

Analysis of the Influence of Students' Learning Investment on Learning Gain in Higher Vocational Colleges

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Abstract: Education quality is the lifeline of talent cultivation in universities. With the rapid development of higher education in China, people's attention to higher education has gradually shifted from quantity to quality. The quality of college students' education has gradually become a hot issue of social concern. "College students' learning engagement" is a key concept in the field of college students' learning and development in recent 20 years, which is of great value for exploring the process and effectiveness of college education. Education is an indispensable part of a country's education, whether in the east or the west. To some extent, the level of college students' academic development determines and presents the educational quality of colleges and universities, while their academic investment affects their academic development level. Therefore, it is urgent for colleges and universities to improve the level of students' academic investment. This study shows that college students' learning engagement has a significant impact on their learning gains. Based on the research results, this paper also gives some countermeasures and suggestions to improve students' learning engagement and training quality.

1. Introduction

High-quality higher education is an important engine for cultivating innovative talents, realizing national modernization and the great rejuvenation of the Chinese nation [1]. How to evaluate the quality of higher education can not only guarantee the quality of higher education, but also effectively improve the teaching of higher education, which has long been a concern of academic circles [2]. The in-depth exploration of college students' learning and development originates from the expansion of higher education scale and the crisis of higher education quality, and people's expectation of influencing and improving college students' academic achievements. Since the 1980s, college students' learning and development has gradually become an important issue in higher education research and quality assurance in western countries [3]. After entering the 21st century, the reform of education quality has become an important content of higher education reform. While promoting the popularization of higher education, ensuring the quality of higher education has become a common problem faced by all countries in the world [4]. Educational evaluation in colleges and universities is an important link in China's higher education, and it is also a measure to improve the quality of higher vocational education supervision. Educators and scholars have been devoted to exploring the best mode of higher vocational education evaluation [5]. Learning is the bounden duty of students, and the state of learning engagement is the core problem of college students' learning [6]. At present, there are many phenomena of low learning engagement among college students, which will affect their performance in school [7]. Studying the influence of college students' learning input on learning gain will not only help students to improve their learning gain and learning input, but also help schools to increase and adjust their investment in software and hardware facilities. This paper is a research on the influence of students' learning input on learning gain in higher vocational colleges.

2. Related theories

2.1. Learning input

With the expansion of educational scale and the development of universal education, on the one hand, the state and individuals are increasingly investing in educational resources; On the other hand, some students' enthusiasm for learning activities is declining [8]. The concept of learning engagement originates from people's research on the educational process of colleges and universities and students' academic achievements [9]. One of its important theoretical sources is the theory of "student participation", that is, colleges and universities should pay attention to students' needs and expectations in the daily management process, so that students can become one of the evaluation subjects of educational quality and actively participate in teaching evaluation [10]. If "input" is to be a concept with rich educational achievements, it is necessary to clarify the concept itself. Generally speaking, "engagement" refers to active participation, commitment and concentration, as opposed to superficial participation, indifference and lack of interest.

The core element of the quality of education is the degree of students' participation, which mainly includes two aspects: one is students' own behavior, that is, their involvement in effective educational practice; Second, it is the result of the interaction of the school's support for students' participation [11]. Learning engagement means that students should be psychologically engaged, and the purpose of their efforts is to learn, understand or master knowledge, skills or abilities. Some superficial participation, for example, finishing homework, getting good grades or being recognized by others, does not necessarily mean devotion to learning. Many studies show that students spend a lot of energy on some rituals, procedures or routines, but they don't really understand what they need to learn. A concept that measures the time and energy invested by individual students in their own academic and effective educational activities, and how students view the school's support for their studies, is essentially the result of the interaction between students' behavior and college conditions. The most important sign of learning engagement is the time and energy that students spend on learning activities. Active learning, cooperative learning, students' willingness to interact with teachers and high-level thinking are all regarded as important indicators of students' learning input.

2.2. Learning harvest

The evaluation research of foreign students' academic achievements attaches great importance to students' comprehensive quality and ability, and basically adopts the form of combining process evaluation with outcome evaluation. However, for a long time, colleges and universities in China have been evaluating students' studies in terms of semesters or academic years, which belongs to the outcome evaluation of students' studies. For the understanding of learning gain, most scholars think that it is a comprehensive evaluation index, including students' performance in school, ability acquisition and all-round development. College students' learning gains refer to their gains in knowledge, skills and abilities after participating in a series of learning experiences. According to different standards, students' learning gains can be divided into cognitive, non-cognitive and psychological and behavioral ones.

As for the influencing factors of college students' academic achievement, researchers mainly study from two aspects: personal factors and social support factors, and social support factors mainly include school, family, peers, society and other factors. There are also scholars in China who divide it into cognitive ability gains and non-cognitive ability gains. Cognitive ability gains include abilities in writing and reasoning, while non-cognitive ability gains include the development of values, self-identity and morality. Some people made a detailed analysis from these three dimensions, and divided the personal factors into students' intelligence, learning goals, learning motivation, personality and so on. For example, achievement motivation, goals, attribution characteristics, learning strategies and personality traits have an important impact on students' academic achievement. Others think that learning gain is the corresponding achievement of the follow-up study of college students' learning and development, which is defined as the development and growth of students' knowledge, ability and values after a period of college life. Students'

academic performance is positively correlated with their social class background, that is to say, those students with better class background generally have higher academic achievements than those with poorer class background.

3. The Influence of Students' Learning Engagement on Learning Gain in Higher Vocational Colleges and Relevant Suggestions

3.1. This paper studies

In this paper, 500 questionnaires were actually distributed to college students in 2020, of which 461 were collected and 429 were valid, with an effective recovery rate of 93%, of which 45.86% were boys and 54.14 were girls. The survey tool used in this paper is a self-made questionnaire of research participation experience and harvest, which mainly includes three parts: students' background information, research learning input and self-rating scale of research participation and harvest. Among the people surveyed, the number of people from Grade Two is the largest, accounting for 63.38% of the total, followed by those from Grade Three, accounting for 36.62% of the total. This quantitative study is divided into two parts. The first part is a sample survey, which adopts the measurement method proposed by the United States to study students, that is, to construct the dimensions of learning engagement from three aspects: behavior, cognition and emotion. Through relevant tests, the reliability and validity of this method are good. The self-rating scale of participation in scientific research is designed to measure the specific achievements of college students in scientific research. The path model hypothesis that college students' learning engagement affects their learning gains is shown in Figure 1.

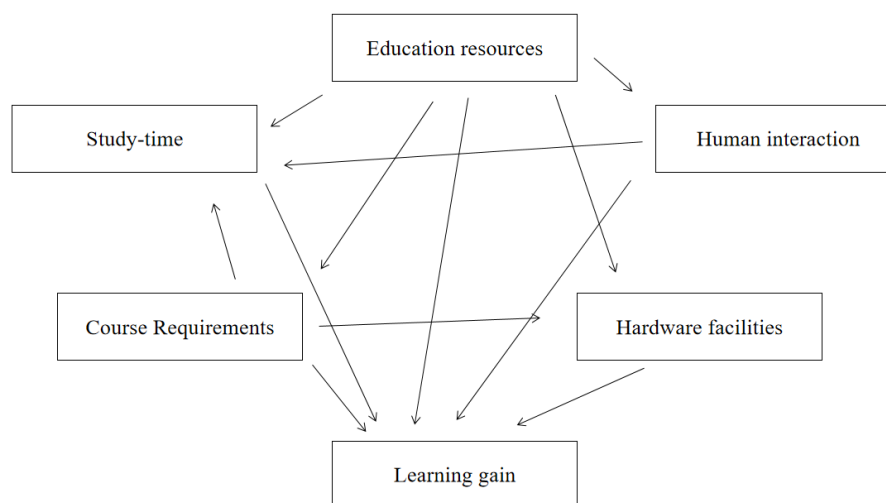


Figure 1 The path model hypothesis that college students' learning engagement affects their learning gain

According to the results of the previous qualitative research of the research group, the first-level and second-level indicators of scientific research and learning harvest measurement were extracted, and specific projects were compiled. Specifically, behavioral input is mainly divided into two aspects: classroom performance and after-class time arrangement; Cognitive input is mainly divided into two aspects: metacognition and cognitive strategy; Emotional involvement is mainly divided into two aspects: learning interest and learning experience. By using test or variance analysis, the difference analysis of the scores of students from different backgrounds in scientific research and learning shows that the scores of students from cities on professional socialization factors are significantly higher than those from villages and towns. The scores of the top 71% students in the five harvest factors are significantly higher than those of the bottom 29% students. The research shows that both classroom behavior and time investment have influence on learning achievement, and the influence of classroom behavior on learning achievement is positive and negative, mainly

because classroom behavior is good and bad; Time investment has a positive effect on learning gain, that is, the more time investment, the greater learning gain. As can be seen from Table 1, the influence of learning engagement on learning gain is significant.

Table 1 Descriptive data of research indicators

Index	Maximum value	Minimum	Average value	Alpha value
Classroom behavior	3.461	2.198	3.014	0.719
Time investment	4.378	1.453	2.574	0.544
Social support	3.615	1.571	2.765	0.736

3.2. Suggestions on Improving Students' Learning Gain in Colleges and Universities

Through the above analysis, the following suggestions are put forward on how to improve college students' learning achievements:

It is impossible for teachers to transmit knowledge to students' minds completely and effectively, so the guarantee of teaching quality lies in students' learning, especially the cooperative learning will have better effect. Because learning interaction factors have a high explanatory power to learning gains. Teachers should adopt teaching methods such as group discussion to enable students to master the ability to communicate with others; Increase college students' participation in school-level competitions, so that students can master the ability of unity and cooperation with others. Students who have study partners gain more from their studies and achieve better academic results. We should enrich all kinds of associations and carry out all kinds of cultural and sports activities, so that students can learn to cooperate with others in the process of participation. Under the condition of consistent input in learning behavior, male students' learning efficiency is stronger. Therefore, male and female students can complement each other by forming study partners, and studying together will increase the overall learning gains of college students, thus improving the quality of higher education.

The talent training goal of higher vocational education is to train practical technical talents to meet the needs of the industry and the market, and to provide continuous management, technology, production and service talents to the production front line. The discarded desks in classrooms should be replaced to provide a good and suitable learning environment for students. In the process of higher vocational education, we should not only pay attention to the transmission of theoretical knowledge, but also pay more attention to the cultivation of students' professional skills and comprehensive quality. In view of the phenomenon of occupying seats in the study room, a solution is proposed so that students can find a place to study whenever they go to the study room. Higher vocational colleges should be good at integrating in-and out-of-school resources and in-and out-of-class resources, optimizing resources, and giving full play to the role of "second classroom" in the process of cultivating students. Schools should strengthen the construction of software facilities, provide excellent teachers for students, and update computer software such as laboratories and computer rooms in time. It is necessary to strengthen the contact with school-enterprise cooperation units and industrial parks, and find suitable off-campus practice units and off-campus practice bases for students, so that students can experience the real working environment and really exercise and improve their professional skills.

4. Conclusions

At present, China has entered the popularization stage from the popularization stage of higher education, and the development of higher education has made remarkable achievements. The educational process is often referred to as the "black box" because of the complicated and difficult relationship among its internal factors. The concept of college students' learning engagement organically combines the individual efforts and time investment led by students, the policy support led by colleges and universities, and the creation of the overall learning environment. It links the educational process, especially the effective teaching behavior, with the students' learning results and gains, and makes it possible to explore the "black box". College students' learning input is

directly related to the quality of education in colleges and universities. Therefore, it is of great significance for the times to know the present situation of college students' learning input and learning gains and to explore the strategies to improve their learning input. At the same time, we also need to strengthen the policy and environmental construction of colleges and universities, and form a cultural atmosphere and policy orientation of colleges and universities that actively advocate learning, fully support learning, and constantly optimize learning. Among the various factors that affect students' learning and development, the most important thing that colleges and universities can grasp and change is their own educational environment, educational policies and practical activities. A large number of studies show that the campus environment conducive to students' growth should have two basic characteristics, one is "high academic challenge" and the other is "sufficient support".

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