

teaching. We use Class A as the experimental class and Class B as the control class. The teaching methods of the experimental class are as follows: The article proposes an external vocabulary processing teaching method and a deep vocabulary processing teaching method. The shallow-level vocabulary processing teaching method refers to analyzing the pronunciation and spelling of words, fixed collocations, and blocks. We use words or phrases as unit vocabulary teaching methods. The specific methods include the combination of sound and shape, the idea of synonymy, the word-formation method, the English-English interpretation method, and the block method. The deep-level vocabulary processing teaching method has no fixed answers and fully exerts the psychological initiative of students. We regard sentences and context as unit vocabulary teaching methods. The content includes the grammar of reading aloud, syntax, task-based vocabulary teaching method, topic method, autonomous inquiry method, and situational method. Class B teaches following the usual teaching methods. Evaluate the results of this experiment through various tests and questionnaires.

**Results:** The difference between the experimental and control classes before the experiment is not very obvious. The significance based on the approximation method is  $P=0.446>0.05$ , so there is no statistical significance. It also shows no obvious difference between the two sets of data. It can also be seen from the average scores of the experimental class and the control class that the numbers of draws for these two groups are 76.3500 and 75.5256, respectively, and the difference between these two values is not big. This shows that the vocabulary difference between the control class and the experimental class before the experiment was not obvious. After the experiment, the rank and sum of ranks produced by the non-parametric tests between the control and experimental classes are very different.  $P=0.000<0.01$  indicates a significant difference between the results of the experimental class and the control class.

**Conclusions:** After more than three months of vocabulary teaching experiments, the student's performance in the experimental class has been greatly improved. It can be concluded that the vocabulary teaching method based on memory psychology is effective and feasible. This research is just one aspect of vocabulary teaching. Our relatively short experiment on the connection between English vocabulary teaching and memory psychology. Therefore, it is impossible to know whether such teaching is stable and durable in promoting teachers, and the experiment is only for some students. It isn't easy to make a comprehensive summary. Therefore, this study needs further follow-up research verification.

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## PSYCHOLOGICAL OBSTACLES AND COUNTERMEASURES OF COLLEGE STUDENTS' ENGLISH LEARNING BASED ON PSYCHOLINGUISTICS

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**Background:** In English teaching, facing the same teaching content, students' desire to speak English will be different. Some students will be eager to try and actively participate, but some students are unwilling or afraid to speak English. Learning English is both a cognitive process and a process of psychological change, and the result of cognition often depends on psychological change. At present, in college students' English learning, some students have many obstacles, such as inferiority complex, frustration psychology, practical psychology, coping psychology and so on. The influencing factors are superficial understanding of English learning, lack of confidence, inflexible methods and poor environment. There are many factors that affect English learning, but the main factor that affects learners' English learning is learners' own subjective factors. The main factors include learners' personal psychological factors and learners' own emotional factors. Aiming at the obstacles that affect the improvement of English level, psycholinguistic analysis has made a developmental research and summary on the basis of psycholinguistic theory and years of teaching practice.

**Subjects and methods:** With the development of psycholinguistics and English teaching research, more and more researches begin to focus on the study of learners. This paper discusses the psychological barriers of college students' English learning from the perspective of psycholinguistics, analyzes some emotional factors and their influences in the process of students' learning, and discusses how college English teachers optimize students' emotional and psychological state in teaching, so as to better promote English teaching. By investigating the existing learning strategies of college students, this paper analyzes the characteristics of college students' learning strategies and several main factors affecting their learning strategy choices, so as to enhance their awareness of strategy use and improve their English learning efficiency.

**Results:** There is a close relationship between learning and mental health. They are the basis, influence and promote each other. Common psychological barriers of college students in learning include: motivation conflict, cognitive barriers, attention barriers, psychological discomfort of taking exams and so on. The discussion of English learning strategies can broaden students' strategic vision, expand the range of strategies,

and enable students to get twice the result with half the effort. People's psychological factors and emotional factors have far-reaching influence on the effect of English learning. For these factors, we should take in-depth analysis and discussion and take corresponding countermeasures to achieve the best effect in English learning.

**Conclusions:** Teachers should correctly guide students to adjust from the aspects of understanding the importance of learning English well, enhancing self-confidence, mastering scientific methods of learning English well and creating external environment for learning English well. College students should pay attention to overcoming learning psychological barriers, learn to use correct adjustment methods, cultivate and improve their learning ability, and lay a good foundation for lifelong learning while completing their college studies. To improve college students' interest in English learning, we should not only pay attention to the practical role of English cognitively, but also overcome the psychological obstacles of learning English psychologically, so as to stimulate their learning enthusiasm.

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## THE INFLUENCE OF CALLIGRAPHY ON THE MENTAL COGNITIVE PROCESSING ABILITY OF THE ELDERLY - AN EXPERIMENTAL STUDY BASED ON BRAIN ACTIVATION EFFECT

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**Background:** A large number of cross-sectional and longitudinal behavioral research results show that individual differences increase with the aging process of cognitive years. Based on neuroimaging studies such as magnetic resonance imaging, it is believed that the differences of Cognitive aging among elderly individuals are related to the differences of brain processing mechanism. Calligraphy art is the cultural treasure of the Chinese nation, and it is also one of the spiritual wealth worth showing off in the treasure house of human art. Calligraphy fully embodies the aesthetic thinking and humanistic spirit of the Chinese nation. Calligraphy activities are fully, actively and dynamically activated by various perceptual, attention, thinking and cognitive activities. It makes the writer pay more attention, think more quickly, react faster and other positive effects in the process of writing with a brush.

**Subjects and methods:** At present, the research on the individual differences of the elderly mainly starts from the individual differences of cognition and behavior, and compares the differences of brain processing mechanisms among different cognitive groups. In this study, the elderly were taken as subjects to explore the changes of reaction time before and after calligraphy load and non-calligraphy load. Through calligraphy practice and training of the elderly, the psychological thinking process of the elderly can be greatly mobilized, and the cognitive ability of the elderly can be effectively promoted.

**Results:** The results show that the reaction time after calligraphy load is obviously shortened, the change of reaction time after writing load is the same as that after calligraphy load, and the reaction time after calculating load and English writing load is obviously shortened. Calligraphy may improve the state of consciousness of the brain, thus causing the so-called "optimizing brain activation effect". This will greatly promote the development of psychological cognitive processing ability. From the perspective of visual perception psychology, when a Chinese character is recognized, the overall image of the character roughly falls on the fovea with the highest visual acuity on the retina, which is under the control of the central visual field, and it is easy to form the overall visual image of the character, and the shape, sound and meaning can be recognized at the same time.

**Conclusions:** This study starts from the perspective of brain activation effect, which provides a new perspective for the study of psychological cognition of the elderly, and also builds a bridge for the study of individual differences in brain structure and function aging and the study of individual differences in Cognitive aging, so as to promote a deep understanding of brain and psychological Cognitive aging process and related diseases. Different from the psychological process of writing Chinese characters in English. Although both Chinese characters and English writing must have coordinated activities of visual movement, Chinese characters and English are completely different in spatial structure. The former is a square plane structure, while the latter is a transverse linear structure. Art provides learners with opportunities to develop and mature multiple cranial nerve systems at the same time, but it is difficult for us to evaluate these development opportunities, because the processes they support are gradual and cumulative results. If we ask for an effect in a short time, then the art of calligraphy will be powerless. Exploring the scope, nature and function of this effect through various experimental variables will be beneficial not only to calligraphy psychology, but also to the development of cognitive psychology and neuropsychology.

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