courses. The experiment lasted 12 weeks, and both courses had 24 class hours. By synthesizing the students’ classroom performance and self-evaluation, we can get the students’ psychological state score. The interpretation scale is 5 and the maximum is 1. 1 means very dissatisfied, 2 means dissatisfied, 3 means satisfied, 4 means quite satisfied, and 5 means very satisfied.

**Results:** The evaluation of ideological and political education courses by students in different groups is shown in Table 1

<table>
<thead>
<tr>
<th>Table 1. Evaluation of four indexes of ideological and political education course by students in different groups</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ideological and political class grouping</td>
</tr>
<tr>
<td>---------------------------------------------</td>
</tr>
<tr>
<td>Experience group</td>
</tr>
<tr>
<td>Traditional group</td>
</tr>
</tbody>
</table>

In Table 1, students’ evaluation indicators of ideological and political education classroom are divided into four categories: classroom discipline evaluation, classroom speech enthusiasm evaluation, teacher teaching evaluation and learning content recognition evaluation. The score in the table is the average value of the evaluation of 50 students. It can be seen from the table that in addition to the classroom discipline evaluation, students’ satisfaction with the experimental classroom is higher than that of the traditional classroom. Among the evaluation indicators of teachers, the satisfaction of students increased slightly, the satisfaction evaluation increased by 0.54, while the recognition satisfaction of learning content increased the most, and the average score of 50 students increased by 0.78. The experiment shows that the experimental course of the combination of ideological and political education and psychological education is beneficial to improve students’ learning enthusiasm and recognition of learning content, and indirectly has a positive impact on students’ mental health.

**Conclusions:** In view of the anxiety and psychological pressure faced by contemporary college students, the education system of colleges and universities should be reformed accordingly. Because the teaching objectives and learning contents of ideological and political education course are consistent with the objectives of psychological health education, the research considers combining the learning contents of ideological and political education course with the teaching forms of mental health education course to form an innovative ideological and political education course. The experiment shows that students have higher enthusiasm to participate in the experimental course, and students have higher acceptance of the learning teaching content. This helps students to establish correct moral values, guide students to maintain positive emotions and alleviate students’ learning pressure.

---

**STUDY ON THE INFLUENCE OF LAND SUBSIDENCE ON AQUIFER PARAMETERS AND WATER SUPPLY CAPACITY UNDER THE BACKGROUND OF COGNITIVE IMPAIRMENT**

Zhongfeng Duan¹, Fulai Li¹ & Fufeng Qin²

¹School of Geosciences, China University of Petroleum (East China), Qingdao 266580, China
²The First Group of Shandong Bureau of Coal Geology, Qingdao 266580, China

**Background:** Land subsidence is a major engineering geological problem faced by major cities. It is a local downward movement that the standard height of the crust surface is reduced due to the consolidation and compression of underground loose strata. Land subsidence is closely related to excessive exploitation of groundwater. When there are compressible strata below the groundwater level, excessive exploitation of groundwater will occur, resulting in land subsidence. Once land subsidence occurs, it is difficult to deal with it. Therefore, it is necessary to prevent land subsidence. At present, the main preventive measures include strengthening the monitoring of groundwater dynamics and land subsidence, opening up new alternative
water sources, adjusting the layout of groundwater exploitation, controlling the amount of groundwater exploitation, etc. With the acceleration of urbanization in various regions, engineering projects tend to be complex and intelligent, and the prevention of land subsidence is becoming more and more sophisticated, which puts forward higher requirements for the physical and psychological quality of technicians. In this context, some technicians will be afraid of difficulties and difficult to adapt to high-intensity work, resulting in serious mental disorders. Among them, cognitive impairment is one of the main mental disorders that affect the operation of technicians.

Cognitive disorder is a psychological disorder developed from the perspective of cognitive psychological disorder. It refers to a pathological process in which the body's intelligent processing process of recognizing and acquiring knowledge is abnormal, resulting in serious learning and memory disorders, and even accompanied by aphasia, loss of use or disability. Cognitive disorders can be divided into sensory and perceptual disorders, that is, comprehensive disorders of sensation, perception and perception. Thinking obstacles are thinking form obstacles and thinking content obstacles. Attentional disorder means that the perception of the things that are noticed is the clearest, while the perception of other things around is relatively unclear. Memory disorder is memory disorder. Mental retardation refers to mental retardation and dementia. Self-knowledge disorder refers to the disorder of cognition and judgment of one's own mental illness. The causes of cognitive impairment are complex and diverse. In addition to physiological factors such as heredity, age and mental disorders, external stimulation is also an important cause of cognitive impairment. The current medical level cannot cure the cognitive impairment. The cognitive function can be restored to normal as much as possible through drugs, surgery, acupuncture, massage and physical therapy. In the prevention of land subsidence of engineering geological projects, a series of work, such as monitoring and prediction measures, settlement control measures, protective measures, disaster avoidance measures, etc., need to develop relevant scientific management networks. Inappropriate prevention and control measures will cause irreversible damage to the body and cognitive ability of technicians. Therefore, in order to improve the cognitive impact of land subsidence prevention on technicians, the research is based on the groundwater level change process and hydrogeological parameters of deep confined aquifer, combined with the correlation research between land subsidence prevention and management and cognitive ability, to jointly build a prevention and management model to control land subsidence.

Subjects and methods: Land subsidence often occurs in alluvial plain, delta plain and faulted basin areas. Study various engineering projects in a city in the Pearl River Delta, and quickly screen out technicians with cognitive impairment in the prevention and control of land subsidence with MOCA scale (the total score of the scale is 30, and the result ≥ 26 is normal), and adopt a new prevention and control management model for their prevention and control work. By comparing the scores of MOCA scale of technicians with cognitive impairment before and after the intervention, to verify whether the proposed land subsidence prevention and management model can effectively alleviate the cognitive impairment of technicians. At the same time, the study uses a 1-5 score system to evaluate the impact of the level of cognitive ability on the prevention and management of land subsidence. The higher the score, the greater the negative impact of the level of cognitive ability on the control of land subsidence.

Results: It can be seen from table 1 that with the increase of the duration of the intervention, the scores of the technicians on the MOCA scale continued to rise. Six months after the intervention, the scores of the technicians on the MOCA scale tended to the normal level. This shows that the prevention and management model of land subsidence constructed by the research institute can effectively alleviate the cognitive barriers of the technicians. With the improvement of MOCA score, the score system decreased, indicating that the improvement of cognitive ability will promote the positive progress of prevention.

| Table 1. Evaluation scores of normal workers and workers with cognitive impairment |
|---------------------------------|----------------|----------------|----------------|
| Intervention duration | Before intervention | Three months of intervention | Six months of intervention |
| MoCA scale score | 17 | 23 | 25 |
| Evaluation score | 5 | 4 | 2 |

Conclusion: With the continuous development of economic level and the deepening of urban industrialization, land subsidence has occurred in many cities in China, especially in the Pearl River Delta. Land subsidence will cause many kinds of secondary disasters, which is not conducive to the sustainable development of cities and nature. Land subsidence focuses on prevention and management. Unscientific prevention and management network will cause irreversible harm to the body and psychology of technicians. Therefore, in the prevention and management of land subsidence, a safe management model should be developed in combination with the factors affecting the cognitive level of technicians, so as to promote the positive development of land subsidence control.
Acknowledgement: The research is supported by: The Project Supported by National Natural Science Foundation of China (No. 42072130): The thermodynamic stability of dawsonite in geological CO₂ reservoirs: A study based on the CO₂-H₂O binary fluid system.

* * * * *

THE EFFECT OF BLENDED LEARNING MODEL ON COLLEGE STUDENTS’ POSITIVE PSYCHOLOGY IN BUSINESS ENGLISH TEACHING

Ying Guo
Guangdong Polytechnic of Science and Technology, Zhuhai 519000, China

Background: The development of social economy has expanded the demand for compound talents. According to the business requirements of market economy and international trade activities, a single ESP teaching model is difficult to meet the increasingly complex teaching needs. In terms of positive psychology theory, the learning of a discipline needs to meet the different needs of students, such as sense of dignity, self-affirmation, group communication and so on. If the curriculum is only designed to meet the skill needs of the market and ignores students’ cognition of self and discipline knowledge, students’ learning enthusiasm will be suppressed. The negative emotion brought by the individual’s inability and confusion about the rapid development of society makes the students’ efficiency and enthusiasm to learn business English professional skills lower. Based on Maslow’s needs theory, business English curriculum needs to consider students’ material and spiritual needs at the same time, so as to meet students’ progressive positive psychological organization ability. Therefore, colleges and universities combine the experience of other teaching subjects to set up a mixed learning model of business English teaching courses. Its teaching principles and models include communicative teaching method, constructivist teaching method, situational learning theory, genre analysis or discourse analysis. Among them, the classroom content of communicative teaching and extracurricular activities can meet the needs of students for group communication and group identity, while constructivist teaching, genre analysis or discourse analysis can build a complete teaching content system for students, so that students can have a clearer understanding of their professional knowledge and skills and participate in business English learning in a more planned way. Situational learning theory meets students’ curiosity about knowledge learning, and rich classroom content can also better drive students’ learning enthusiasm and self-confidence.

Objective: The purpose of this study is to explore the driving effect of the mixed learning model of business English on college students’ positive psychology, which adopts the principles of communicative teaching method, constructivism teaching method, situational learning theory, genre analysis or discourse analysis. It is expected that the mixed teaching model can meet students’ needs for group communication and group identity, and improve students’ learning enthusiasm.

Subjects and methods: This research method qualitatively and quantifies the psychological state of students through classroom observation and student interview. The subjects were 250 random students, who were equally divided into experimental group and traditional group. The experimental group participated in the business English course of mixed learning mode, and the other group participated in the business English course of traditional special purpose. The experiment lasted 12 weeks, and both courses had 24 class hours. Through the form of questionnaire survey, we can get the satisfaction score of students’ understanding of self-ability after learning the course. The interpretation scale is 5 and the maximum is 1. 1 means very dissatisfied, 2 means dissatisfied, 3 means satisfied, 4 means quite satisfied, and 5 means very satisfied.

Results: The average evaluation of English learning ability of students in different groups is shown in Figure 1.

In Figure 1, 250 students’ evaluation indicators of their classroom learning level are divided into four categories, “R” represents reading comprehension ability, “L” represents listening comprehension ability, “W” represents English writing ability and “S” represents English speaking ability. It can be seen from the figure that the 125 students in the experimental group rated their abilities higher than those in the traditional group. Among the four self-evaluation indexes, the gap between the two groups in the evaluation of self reading comprehension ability is the smallest, and the score of the experimental group is 0.53 higher than that of the traditional group. The second is English writing ability, with a difference of 0.58. Traditional special-purpose business English courses and mixed learning business English courses have the greatest improvement in students’ listening comprehension and oral ability, and the gap between the two scores is 0.76.