Study on the Development of Innovative Experiment Teaching Model with Autonomous Learning Under the Background of Big Data

Feng-Ling JIA¹, Ya-Ping JING²

¹Experimental Teaching and Teaching Department of National Virtual Simulation Experimental Teaching Center of Guizhou University of Finance and Economics, Guiyang, China
²Big Data Development Authority of Guizhou Province, Guiyang, China

Keywords: Integrates ability; Intelligent teaching; Independent study; Thinking ability.

Abstract. Based on the demand for the development of experimental teaching in colleges and universities, this paper puts forward the development mode that integrates ability cultivation, intelligent teaching and autonomous learning into the mainstream of experimental teaching. Taking the course of "Comprehensive Experiment of Social Economic Simulation" of Guizhou University of Finance and Economics as an example, in its teaching and learning model for empirical analysis for the experimental teaching of higher learning from learning knowledge to improve thinking ability to change the transformation of the target to provide reference.

Introduction

The era of big data to the demand of modern education reform is more and more high, diversified development trend of intelligent to reposition the demand for talents in colleges and universities, adaptable, innovative and research-oriented talents is getting higher and higher. As an important base for the cultivation of senior talents, the experimental teaching plays a key role in the cultivation of talents, especially in the era of big data, experimental teaching is an effective way to introduce big data technology into its education teaching[1]. Experiment teaching mode and method of reform, on the one hand, for large data collection, storage, analysis and application platform, on the other hand in colleges and universities on the experimental teaching mode, teacher's role from the front into the scenes, for students' autonomous learning and innovation ability training provided the implementation path of ascension. Based on the demand of the era of large data at the same time, the rapid development of information technology experimental teaching reform and talent cultivation in colleges and universities provides a bigger space to expand, how to effectively in the course experiment, comprehensive experiment and innovation training between connected to deepen professional knowledge, improve autonomous learning ability and the comprehensive quality of bridge, as a new research direction of experimental teaching reform in Chinese colleges.

Independent Learning is Integrated into Experimental Teaching

Research on autonomous learning characteristics, domestic and foreign scholars from the perspective of different dimensions is given the corresponding features, such as, Chinese scholars Pang Weiguo, Zhou Yong from transverse and longitudinal directions to define the characteristics of autonomous learning, foreign scholars mo tendril puts forward a system of autonomous learning, on the basis of research framework, points out that the related characteristics of autonomous learning, at the same time, Bintrichabris. And Iris experts also has carried on the thorough research from the aspects of different theories. Based on their research views, combined with the characteristics of experimental teaching mode, the independent learning characteristics of the experimental teaching model are shown in the Fig. 1:
Figure 1. Independent Learning Characteristics.

On the one hand, the autonomous learning from its own characteristics is analyzed, the key lies in its dynamic, autonomy, responsibility and rights, on the other hand, based on the constructivism theory, combined with the feature of experimental teaching mode, to emphasize its interactive, active and situational and practicality, at the same time in the process of learning, can be on the basis of the existing knowledge and experience to construct new information, on the basis of the existing knowledge experience, can a breakthrough and innovation, at the same time in the emphasis on students' independent construction at the same time, considering the cognitive diversity, namely the same thing, different people see different ways, there is no unified standard, so the students to reconstruct the process of things, with the trend of diversity.

Based on "Online + Offline" Autonomous Learning Experiment Teaching Mode Practice Application

Data Sources

This article selects Guizhou university of finance and economics required courses of the curriculum in social and economic simulation experiment research, the subjects from 2012 grade, 2013 grade, 2014 grade of Guizhou university of finance and more than 300 different professional full-time undergraduate, the 310 students surveyed 124 students use the experimental teaching mode of independent learning. In the questionnaire survey, a total of 310 questionnaires were collected and 234 questionnaires were collected, including 210 valid questionnaires, and the effective rate was 89.7 percent. Using this 210 group of valid data, the Probit model was constructed, and the effect of autonomous learning experiment teaching mode was used.

<table>
<thead>
<tr>
<th>Types of survey</th>
<th>Methods of survey</th>
<th>Hand out questionnaires</th>
<th>Valid questionnaires</th>
<th>Effective rate (%)</th>
<th>Male proportion (%)</th>
<th>Illustration of the survey</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paper survey</td>
<td>Paper questionnaire</td>
<td>100</td>
<td>52</td>
<td>52</td>
<td>48</td>
<td>From the course survey of social economic simulation experiment of guizhou university of finance and economics.</td>
</tr>
<tr>
<td>Web-based survey</td>
<td>Survey on the internet</td>
<td>210</td>
<td>158</td>
<td>75.2</td>
<td>54</td>
<td>Autonomous learning experimental teaching mode (<a href="http://www.10.201.100.239::8081">http://www.10.201.100.239::8081</a>) is the platform of this survey</td>
</tr>
</tbody>
</table>
The Empirical Results Analysis

Using Eviews7.0 software, the Probit model was tested by using the collected data. The parameter estimation results are shown in Table 2:

<table>
<thead>
<tr>
<th>Variable</th>
<th>Factor</th>
<th>Standard deviation</th>
<th>Z Statistic</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>$D$</td>
<td>-6.5112</td>
<td>2.5221</td>
<td>-2.9554</td>
<td>0.0052</td>
</tr>
<tr>
<td>WLTM</td>
<td>1.2675</td>
<td>0.68952</td>
<td>2.5521</td>
<td>0.0236</td>
</tr>
<tr>
<td>CECJ</td>
<td>0.9881</td>
<td>0.0557</td>
<td>1.8824</td>
<td>0.0580</td>
</tr>
<tr>
<td>PECJ</td>
<td>0.7538</td>
<td>0.6203</td>
<td>2.1765</td>
<td>0.0292</td>
</tr>
</tbody>
</table>

The dependent variable average 0.8592. The standard deviation of the dependent variable. 0.9560.

Average logarithmic likelihood ratio -29.6431.

Dep=0 Number of samples 110. The total number of samples 234.

Dep=1 Number of samples 124.

From the chart of estimated results, said whether to use independent learning experiment teaching mode of variable coefficient $WLTM$ is 1.2675, is a positive number, show that in the process of teaching, use of the experimental teaching mode of college students' autonomous learning ability of autonomic learning for the influence of positive influence, to improve college students' autonomous learning ability.

Empirical analysis results show that the autonomous learning based on "online and offline" experimental teaching mode has significant effect to improve college students' autonomous learning ability, have certain effect to promote college students' autonomous learning ability. At the same time, we in Guizhou university of finance and economics, the social and economic comprehensive simulation experimental course has carried on the contrast of the teaching mode and verification, by the arrangement of learning tasks, build situational meaning, team collaboration, the actual team simulation management link, achieve the promotion of students' autonomous learning abilities, it has also emerged has the application value of innovative solutions, works and entities operating companies.

Conclusion

Autonomy is the most basic way of learning, learning is a process of building autonomous learning is not a boom, is, in fact, the return of the people's study way, also is the return of the experimental teaching mode. In the age of network information, how to make our teaching methods better to develop and cultivate students' independent learning ability, so that students' personality can develop better? So the research based on the concept of constructivism, the specified on the basis of economic management kind of experimental teaching methods, analysis of the characteristic elements of autonomous learning, is put forward under the constructivist perspective, autonomous learning concept, methods, build the new mode of autonomous learning in the experimental teaching, emphasize with the combination of information technology means, through the social, entertainment, and contextualized way for knowledge fusion and reconstruction, so as to realize the promotion of students' autonomous learning ability and the innovative significance of knowledge.
refactoring, finally through the social and economic application practice of the course of simulation experiment prove its validity.
Pointed out at the same time, this paper build autonomous learning in the experimental teaching mode of administration, is combining with the characteristics of professional disciplines building, the teachers and students in colleges and universities should be combined with the target characteristic in the practical application, to adjust the links and factors.

References


