Automation and Machine Learning (2022)
Clausius Scientific Press, Canada

DOI: 10.23977/autml.2022.030108
ISSN 2516-5003 Vol. 3 Num. 1

Integrating Ideological and Political Elements into Computer Teaching Based on Da-Bp Algorithm

Pengfei Song[1], Dan Wang[2]

[1]School of Information Science and Technology/School of Cyber Security, Guangdong University of Foreign Studies, Guangzhou, Guangdong, 510000, China
[2]South China University of Technology School of Medicine, Guangzhou Guangdong, 510000, China

Keywords: Da-Bp Algorithm, Computer Network, Ideological Political Elements, Course Teaching

Abstract: With the development and further combination of computer technology and ideological and political(IAP) education, the teaching of computer network course based on da-bp algorithm and integrated with IAP elements has developed rapidly, and its application has entered the fields of communication and education from scientific research and academic fields. Computer network teaching is launching an information revolution all over the world, which indicates that the computer course teaching integrated with IAP elements is booming and needs to develop. What computer technology brings is not only the revolution of technology and the progress of material civilization, but also the change of our ideology and politics. These new changes bring new problems to the research of IAP elements in computer teaching. The purpose of this paper is to explore the integration of IAP elements into computer teaching based on da-bp algorithm. This paper presents a design method of da-bp. This paper expounds the design and management of computer network course teaching by using algorithm. This paper uses a three-tier architecture, while using da-bp technology to design, reveals the computer network and its characteristics, this paper concretely, dialectically and comprehensively analyzes the opportunities and challenges brought by computer teaching to IAP work, this paper expounds how to innovate the IAP work in the era of computer teaching, and puts forward the corresponding countermeasures. This paper analyzes the integration of IAP elements into computer teaching based on da-bp algorithm. Finally, it adopts various forms of expression, and intuitively shows the trend chart of the design research results to users. Experimental research shows that nearly 37% of the students are interested in this teaching method and think it can be used. Three students are very interested in the application of project-based teaching method in computer courses. The enthusiasm of the students is 89.2%.

1. Introduction

With the rapid development of computer technology and computer network teaching, our traditional teaching methods and IAP influence is huge [1-2]. Facing the huge attraction and influence of the rapid development of computer network, IAP education is facing many new issues

[3-4]. How to expand the coverage of computer teaching from the traditional computer teaching [5-7], and how to enhance the enthusiasm of students. How to carry out the influence of computer network teaching on the IAP work of contemporary students more actively is a very important and urgent task [8].

In the research of Integrating IAP elements into computer course teaching based on da-bp algorithm, many scholars have studied it and achieved good results, such as a course plan proposed by Wu YP, which is closely related to the Internet, so they named it "da-bp" [9]. And began to carry out da-bp teaching practice in the studio and classroom. With the help of e-mail, the contact between da-bp users and writers is communicated, so that they can exchange their experience and discuss the research results. Peng runwu proposed that da-bp is a teaching mode based on construction inquiry [10]. However, there are few researches on the teaching mode of Computer Science in vocational schools. By inputting the key word "IAP elements" into Google, 1440000 search results are obtained. Among the results, 18000 search results are obtained by searching the key word "da-bp algorithm", and 1130 search results are obtained by searching the key word "computer course teaching integrated with IAP elements".

This paper introduces the technology used in the teaching of computer course, and describes the structure application of the development technology of Integrating IAP elements into the teaching of computer course and the background database. In this paper, the computer network teaching into the IAP elements of all aspects of the needs to do a survey, as well as the needs of the system to make a summary of the results of the analysis.

2. Integration of IAP Elements into Computer Teaching Based on Da-Bp Algorithm

2.1 Elements of Integrating IAP Elements into Computer Teaching

In essence, the IAP education of computer course is a modern form of education, which is the IAP education in the era of computer network teaching. The elements of the IAP education system are also applicable to the IAP education system of computer course teaching. Therefore, the IAP education system of computer course teaching includes five basic elements: Educators of computer course teaching integrated with IAP elements, objects of computer course teaching integrated with IAP elements, contents of computer course teaching integrated with IAP elements, methods of computer course teaching integrated with IAP elements, and environment of computer course teaching integrated with IAP elements.

2.2 Integrating IAP Elements into Computer Teaching

The IAP education of computer courses in Colleges and universities is a complex and systematic project, which requires the IAP educators of computer courses to play a strong ability in the application of computer course technology, organization and coordination. At present, they are building online activities, such as the leadership of the Party committee, the responsibility of administrative departments, professional and technical personnel of computer courses, online forums and so on, to release information and solicit opinions and suggestions from teachers and students, Reasonable and effective guidance of computer course public opinion, timely communication of information and other counseling work need to be strengthened.

2.3 Teaching Mode of Computer Course Based on Da-Bp Algorithm

2.3.1. The theory of thinking mode division divides da-bp into two kinds

One is short-term da-bp, the other is long-term da-bp. The requirements of short-term da-bp are: learners need to master important new information and apply it to practice on the basis of understanding; task completion time is one to three class hours. The requirements of long-term da-bp are: the task of learners is to analyze some problems in depth, transform them into other forms in some ways, and create some form of results on the basis of understanding, and show them in network or non network ways; the time of task completion is one week to one month.

2.3.2. Clarity and authenticity.

The task of da-bp teaching mode is designed by teachers in advance, which helps teachers to organize teaching activities in the classroom. The clear task makes students study online with problems, and avoids aimless surfing on the Internet. At the same time, the task proposed in da-bp is a real task in social life, which is meaningful to students, greatly expands the teaching content and students' knowledge resources, and also makes the teaching content have the characteristics of the times and keep pace with the scientific development.

2.3.3. Bp-da neural network algorithm

BP neural network is a multilayer feedforward neural network composed of input layer, hidden layer and output layer. If the input dimension and output dimension of BP neural network are m and 1 respectively, and the number of hidden layers is p, then the mapping mathematical expression of BP neural network is (1).

$$X_{x+1} = \mathrm{f}\ （X_J）=1\div(1+\exp\ （-\sum_{j=1}^{p} c_1 b_1 + c))(j=1,2,3.....p) \quad (1)$$

Where. F is the incentive function of hidden layer; E is the national value EC of output layer; B is the connection weight from hidden layer to output layer and the output of hidden layer node. Therefore, the output of hidden layer nodes of BP neural network can be expressed as equation (2).

$$b_j = 1\div(1+\exp(-\sum_{i=1}^{m} w_1 x_1 + \theta_i))(i=1,2,3.....m) \quad (2)$$

Where a is the connection weight from input layer to hidden layer and 0 is the threshold value of hidden layer node.

The Da algorithm adopts real number coding, and encodes the connection weight C; W and threshold ε. 0 as a whole. The search space dimension of the algorithm is m. if the number of nodes in input layer, hidden layer and output layer is R and S.S respectively, the coding length s can be expressed as formula (3).

$$S = RS + S_1 S_2 + S_1 + S_2 \quad (3)$$

3. Experimental Research on the Integration of IAP Elements into Computer Teaching Based on Da-Bp Algorithm

3.1 Purpose of the Experiment

This paper demonstrates the feasibility and necessity of Integrating IAP elements into the teaching of students' computer course by means of pre-test of learning situation comparison, project making in learning and learning test, and verifies that this teaching method is more conducive to the realization of three-dimensional goals, and that this teaching method can better enhance students' professional quality and improve their professional competitiveness.

3.2 Experimental Process

First of all, we analyzed the initial ability of students to master basic computer knowledge. I conducted a questionnaire survey on the experimental class of applying project-based teaching method. It mainly includes the students' understanding of the software to be learned, whether they understand the project teaching method, whether they are interested in applying this teaching method in classroom teaching, their willingness to participate in the places where team cooperation is needed in the learning process, and the teaching method of Integrating IAP elements into the next computer course teaching, because they complete it independently,so we need to understand their material collection, processing and processing ability. According to the results of the questionnaire survey.

3.3 Data Source of Teaching Method Experiment of Integrating IAP Elements into Computer Course Teaching

In this paper, through the specific class and students questionnaire, respectively, with the teaching method of computer teaching into the IAP elements and the traditional teaching method of two kinds of teaching methods for students to practice teaching, and then collect the effective and meaningful questionnaire for classification, statistics, analysis, and draw the column chart and bar chart. Systematically show to users.

4. Experimental Integrating IAP Elements into Computer Teaching Based on Da-Bp Algorithm

4.1 Teaching Experiment of the Teaching Method of Integrating IAP Elements into Computer Course Teaching in Students' Teaching

In this paper, we test their ability of collecting, processing and processing materials. We use the methods of literature survey and data analysis to collect and display our effective questionnaires. According to the results of the questionnaire survey, we get the experimental results as shown in Table 1.

Table 1**:** Students' Cognition

Degree of recognition	Students understand the situation	The degree of interest in this teaching method
Excellent	3	25
Good	28	7
Pass	4	3

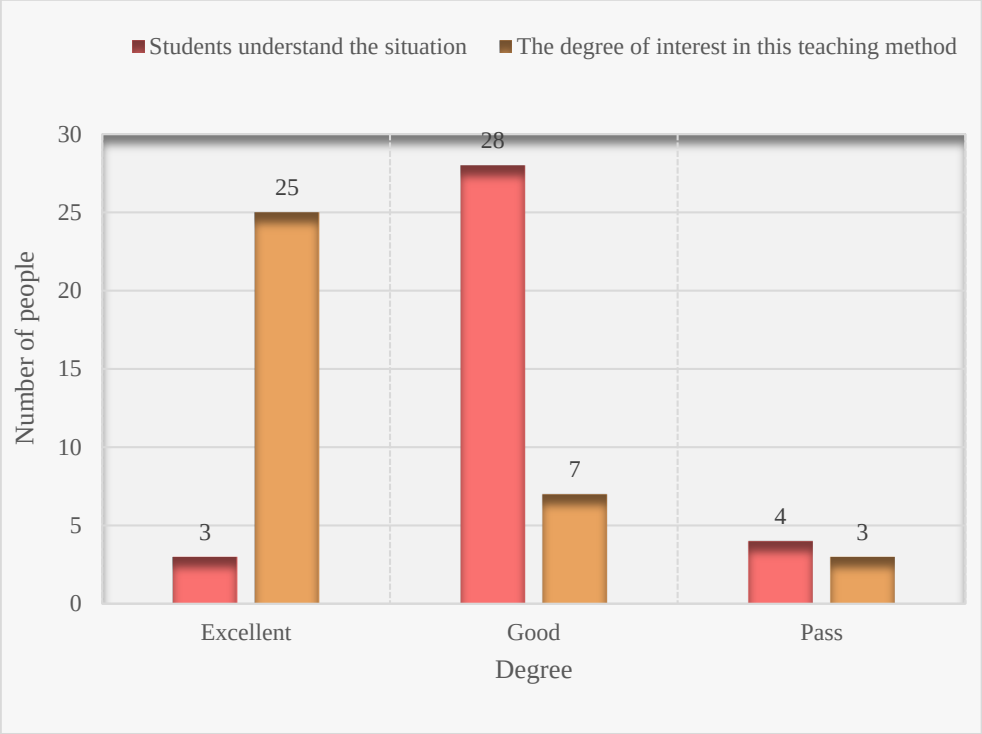

Figure 1: Students' Cognition

According to the results of Figure 1, it is found that few students have heard of the teaching method of Integrating IAP elements into computer course teaching, but whether it is necessary to apply this teaching method in teaching or not, nearly 44% of the students think it doesn't matter, it is OK to use this method or not, and nearly 37% of the students are a little interested in this teaching method and think they can try to use this teaching method, and 3 students are interested in it The application of project teaching method in computer course is very interesting. Only 6% of the students like personal learning, do not like to enter the team learning, most of the students are willing to complete the learning task with their classmates, willing to achieve the acquisition of knowledge and skills in the process of communication with classmates. 20% of the students hesitated. Some students worried that the way of group cooperation was not conducive to individual learning, but they did not reject it.

4.2 Teaching Method of Integrating IAP Elements into Computer Course Teaching on Students' Teaching

This paper compares the performance of the teaching method of Integrating IAP elements into computer course teaching and the effect of traditional teaching methods. The evaluation content includes the integrity, profundity, innovation and impression of the completion of teaching tasks. The experimental results are shown in Table 2.

Table 2: Comparison between traditional teaching and traditional teaching

Aspect	Computer course teaching	Traditional teaching
Good depth	82.95	81.8
Strong innovation	13.61	17.63
High enthusiasm	89.2	64.09
Depth of impression	56.82	50.57

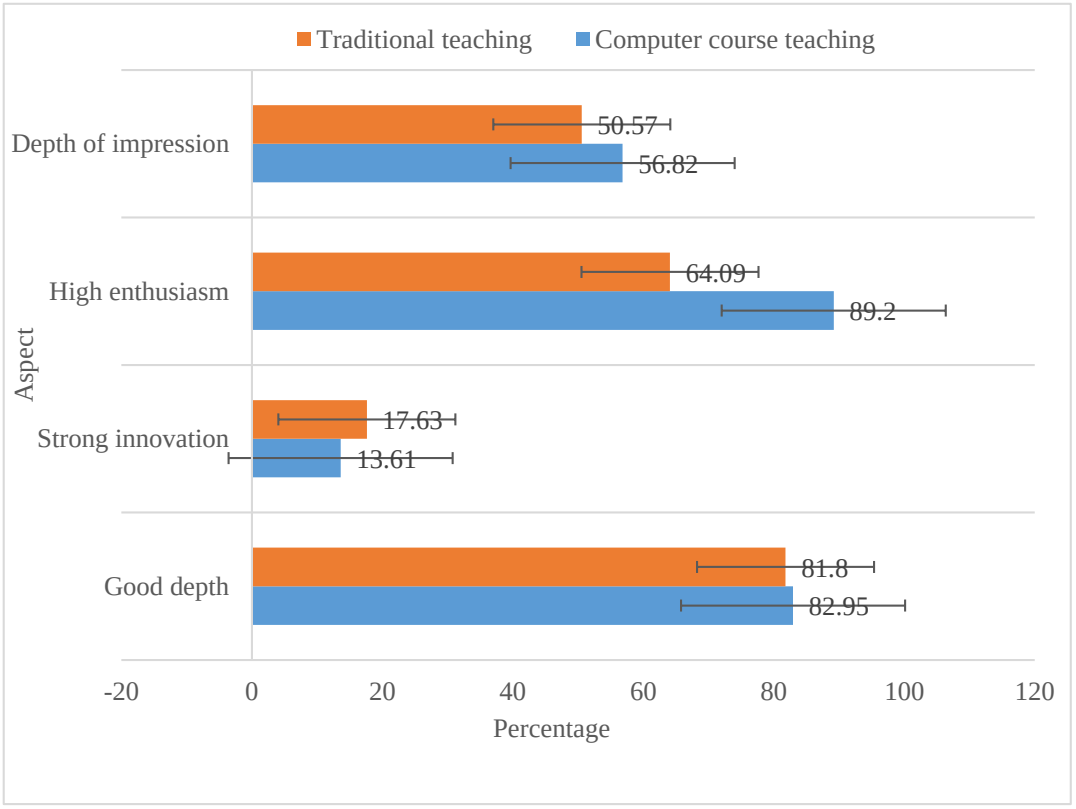

Figure 2: Comparison between traditional teaching and traditional teaching

Every student actively participated in the study. The enthusiasm of learning has been improved. On the one hand, it is related to students' original knowledge level of intelligence structure, on the other hand, it is related to their innovative consciousness and ability. Compared with traditional teaching, the teaching method of Integrating IAP elements in computer course teaching has greatly improved students' enthusiasm and impression. Traditional methods are more conducive to students' questioning and innovation. Among them, the enthusiasm of the students is 89.2%.

5. Conclusions

The integration of computer network course teaching into IAP education is an educational system composed of five basic elements. In the process of theoretical research and practical activities, we should adhere to the dialectical unity of part and whole, We should not only encourage and adhere to the five basic elements of IAP education in Computer Course Teaching: educators, objects, contents, methods and environment of IAP education in computer course teaching, In this paper, based on the da-bp algorithm, computer teaching into the IAP elements of teaching mode applied to the students' curriculum teaching has given great expectations, therefore, if conditions permit, hope to do more practical teaching in this area. It will help to improve the learning enthusiasm of higher vocational students, improve their exploration ability, and improve their quality in future work.

References

[1] Da-en, Huang, Fu, et al. Safety Prediction Analysis of the Agricultural Products Processing Based on the BP Neural Network[J]. Advance journal of food science and technology, 2015, 9(10):755-760.

[2] Koohi I , Batkin I , Groza V Z , et al. Metrological Characterization of a Method for Blood Pressure Estimation Based on Arterial Lumen Area Model[J]. IEEE Transactions on Instrumentation & Measurement, 2017, (4):1-12.

[3] Xiao Z , Kathiresshan N , Xiao Y . A survey of accountability in computer networks and distributed systems[J].

Security & Communication Networks, 2016, 9(4):290-315.
[4] Wu Xiao Jie. Innovation path of College Students' Network IAP education in the era of big data% [J]. Journal of Hubei correspondence university, 2019, 032 (001): 10-11, 14
[5] Shen Yuqiong. Practical teaching path of IAP theory courses in universities [J]. Research and practice of innovation and entrepreneurship theory, 2018, 001 (010): 32-33
[6] Mou min. effects of "decentralization" discipline on Network IAP education% [J]. Journal of science and education, 2017, 001 (017): 96-97
[7] Huang Jie. On the teaching reform of computer network training course [J]. Vocational technology, 2018, 017 (007): 91-93
[8] Wang Yingyun. Research on MOOC teaching reform of computer network course [J]. Science and technology horizon, 2018, 000 (006): 21-22
[9] LV f f, Wu Y P, Liu X. research on Chinese dream integrating into IAP Education [J]. International English education research: English edition, 2015, 000 (004): 68-70
[10] Peng runwu, Tang Lijun, Xie Haiqing, et al. On research frontier in information technology integrating into Course Teaching [J]. Education and teaching research, 2015, 029 (006): 75-77