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The Correlation between Self-directed Learning Ability and Academic Achievement in Online Education

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Abstract: According to the background of the widespread use of online education in colleges and universities during the epidemic period, this paper studies the relationship between many factors of autonomous learning ability and academic achievement, aiming at the phenomenon of poor online learning effect of students. Finally, combined with the analysis of data results, the relevant measures to improve autonomous learning ability of distance learners are put forward, so as to explore the ways to improve academic performance.

Keywords: Autonomous learning; Self-control; Learning strategies; Emotion regulation; Academic achievement.

1. Introduction

Since 2000, Online education courses began to be promoted around the world and are still popular today. Online education mode, the students need to have a high degree of autonomy, in the process of learning to learn monitoring and managing by themselves, but in the implementation of online education in our country in recent years, the status and effect of university students' online learning, the majority of online learners have the status of autonomous learning ability is low. Based on this, this paper aims to explore the correlation between autonomous learning ability and academic achievement by analyzing the current situation of 156 college students.

2. Literature Review

2.1. Autonomous learning ability

Autonomous learning refers to the ability of students to be responsible for their own learning, determine learning objectives, understand learning content, obtain relevant learning materials, learning methods and self-evaluation. From the perspective of distance education, autonomous learning is a spontaneous process in which online learners are guided to find information based on certain network facilities and related resources, so as to establish a set of their own knowledge system. . Autonomous learners are not easy to be disturbed by the environment, and will restrict and adjust their learning behaviors .Autonomous learners who learn well can master certain learning strategies and use them effectively .Learners cannot do without the regulation of emotion in the construction of autonomous learning, emotion affects people's judgment thinking and learning enthusiasm .To sum up, this paper defines learning strategies, self-control and emotion regulation as important components of the concept of autonomous learning.

2.2. Concept

2.2.1. Learning strategies

Rubin first defined learning strategies as "specific skills and methods used by learners to acquire knowledge". Learning strategies are active and flexible, which can effectively promote the organic unity of learners' monitoring of their own learning process under specific learning situations .Learning strategy refers to the circular or simple regulation of learning links by learners, which is revealed as learning methods and skills to a certain extent .Learning strategy is an operational countermeasure system to improve learning quality and efficiency .In this paper, learning strategies are defined as: learning strategies are the rules that learners regulate the steps and methods of learning so as to improve the quality and efficiency of learning.

2.2.2. Self-control

Student self-control is the effort that students make to regulate their behavior so that they focus on their studies. Self-control refers to the ability of an individual to restrain bad habits and impulses, and then guide the individual's behavior toward the desired goal. To sum up, this paper defines self-control as an individual's ability to focus on current activities, resist short-term temptations, inhibit impulses and moderate entertainment, so as to achieve goals.

2.2.3. Emotion regulation

According to Gross, emotion regulation refers to a dynamic process in which individuals adjust their subjective experience, behavioral expression and physiological response to their original emotions so as to adapt to the environment and achieve their goals. His emotion regulation theory also points out that emotion regulation is mainly through cognitive reappraisal and expression suppression. Emotion regulation is an internal and external process in which individuals monitor, evaluate and modify their emotional responses in order to achieve their goals. To sum up, this paper defines emotion regulation as a modification process, in which emotions are suppressed or used to achieve individual goals according to the needs of the current environment.

2.2.4. Academic achievement

Academic achievement, in a broad sense, refers to the level of students in listening, speaking, reading, writing, understanding, calculation, and using. In a narrow sense, it only refers to students' test scores. Academic achievement is the development and improvement of students' personal ability and knowledge reserve ability after learning and training, and the learning results measured by tests and evaluations are also the concentrated reflection of students' learning status and level. To sum up, this paper will adopt the

narrow definition, students' test scores as the standard to measure students' academic achievement.

3. Methodology

3.1. Subjects

A total of 243 questionnaires were collected anonymously from undergraduates of different majors and grades in some universities, and 154 valid questionnaires were collected.

3.2. Questionnaires

The questionnaire of this paper was excerpted from: 1) The Learning Strategies Questionnaire, which was compiled by O'Neil &Abedi (1996) and divided into four parts: planning, self-awareness, monitoring and cognitive strategies.2) Emotion Regulation Questionnaire(ERQ), the questionnaire compiled by Gross– John, the scale by the cognitive reappraisal and expression suppression of two dimensions.3) Self-control Scale, which was compiled by Tangney and adapted into the Chinese version by Tan Shuhua . The scale consists of five dimensions: resistance to temptation, healthy habits, entertainment abstinence, impulse control and focus on work. All questionnaires were scored on a five-point scale, among which 2-12 were the reverse scoring questions. After the excerpts, the Cronbach's α coefficients of each scale were 0.860, 0.627 and 0.821.4) In this paper, the study score in data is reassigned. The value of the point is 1, which means the ranking is in the "last 24%", 2, which means the ranking is in the "51-75%", 3, which means the ranking is in the "26-50%", 4, which means the ranking is in the "11-25%", and 5, which means the ranking is in the "top 10%".

3.3. Procedures

SPSS26.0 was used to sort out the data, and Pearson correlation method was used to analyze the correlation between college students' learning strategies, self-control, emotion regulation and academic achievement.

4. Results and discussion

4.1. The relationship between learning strategies and academic achievement

Based on the questionnaire data, the analysis of the relationship between learning strategies and academic achievement is shown in Table 1.

There is a significant positive correlation between academic achievement and self-awareness, monitoring, planning and cognitive strategies. It indicates that learning strategies have a significant impact on academic achievement.

4.2. The relationship between self-control and academic achievement

The analysis of the correlation between self-control and academic achievement is shown in Table 2.

Table 2 shows that academic achievement is significantly positively correlated with self-control in resistance to temptation, healthy habits, entertainment abstinence, impulse control, and work focus. It says self-control has a very important effect on academic achievement.

4.3. The relationship between emotion regulation and academic achievement

The analysis of the correlation between emotion regulation and academic achievement is shown in Table 3.

Table 3 shows that there is a significant positive correlation between academic achievement and cognitive reappraisal and expression inhibition of emotion regulation. It indicates that emotion regulation has a very important effect on academic achievement.

4.4. Correlation analysis of learning strategies, self-control and emotion regulation

Table 4 shows that self-control, emotion regulation and learning strategies are positively correlated. Emotion regulation is most closely related to learning strategies.

Table1. Correlation analysis between learning strategies and academic achievement

	Academic Achievement	Learning Strategies	Self-awareness	Monitoring	Planning	Cognitive Strategies
Academic Achievement	1					
Learning Strategies	.835**	1				
Self-Awareness	.400**	.532**	1			
Monitoring	.602**	.766**	.236**	1		
Planning	.700**	.773**	.251**	.449**	1	
Cognitive Strategies	.597**	.695**	.258**	.313**	.378**	1

Note: **correlation is significant at the 0.01 level; * correlation is significant at the 0.05 level; (2-tailed)

Table2. Correlation analysis between self-control and academic achievement

	Academic Achievement	Self-control	Resistance to Temptations	Healthy Habits	Entertainment Abstinence	Impulse Control	Focus on Work
Academic Achievement	1						
Self-control	.730**	1					
Resistance to Temptations	.539**	.812**	1				
Healthy Habits	.505**	.731**	.529**	1			
Entertainment Abstinence	.630**	.718**	.535**	.406**	1		
Impulse control	.429**	.646**	.376**	.344**	.189*	1	
Focus on Work	.509**	.682**	.513**	.367**	.402**	.304**	1

Note: **correlation is significant at the 0.01 level; * correlation is significant at the 0.05 level; (2-tailed)

Table3. Correlation analysis between emotion regulation and academic achievement

	Academic Achievement	Emotion Regulation	Cognitive Reappraisal	Expression Suppression
Academic Achievement	1			
Emotion Regulation	.732**	1		
Cognitive Reappraisal	.537**	.729**	1	
Expression Suppression	.592**	.812**	.193*	1

Note: **correlation is significant at the 0.01 level; * correlation is significant at the 0.05 level; (2-tailed)

Table4. The correlation between learning strategies, self-control and emotion regulation

	Self-control	Emotion Regulation	Learning Strategies
Self-control	1		
Emotion Regulation	.233**	1	
Learning strategies	.283**	.738**	1

Note: **correlation is significant at the 0.01 level; * correlation is significant at the 0.05 level; (2-tailed)

5. Conclusions

According to the analysis in Table 1, Table 2 and Table 3, as long as learners are good at using self-directed learning ability, it will promote learners' academic achievement.

The relationship between the use of learning strategies and emotion regulation is significant, which proves that the two complement each other and jointly promote the improvement of academic achievement. Teachers should make great efforts in cultivating students' awareness of learning strategies so that they can be good at using it in daily life. Teachers should also pay attention to students' emotions. Research shows that when individuals are in positive emotions, they can better divergent thinking, which can improve students' performance. On the contrary, students who take online courses for a long time due to epidemic management tend to have negative learning psychology. In the distance education environment, there are many factors that affect self-control. Counselors can teach students not addict in the Internet through class meetings and lectures, and reduce meaningless Internet surfing for the purpose of entertainment and recreation. Online class should be self-conscious, when necessary, can take home-school joint supervision.

This study hopes that college teaching can pay attention to the students' level of these three aspects, so as to improve the level of academic achievement.

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