New Perspectives on the Reform of Detection Technology under the Background of New Era

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Abstract. In this paper, we associated with the development and management of an educational program for the detection technology courses in teacher's roles. Based on knowledge combined with the idea of "keeping track of development based on teaching materials" and constructed optimization models, that is Autonomous learning, Practice teaching, Innovative thinking (API). Then we proposed a new perspective, which is to integrating the elements of ideological and political education into the teaching of these courses. It reflected the teaching characteristics of career technical college and the trial education was processed. The results showed that new perspective has improved the teaching pattern, which has been popular with students and teachers and obtained well teaching effects.

Introduction

Technology is the most significant criterion of development and growth in today's world and education is a means for getting to know and achieving the newtechnology[1]. Choosing appropriate teaching method is the first step for a society[2] whose objective is to advance on the basis of knowledge and technology. To do this, the educators need to use advanced educational technology, i.e. planned designing, implementation and evaluation criteria and practical studies. In 2008, Snavely has comprehensive analysis three interconnected aspects of higher education and information literacy[3]. Specially, during two decades years, new teaching methods have emerged one after another[4-8] and have made remarkable achievements. However, we think the most important in the field of education is to choose appropriate teaching methods and build a high quality teaching model based on different types of education and the different background of the times.

In this paper, an optimization models with innovative meaning is constructed based on the new era network referred to the spirit of the craftsman, which is Autonomous learning, Practice teaching, Innovative thinking (API). This educational program, which reflects the teaching characteristics of career technical college and the trial education, was developed in Jilin Technology College of Electronic Information between 2015 and 2017. The results show that new perspectives on the detection technology courses in this college has improved the teaching pattern, been popular with students and teachers, and obtained good teaching effects.

We now outline the remainder of this paper. The API models is given in Section II. In Section III, the process of trial education was developed in Jilin technology college of electronic information. Finally, concluding remarks are given in Section IV.

Model

As we all know, the process of learning knowledge is divided into six categories. They are remember, understand, apply, analyze, evaluate and create, called Bloom classification. In the new era, because of the rapid development of information technology, there are many ways for people to acquire knowledge. The above six categories can be redefined, that is acquire, understand, analyze,
applying, summarize and create (see Figure 1). As the propagandists and executors of educational work, we must keep our mission in mind, understanding the features and keeping the craftsman spirit of educational technology, which help us in benefiting from this knowledge and prevents wrong understandings of the purpose, concept, nature, practice and domain of it. The features include:

1) Educational technology is the practice of scientific principles in education.
2) Educational technology emphasizes the development of effective teaching learning methods and techniques.
3) Educational technology is not skill to passive listening.
4) Educational technology is not build a quiet learning environment, high-quality auxiliary equipment, evaluation management and strict reward and punishment mechanism.
5) Educational technology is the foundation of cultivating talents, the general term of imparting knowledge and the ladder of human progress.

When making clear the features of education, combining with the classification of knowledge and studying the teaching characteristics of career technical college, the optimization model API is proposed, that is Autonomous learning, Practice teaching, Innovative thinking, which are described below.

**Autonomous Learning**

In fact, with the rapid development of information technology, there are many ways for students to acquire knowledge. In vocational education, the key lies in the practice, not theory, however, it does not mean that students don't need to understand and master knowledge.

On the contrary, it is necessary for them to have the ability to analyze and solve problems in the process of practice, that is, autonomous learning. And it is impossible to include all in class teaching.

**Practice Teaching**

Here's what's most important. In this respect, we insisted using theory to guide practice and using practice to test theory, we should pay attention to mastery the knowledge and applying it.

For example, the detection technology courses. There are hundreds of sensors, which are applied in many fields. However, the school time is limited, and the sensors in the process of education are also limited, which requires students to use practical teaching to solve many kinds of unfamiliar problems outside the campus.

![Redefined Bloom classification.](image)
Innovative Thinking

Innovation requires wisdom and courage. Since traditional classroom teaching students the limits of innovative thinking and creativity, break it!

In the education model, A, P and I, the three complement each other, are indispensable and already whole and already whole (see Figure 2).

![Figure 2. API model.]

Process of Trial Education

The process of the trial education was developed in Jilin technology college of electronic information is below.

Firstly, research the content and demand of Chinese curriculum standard deeply on detection technology courses. To analyze the requirements and requirements of various fields, to determine the relevant information of this course, to discuss the syllabus, to standardize the course content, to clarify the teaching objectives, to establish the criteria for evaluation and to open the course conditions, to form a standard course teaching model, and to ensure the effective combination of curriculum standards and industry standards.

Secondly, Choosing the suitable teaching program on detection technology courses. According to the demand of the post and the requirements of the professional ability related to automation, the teaching content should be reconstructed and optimized, the technical theory should be refined, and the cooperation and exchange with the enterprise technology major should be strengthened, and the teaching reform project which is suitable for the training of practical ability should also be constructed.

Thirdly, Integrating the elements of Ideological and political education into the teaching of detection technology courses. Collating the relevant information of ideological and political moral elements, then finding out the important items that can enter the teaching plan and the important content of classroom teaching, and combine the knowledge with the content of values, and the synergy between both is formed.

Finally, effective methods of assessment and evaluation are formulated. At the end of the course, the students’ study effect should be emphasized, and the students’ outlook on life, values, ideals and beliefs, moral sentiment, the spirit of the craftsman and innovation should be standardized.

The trial education was developed in Jilin technology college of electronic information between 2017 and 2018. An overview and results are given in Table 1.

<table>
<thead>
<tr>
<th>Year</th>
<th>Period</th>
<th>Number of participants</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>The first half of 2017</td>
<td>A total of 20 classes consisting of 15 classroom lectures and seminars and 12 practical training sessions</td>
<td>Attended by 35 persons. Among 32 of them were qualified</td>
<td>Classes were held weekly on different days for 6 hour time. The course is carried out on the campus, where as practical training sessions were held at three factories.</td>
</tr>
<tr>
<td>The second half of 2017</td>
<td>A total of 16 classes consisting of 12 classroom lectures and seminars and 9 practical training sessions</td>
<td>Attended by 42 persons. Among 41 of them were qualified</td>
<td></td>
</tr>
<tr>
<td>The first half of 2018</td>
<td>A total of 17 classes consisting of 13 classroom lectures and seminars and 10 practical training sessions</td>
<td>Attended by 25 persons. Among 25 of them were qualified</td>
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</table>
It can be seen from it that the effect is very good. And this kind of educational technology is very popular with students.

**Summary**

In this paper, we constructed API model based on the new era network referred to the spirit of the craftsman, that is Autonomous learning, Practice teaching, Innovative thinking (API). And proposed the new perspective is to integrating the elements of ideological and political education into the teaching of the detection technology courses. The basic concepts is based on knowledge combined with the idea of "keeping track of development based on teaching materials" within the frame work and optimization models with innovative meaning. The trial education was developed in Jilin technology college of electronic information between 2017 and 2018 (three semesters). The results show that new perspectives on these courses in this college has improved the teaching pattern, and obtained well teaching effects.

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**References**


