



# Study on the Problems of Serving Regional Economic Development of Aviation Maintenance Specialities in Higher Vocational Colleges and Universities

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**Abstract.** In the process of researching the suitability of the professional setting of aviation maintenance in local higher vocational colleges and the development of regional industries, it was found that the mismatch between the professional setting in terms of curricula, teachers, and practical training and the demand of regional industries, as well as the change of industrial demand is faster than the reform of education and other problems. Therefore, this paper puts forward the suggestions of optimizing professional settings, strengthening school-enterprise cooperation, and upgrading the level of teachers, intending to provide a reference for higher vocational colleges and universities to serve regional economic development better.

**Keywords:** Higher vocational colleges and universities; Aviation maintenance specialization; Regional industrial development.

## 1 Introduction

### 1.1 Background to the Study

With the rapid development of the aviation industry, the demand for aviation maintenance professionals has increased dramatically. As the main force of vocational education, higher vocational colleges and universities shoulder the important responsibility of cultivating high-quality technical talents[1]. However, there is a disconnect between the current professional settings of higher vocational colleges and the regional industrial demand, resulting in a mismatch between the supply and demand of talent. To solve this problem, it is of great practical significance to study the suitability of aviation maintenance professional settings in higher vocational colleges and regional industrial development.

### 1.2 Research Purpose and Significance

Through the detailed investigation and analysis of the professional settings of higher vocational colleges and universities and the status quo of the regional aviation industry

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in Hunan Province, this question explores the problems and their causes, provides theoretical support and policy suggestions for adjusting and optimizing the settings of aviation maintenance majors in higher vocational colleges and universities, to promote higher vocational education to serve the regional economic development more effectively.

## **2 Research Process**

### **2.1 The Current Situation of Aviation Maintenance Professional Settings in Higher Vocational Colleges and Universities in Hunan Province**

The professional settings of aviation maintenance in the provincial higher vocational colleges and universities present diversified characteristics, but overall there are certain commonalities and limitations. Firstly, the professional settings are mainly concentrated in three higher vocational colleges and take aviation engineering technology, aircraft maintenance, and management as the main direction, with relatively narrow coverage. Secondly, the curriculum generally lacks updated content that is closely integrated with the latest technological development, failing to effectively follow the pace of technological upgrading in the aviation industry. Furthermore, there are certain bottlenecks in the quantity and specialisation of the teaching force, resulting in uneven teaching quality. In addition, the level of practical training facilities and equipment varies, affecting the cultivation of students' practical abilities.

### **2.2 Analysis of the Current Situation of the Aviation Industry Structure in Hunan Province**

The regional economy of Hunan Province is predominantly diversified, with significant competitive advantages, particularly in the manufacturing and service sectors. The aviation industry, as a key economic growth point, has an increasing demand for high-quality technical personnel. Especially in the field of aviation maintenance, with the rapid change in technology and the rapid development of the market, the requirements for professional skills and practical experience are more prominent. However, there is a gap between the existing higher vocational colleges and universities' aviation maintenance professional settings and local industrial needs, which not only restricts the quality and efficiency of talent training but also affects the development potential of the local aviation industry.

## **3 Issue Finding**

### **3.1 Problem of Matching Professional Setting with Industrial Demand**

Local higher vocational colleges and universities face the problem of mismatch between the professional settings of aviation maintenance and the development of the local aviation industry.

Firstly, the existing programmes are too general and fail to accurately meet the technical needs of different areas of the local aviation industry. For example, while certain institutions offer a wide range of aeronautical engineering technology programmes, these programmes are often too general and fail to cover the in-depth technical requirements of specific areas such as avionics and aerostructure repair.

Secondly, the updating and adjustment of professional settings is slow and cannot effectively follow the rapid development of aviation technology and changes in industrial structure. This leads to a situation where students may face outdated technology or failure to meet market demand after graduation, thus affecting their employability and career development[2].

In addition, the lack of effective school-enterprise cooperation mechanism and market feedback mechanism makes higher vocational colleges and universities fail to obtain the latest demand information and technological progress of the local aviation industry in a timely manner[3], which makes it difficult to make timely adjustments and optimisation in teaching content and practical training.

### **3.2 The Contradictory Problems of Teacher Quota and Industrial Development**

There are several major problems in the construction of the faculty of local higher vocational colleges and universities in the aviation maintenance category.

Firstly, the faculty generally lacks high-level experts and teachers with rich practical experience who are closely aligned with the technological frontier of the aviation maintenance industry. This makes it difficult to teach the latest technical knowledge and practical skills in a timely manner during the teaching process, limiting the cultivation of students' professional ability and competitiveness.

Secondly, there is a lack of sufficient practical experience in the industry and international vision in the teaching team, which cannot effectively deal with the complexity and diversity of aviation maintenance technology[4], resulting in the teaching content being too theoretical and not practical enough. This not only affects the cultivation of students' practical operation ability, but also restricts students' deep understanding of the overall development trend of the aviation industry and the enhancement of their adaptability.

In addition, the structural problems of the teaching force are also worthy of attention, such as the age structure is on the large side, and the speed of technological updating can not keep up. These factors together lead to the lack of teaching quality and research ability of the faculty in the field of aviation maintenance, which affects the long-term development strategy of higher vocational colleges and universities in the training of aviation maintenance professionals.

### **3.3 Disconnect between the Curriculum and Technological Advancement**

Firstly, the existing curriculum lacks updated content and cutting-edge knowledge closely related to the latest aviation technology development. Many course contents still remain at the level of traditional aviation maintenance theory, failing to effectively

integrate the latest avionics technology, intelligent maintenance technology and other cutting-edge areas of knowledge requirements.

Secondly, the curriculum system and structure are relatively solidified, lack of flexibility and relevance[5], and fail to make timely adjustments and optimization according to the actual needs of the local aviation industry and technological updates. This makes it difficult for students to obtain the practical operation ability and innovation consciousness that is closely aligned with the market demand in the learning process.

In addition, there are deficiencies in teaching methods and resource allocation, resulting in a lack of practical teaching sessions and insufficient cultivation of practical operation ability[6]. Students lack sufficient experimental and internship opportunities to accumulate the necessary skills and experience in a real work environment.

## **4 Recommendations and Countermeasures**

### **4.1 Adjustment and Optimization of Professional Settings**

To better meet the development needs of the local aviation industry, higher vocational colleges, and universities should optimize the curriculum of aviation maintenance majors through research and market demand analysis. This includes increasing the number of professional elective courses, introducing the latest aviation technology and industry standards, as well as establishing a flexible curriculum system to ensure that students have practical operation ability and market competitiveness after graduation.

### **4.2 Teacher Enhancement and Training**

To improve the quality of teaching and the effect of student training, higher vocational colleges and universities need to increase the training and upgrading of their faculty. This includes inviting industry experts to carry out special lectures and practical guidance, participating in international academic exchanges, as well as promoting teachers to participate in practical projects and scientific research activities in the industry, to ensure that their teaching level and industry adaptability is constantly improved.

### **4.3 Updating and Development of the Curriculum**

In response to the rapid development of aviation technology and changes in market demand, tertiary institutions should regularly assess and update the content of their curricula. This involves updating experimental teaching facilities and technical equipment, introducing advanced teaching methods and case teaching, as well as strengthening the combination of theory and practice in order to cultivate students' innovation and problem-solving abilities.

#### 4.4 Deepening of School-enterprise Co-operation

In order to better match the actual needs of the local aviation industry, higher vocational colleges and universities should actively promote the deepening of school-enterprise cooperation. This includes the establishment of long-term and stable cooperative relationships, the joint development of curricula and practical training projects, as well as the promotion of the effective docking of school educational resources and the actual needs of enterprises through two-way talent flow and the transformation of scientific and technological achievements, so as to enhance the relevance and effectiveness of talent cultivation.

## 5 Conclusion

This question analyses the problem of fitness between the professional setting of aviation maintenance in local higher vocational colleges and the development of regional industry and puts forward corresponding suggestions for improvement. Through the analysis of professional settings, faculty strength, curriculum content and school-enterprise cooperation, the current deficiencies and challenges are found. In order to better meet the actual needs of the local aviation industry, it is suggested that higher vocational colleges and universities should optimize their professional settings, upgrade their faculty, update their course contents and deepen their school-enterprise partnerships. These measures will not only help to improve the employment competitiveness of students but also promote the sustainable development of the local aviation industry and the cultivation of innovation ability. The research results have important practical significance and application value for promoting the organic combination of higher vocational education and local economic development.

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