



# Reform Practice of Ideological and Political Teaching of Course “INtroduction to Airworthiness” Based on “Three Integrity Education”

Jihui Xu, Wenjie Tian<sup>(✉)</sup>, and Guoqiang Yuan

Equipment Management and Unmanned Aerial Vehicle Engineering College, Air Force Engineering University, Xian Shi, China  
twj-safety@foxmail.com

**Abstract.** “Introduction to Airworthiness” is a professional core course for aircraft airworthiness technology majors. It has novel theoretical framework, multifarious knowledge pedigree, rich content and cases, and a wide range of applications. It has the characteristics of theory, frontier and practice. In order to strengthen the students’ professional spirit, stimulate the students’ enthusiasm for serving the country, promote the students’ ideological growth, strengthen the students’ professional quality, integrate curriculum ideological and political education into professional teaching, explore and form a new curriculum ideological and political mode based on “three integrity education”. Focusing on the lofty mission of cultivating talents for the Party, the school has made great efforts in educating all personnel, strengthening the students’ professional identity, scientific feelings and professional ethics. Focusing on the inner law of value shaping, we make great efforts in the whole process of educating people, and innovate the ideological and political path of one smell before class, online expansion and model catalytic; Focus on the value pursuit of career development, highlighting the dedication to the country, the spirit of craftsman, style of cultivation of the leading inspiration. From the whole staff, the whole process, all-round, high-positioning, broad vision, multi-path expansion and innovation, effectively improve the trainees’ professional spirit and professional self-cultivation, to meet the military post development and demand.

**Keywords:** full staff · whole process · all-round · professional ideological and political · teaching reform

## 1 Introduction

“Three-in-one education” is a new concept put forward by the CPC Central Committee and The State Council in the “Opinions on Strengthening and Improving Ideological and Political Work in Colleges and Universities under the New Situation”. In [1], the full name of the concept refers to “whole-staff education, whole-process education and all-round education”, which reflects the party’s latest requirements for education. “Three-in-one

education” is not only the integration of current education projects, carriers and resources, but also the reconstruction of the pattern, system and standard of long-term education. Many domestic scholars have carried out a large number of studies focusing on “three-integrity education” and achieved fruitful research results. In [2], Lin Wei pointed out that colleges and universities should adhere to the unity of academic logic, practical logic and management logic to promote the “three-in-one education”, and continuously deepen the guidance of thought and value. In [3], Ya-yang tang analyzed the research literature related to the theme of “three-integrity education” in China from 1994 to 2020, drew the knowledge map, and divided the research into three stages according to the characteristics of the initial stage, active development and comprehensive expansion. In [4], Yang Su Yun suggested that colleges and universities should give prominence to the main responsibility, perfect the relevant policies and systems, and coordinate the educational resources of colleges and universities. In [5], Xiang-lin meng expounds the connotation of “three integrity” in the aspects of educating subject, educating time and educating space, and emphasizes that the pattern of elements, institutions, objectives and bases should be reconstructed and gradually practiced under the environment of “great moral education”. In [6], Jiao Yang pointed out that deepening the comprehensive reform of “three qualities and education” is the fundamental requirement of implementing general Secretary Xi Jinping’s important discussion on education, the way to carry out the fundamental task of moral education and education, and the important start to speed up the construction of world-class universities with Chinese characteristics. In [7], from the perspective of synergetic theory, “three-in-one education” has the connotation and characteristics of openness, nonlinear and autonomy.

It is the first exploration and practice in the teaching of “Introduction to Airworthiness” that the professional course ideology and politics is based on the concept of “educating people with three qualities”. General Secretary Xi Jinping stressed at the National Conference on Ideological and Political Work in Colleges and Universities that classroom teaching should be made good use of as the main channel, and all kinds of courses should be in the same direction as ideological and political theory courses to form synergistic effects. In the process of classroom teaching, I combined with model developed in our country the pioneering work of the airworthiness, the fusion of the civil aircraft airworthiness “large aircraft project” will be seaworthy design and engineering practice, aviation pioneer, science and technology innovation, airworthiness story, aircraft models, etc. into classrooms, expand students’ knowledge, feeling, China’s aviation history to understand the innovation of the domestic and international air master consciousness and exploring spirit, Inspire the students’ will to serve the country in aviation, set up the students’ ambition, patriotism and love the party, and help the students establish core values and life markers.

## 2 To Cast the Soul of Morality for All Staff

Ideological and political education is a general requirement for all students, and also a powerful weapon to help new students become successful in life. In view of the characteristics of students majoring in airworthiness, I compared the teaching knowledge points, distinguished the special modules, and wrote the ideological and political cases

of the course, so as to adapt and complement the teaching content. Ideological theme prominent khali dents, for educational ideas, by adopting the airworthiness stories, airworthiness characters, airworthiness technology, innovation, to provide students reading, improve education material, naive sympathies, the purpose of education with affection, mixed virtue, encourage the growth of students in the osmosis thought transformation and sublimation of moral education.

## **2.1 Speak Out and Listen to Airworthiness Stories Told by Airworthiness People**

Selected case the development of the China civil aviation C919, the ARJ21 plane, detailed scientific research project, project demonstration, technical decision, the details of the project implementation, testing development and section, in the process of understanding the development of the airworthiness, let students familiar with the content of the airworthiness regulations, deepen the understanding of the terms of seaworthiness, comprehend China civil aircraft airworthiness of entrepreneurial myth, deepening the airworthiness professional knowledge. For example, the background story of natural icing airworthiness clause, the background of EWIS clause, the dynamic update of CCAR-25 standard, the story of ARJ21 flying abroad to carry out cross-wind test and extreme cold test, and the story of CAAC airworthiness test pilots challenging limits and overcoming difficulties.

## **2.2 Strong in Science and Technology, Spreading the Image of Good Airworthiness of China**

With the airworthiness development of Chinese military aircraft as the background, the cadets are told the airworthiness story of the development of new aircraft, the difference between military aircraft and civil aircraft airworthiness clauses, the difference between domestic and foreign airworthiness clauses, the development of Airworthiness technology in China, the breakthrough of airworthiness technology of military aircraft, so that the cadets can establish the basic cognition of the development process of military aircraft. Familiar with the airworthiness management process, technical standards and military specifications, and familiar with the technical performance and maintenance requirements of new military aircraft in advance. The pilot situation of continuous airworthiness management is told to the trainees, and the first-hand information is brought to the trainees in combination with their own airworthiness practice, so as to help the trainees understand airworthiness, get familiar with equipment, master preliminary professional knowledge, and lay professional foundation and knowledge reserve.

## **2.3 The Master Led the Way and Set up a Firm Ambition to Serve the Country**

Airworthiness is a unique knowledge system in the field of aviation. It is also the progress of generations of aviation personnel in the process of scientific and technological innovation and aviation service to the country. Focusing on the development of military and civilian models, aviation technology innovation, safety regulations revision, airworthiness verification technology, airworthiness qualification examination, model development and test flight are realized. The realization process of meeting airworthiness

requirements, airworthiness standards and airworthiness review requirements. For example, tells the story of the C919 aircraft designers guang-hui wu, new aircraft designers for Yang's story, the story of the civil aviation administration hong-ying zhang general, tells the story of the civil aircraft ARJ21 test team, tells the story of the military forces of scientific research test, entrepreneurial stories of xin ji continued airworthiness team, provide students with the beacons, striving direction of life, the enterprising ambition.

### **3 Strengthen Ideological and Political Guidance Based On Process**

Professional thinking and politics is a continuous and gradual process. It is by no means possible to guide, motivate and move students simply by telling a story or using an analogy. Only by integrating the ideological and political elements into the whole process of teaching and into every link of undergraduate education, can the ideological and political elements have a catalytic effect in imperceptible and silent way, realize the sublimation and transformation of values, outlook on life and world outlook, and strengthen the quality of dedication to serve the country under the influence of ideological and political influence. The object of ideological and political teaching is students, and the leading role of ideological and political teaching is also inseparable from students. In order to improve the validity, depth and strength of ideological and political courses, I set up ideological and political seats before class in combination with the characteristics of the courses to mobilize students' learning initiative. Interactive seats in class, guide students to participate actively; Extend seats after class, cultivate students to explore the frontier spirit of seeking. By setting the "each lesson a smell" link, in the early exchanges, communication with students select material, on the basis of arrangements by the students tell their comments and interact through students' living, reduce the distance of course education and students, by the people around speaker, common interaction, realizing the maximization of education participation, whole-staff-participation, effect.

#### **3.1 Pre-class Knowledge Review, Embedded Ideological and Political Elements**

The purpose of ideological and political courses is not to pursue a lively form, or to start a new career without majors, or to add other "1 + 1" on the basis of professional teaching, but to integrate and communicate with each other, infiltrate and embed each other, form an integral whole and coordinate with each other, so as to achieve the same frequency resonance and mutual help. Before in order to strengthen students' understanding of knowledge, to be deepened and achieve mastery through a comprehensive study, I choose good education points, ahead of clues to provide education for students, to students independent, autonomous access to content, provide students with the stage of exercise self, self, students in the education of communication to achieve to temper, forging students and motivate students.

#### **3.2 Online Learning Reading, Harvest Ideological and Political Perception**

In order to effectively learn from the experience and practice of ideological and political education in other colleges and universities in China, to provide students with "another

window” for professional learning, and to achieve the purpose of “stones from other mountains can attack jade”, I searched extensively on the Internet for cases and materials of navigable ideological and political education, and recommended them for students to read in advance. On the basis of this, students will introduce their own online learning situation, to achieve the purpose of sharing results., for example, let the students online learning “introduction to aerospace science of Beijing university of aeronautics and astronautics” living space “, “general aviation knowledge” of northwestern polytechnical university, overview of aviation, naval aviation university of plane line repair technology, Beijing jiao tong university, the aviation regulations MOOC courses, such as stimulating students’ professional interest, comprehend the development of aviation technology, Understand the development frontier of airworthiness specialty.

### **3.3 Understand Model Development and Grasp Airworthiness Frontier**

Airworthiness is the product of model development, from the pursuit of safety, but also the accumulation of safety, not only the guidance of model development, but also the control of model development. For airworthiness regulations from abroad, the characteristics of the abstract, boring, not easy to understand, to solve the problem of learning of students, enhance the learning effect of press close to, I think of the hardships will model developed by, moving story, the story of science and technology research, with teaching, into the teaching materials, into the students mind, will play a better effect. To this end, I set up wechat groups and rain classes, organized Tencent meetings, and selected key models such as Boeing series, Tu-154, C919, ARJ21, and military aircraft, so that students could independently search for information, learn laws and regulations, and communicate with each other, so as to realize knowledge sharing and experience the ideological and political hot spots of model development. In the process of realizing the hard development of model internalized into the motivation of learning, patriotic feelings.

## **4 Cultivate Professional Quality Comprehensively**

The selection of ideological and political points, to achieve the effect of salt into water. Curriculum thinking and politics is a process of overall design and full implementation, rather than a temporary initiative or a flash of inspiration. It is a deep coupling and integration of knowledge and difficult points and curriculum system on the basis of deep cognition and extensive understanding of professional knowledge. Therefore, I sorted out the knowledge points according to the chapters to form a knowledge tree, and then divided the ideological and political topics into 8 categories, adopting the form of matrix to realize the correspondence and interaction between the knowledge points and ideological and political points, so as to provide guidance for the course ideological and political action and follow the teaching.

### **4.1 Correct Selection of Patriotic Ideological and Political Points**

The word “airworthiness” is an imported product, a concept formed and recognized by foreign countries in the development and development of civil aircraft, as well as

a pronoun of foreign standards, reflecting the latest achievements in the exploration and accumulation of foreign civil aircraft field. How to digest and absorb them, and use them in the development of military and civil aircraft models in China, so as to give full play to their role in ensuring safety and supporting the development of aircraft models in China. This is not only a challenge, but also an opportunity. In this process, a large number of representatives and innovative pioneers emerged, so it can be used as a good material for ideological and political curriculum into the classroom. For example, the C919 medium-sized passenger jet, as China's first in accordance with the latest international airworthiness standards, is a private aircraft independently developed by China to break the market monopoly of Boeing and Airbus. It is also known as the "zhengzheng" in China. Design team to guang-hui wu represented the total teacher, including Zhou Guirong, Zhou Liang dao, etc., in the face of entrepreneurial hardships, everything from scratch, to overcome the unknown challenges, firmly designed road, do not give oneself leave ground for retreat, holding "resolutely to complete the task" triumphalism, self-motivated, until success, fully embody and interpretation of "the great patriotic spirit", Writing the belief and pursuit of independent entrepreneurship, science and technology, aviation to serve the country [8].

#### **4.2 Make Good Use of the Craftsman Spirit to Reflect on Government Affairs**

The spirit of craftsman is an important part and valuable asset of China's fine traditional culture. "Kao Gong Ji Jie" said, "The Zhou people were still literary, although the ancient car, to zhou and more refined, so a tool and work together yan. Pottery, for example, has been around since ancient times. Shun the defense, has pottery fishing, will be to the time of danger, the better the fine clay ware." On November 24, 2020, General Secretary Xi Jinping pointed out at the National Conference of Commendation for Model Workers and Advanced Workers that over the years, we have fostered the craftsman spirit of "dedication, excellence, meticulousness and pursuit of excellence". In [9], the spirit of craftsman is the ultimate spirit of striving to raise 99 percent to 99.99 percent. Hu Shuangqian, senior technician and CNC workshop fitter of COMAC Shanghai Aviation Corporation, led the fitter team to carry on the craftsman spirit and engage in the processing of the most delicate and important parts of the C919 aircraft, achieving an amazing "zero error". The aircraft officers and officers held up the war eagle with both hands, and vividly interpreted the blue sky connotation of the craftsman spirit in the feat of flying their dreams with their extremely responsible working attitude, rigorous and meticulous fine style of work and hard-working quality.

#### **4.3 Solid and Excellent Style of Political Thinking**

Airworthiness is not only the field of technological innovation, but also the carrier of fine style of work. "The direction of ambition, no far fu session; Poor mountains from the sea, can not limit also". The Yunyun aircraft is a large military aircraft independently designed and developed by China. In the process of scientific research and innovation, a large number of technical experts have emerged. Under the leadership of Academician Tang Changhong, the company has adopted advanced technologies such as digital design and digital assembly to create a synchronous innovation path of "filling up" and "upgrading

the foundation”. In [10], large aircraft integration degree is high, requiring sophisticated technology, such as vertical tail and rear fuselage docking, deformation and assembly control accuracy requirements are very high, the accuracy of hole requirements up to 0.05 mm, is 1/10 of the hair, rely on is excellent technology and fine style.

## 5 Conclusion

Based on the core professional course of “Introduction to Airworthiness”, this paper explores a new curriculum ideological and political mode of “three integrity education”. The practice shows that the reform of ideological and political teaching of “Introduction to Airworthiness” can effectively improve the students’ professional spirit and professional self-cultivation, and meet the needs of military post development and employment.

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