Construction of Man-made Factor Management Strategy in Aviation Safety Management

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Abstract: With the development of economy in recent years and the rise of civil aviation in China, there are some problems with the rapid development of civil aviation. Especially in the safety management of civil aviation air traffic control, human factors are important factors, and uncontrolled human factors also bring many problems. Therefore, the author carries on the analysis to the human factor in the aviation safety management, and carries on the summary to it finally to analyze the related management strategy. According to relevant research, the main problems in aviation safety are caused by human factors, such as: The professional and psychological quality of some control personnel in civil aviation. Its human factors seriously affect the safety issues in flight. When necessary, the traditional "human factors" management method should be changed, and the "organizational factors" management method should be adopted to improve the safety level of China's civil aviation.

1. Introduction

In aviation safety management, managers play an extremely important role, even affecting the normal operation of the entire program. In aviation management, managers are directly responsible for the safety of aircraft flight [1]. Its civil aviation is not only related to the safety of passengers, but also related to the image of China and related to China's economic development. However, due to the economic development of the aircraft's safety factors, the aircraft's hardware facilities have greatly improved the safety factor, while man-made management is the weak link affecting aircraft safety management. Therefore, improving the development of civil aviation has not only improved the company's efficiency. Moreover, the people have eaten a peace of mind, so that people do not have too much fear to fly on the plane [3]. According to the survey data analysis, about 75% of the unsafe incidents of air traffic control are caused by human factors [4]. With the rapid growth of passenger and cargo traffic, the General Administration of Civil Aviation in the 11th Five-Year Plan for Civil Aviation Safety proposed to reduce the rate of major accidents per million flight hours to less than 0.3 [5]. With the improvement of human science and technology, aircraft are becoming more and more modern. Air transportation makes people travel more and more convenient. The number of passengers choosing civil aviation travel is increasing year by year, and the number of flights is also increasing day by day. At the same time, the increasing number of airlines and airports in China has also promoted the development of civil aviation industry [6]. Therefore, in order to improve the management level of safety work and prolong the safety guarantee cycle, we must attach great importance to the role of human factors.

As an aeronautical information manager, his task is to collect, collate, analyze, design and issue the aeronautical information accurately and correctly [7]. To ensure the accuracy and safety of information, reduce the occurrence of accidents in China's aerospace industry, and promote the sTable and healthy development of China's aerospace industry. In the control of civil aviation, the control in the flight process is particularly important. The success of a flight is not decided by the pilot alone, but by the cooperation of the crew, the controller and passengers [8]. It can even be said that traffic safety management in the air is at a core position, because their most critical task is to ensure the absolute safety of aircraft flying, so the responsibility of their air traffic controllers is not less than that of aircraft personnel [9]. It can be seen that the task facing the civil aviation safety management personnel is so arduous. Under such circumstances, it is necessary to re-examine the

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traditional "human factors" safety management mode and strive to explore a more effective safety management mode. Therefore, in the civil aviation management safety management, we must pay attention to the responsibility of management personnel, and carefully analyze the factors affecting their safe operation to improve the safety factor of civil aviation tubes, and prevent problems before they occur [10]. If the air traffic controllers are not professional enough and their quality is too low, it will seriously affect flight safety. Therefore, it is especially important to improve the professional quality and psychological quality of the aviation industry.

2. The influence of human factors on aviation safety

The aviation industry is a professionally demanding business. With the rapid development of China's economy, China's civil aviation has experienced a new round of development cycle, with the strong market demand and the continued appreciation of the renminbi. Under the continuous development of today's technology, non-human-induced aviation accidents have gradually gradually decreased. According to statistics from the data, most of the causes of accidents are caused by human factors, and among human factors, aviation the inaccuracy of the intelligence system occupies a considerable part of it. Whether it is a flight crew or a control personnel, the professional knowledge must be tough. In the context of professional knowledge, the psychological quality of the controllers must be excellent. The controllers usually operate by operating the air traffic control. Air controllers in civil aviation usually work in terminal control room, airport flight report room, control platform, access control room and regional control room. Its scope of control is very wide, including part of foreign airspace and all of China's airspace. People do not all intentionally make mistakes, but it emphasizes that people are the subject of unsafe incidents, and human errors and unsafe behavior are the main reasons for unsafe incidents. It is impossible to find the root cause of unsafe incidents if we only emphasize the unsafe behavior of employees and neglect the deeper reasons and regard employees as scapegoats for accidents.

As shown in Fig. 1, in 2010 - 2018, China's civil aviation flight accident hourly rate slowly declined in the sharp turbulence, showing a very unstable security situation.

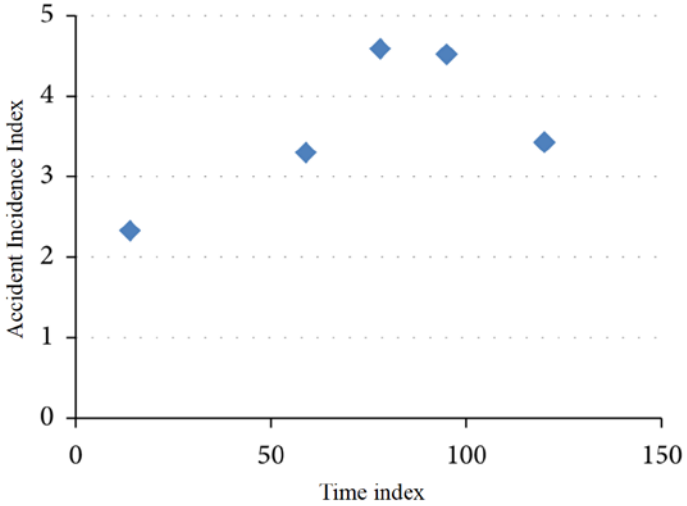

Fig.1. Statistics of 10000 hours of second-class or major flight accidents in 2010-2018

Civil aviation flight safety refers to that civil aircraft is in a non-dangerous state in operation, that is, there are no casualties and aircraft damage incidents caused by aircraft hardware quality problems, aircraft cannot operate and other reasons. Therefore, all countries in the world are actively exploring ways to solve human factors. The economic foundation of the civil aviation industry is gradually stable, the industry's overall hard power to deal with the crisis has increased significantly, and the industry competition will also be enhanced. However, at present, most of the air traffic controllers in China do not meet the requirements of their work. On the one hand, due to insufficient theoretical knowledge of the controllers, it is impossible to quickly integrate what they have learned with the problems they encounter. On the other hand, it is the problem of experience

and psychological quality. It is easy to panic when confronted with problems and cannot solve them calmly, which reduces the rate of handling the whole incident and leads to the increase of security risks. Air traffic control services are capable of providing very good environmental protection for the operation of aircraft. Whether the quality of the environment is good or not will directly affect the safety of the normal operation of the aircraft. In addition, because there is no deep-rooted reason for the organization that caused the unsafe incident, only the employees who have made mistakes are “handled“, and the cause of the insecure incident is not fundamentally eliminated. Then the security risks still exist, and the insecure incidents are always at any time. May occur. Therefore, it is imperative to conduct an in-depth analysis of the core factors (human factors) in security issues that may affect air traffic control.

In 2018, China's civil aviation industry transported a total of 132.14 million passengers, an increase of 23.71 million times over the previous year, an increase of 7.7%. The growth rate of domestic passenger traffic from 2014 to 2018 is shown in Figure 2.

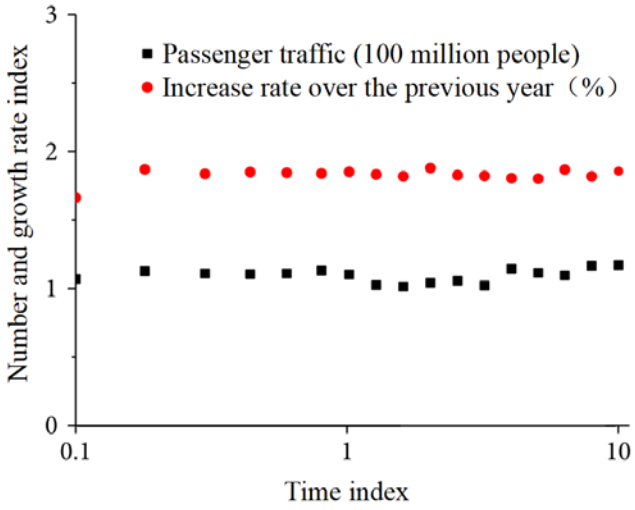

Fig.2. 2010-2018 Ming Hang Passenger Transport Volume

The passenger throughput of China's civil aviation airports has reached 832 million, an increase of 10.2% over the previous year. In recent years, the airport passenger throughput is shown in Figure 3.

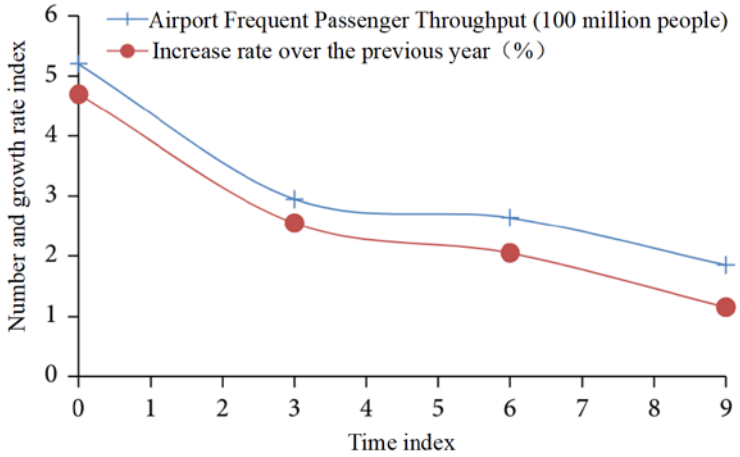

Fig.3. Passenger Throughput of Civil Aviation Transport Airport in Recent Years

3. Managing Strategies for Human Factors in Aviation Safety Management

In terms of working environment, the layout of the control room should be more scientific and rational, and try to provide a more comfortable working environment for it. Working in a comfortable environment, dedicated and calm, can make the most simple and direct effective solutions to various emergencies. For interpersonal environment, we should choose the best

combination of controllers to face the work with the strength of a group to meet the needs. For every personnel engaged in aviation intelligence work, it is necessary to conduct comprehensive and thorough safety knowledge training and explanations, requiring each aviation intelligence personnel to be conscientious of the importance of their work form. We should not only improve the theoretical knowledge of the controllers, but also increase the practical experience of the controllers. In the training of controllers, we should try our best to develop the maximum of the staff and improve their psychological quality and professional knowledge. In order to make the staff calm enough in the event of a sudden state, they should pay attention to the actual drills. Professional practice not only improves the staff's ability to work, but also gives the staff confidence, believes that they can do it, and will not be so confused when they encounter a sudden state. It is also necessary for regulators to learn how to deal with special situations. Once there is an emergency, they must make timely and calm decisions to minimize the incidence of security incidents.

In terms of controlling the ideological problems of the personnel, it is necessary to cultivate the spirit of dedication and dedication of the control personnel through the way of carrying out their ideological work, and to enhance the responsibility of their work and provide a solid ideological guarantee for aviation safety. In the daily guarantee operation, it is necessary to solve various problems that arise in time. Do not delay the accumulation problem, otherwise the problem will accumulate and may cause an accident. In the industry of civil aviation management safety, which has the most direct connection with the safety of life and property, there can be no sloppyness. Every aspect of aeronautical information work needs to be closely communicated with each other. It is indispensable. From the collection and collation of materials to the analysis of security and the finalization of the feasibility of information, they are all closely united. Its control work not only needs to improve the individual's ability, but also improve the ability of the control personnel to cooperate, and form a combination among the control personnel to improve their work efficiency. In the daily work, drills and assessments should be carried out to enhance the theoretical knowledge of the control personnel and improve their proficiency in handling accidents. Here, we should emphasize the importance of eliminating hidden dangers. Perhaps some hidden dangers did not directly affect the safety of production at that time, but hidden dangers may become problems at some time. We should also apply these systems to practical work, not in an empty form. In this way, aviation safety will be guaranteed and will reach a new level.

4. Conclusion

In summary, in this era of rapid development, the aviation industry has been closely related to the lives of the people. The requirements for navigation safety are also very concerned by the people and do a good job in aviation intelligence. To ensure the accuracy of intelligence, every aeronautical information personnel must attach great importance to it. Only in this way can we promote the development of aviation industry more quickly. In the human-centered work, there will inevitably be factors that are not conducive to human beings. Finding these human factors and improving these factors is especially important for improving work efficiency, and its control work is no exception. The nature of its air control work has certain particularity, and the requirements for safe operation are particularly high. Therefore, in order to ensure the safety of aviation, it is necessary to reduce or even eliminate all possible errors in the control and control of civil aviation. Faced with the current rapid development of civil aviation, we should devote ourselves to construction in a state of absolute seriousness and concern, and ensure that we can give back to the public with better service. Therefore, under the urgent situation that our country urgently needs to improve the safety level and reduce the accident rate, we should immediately change the traditional management method of "human factors" and adopt a more scientific and reasonable management method of "organizational factors" in order to improve the safety level of the whole organization and the whole industry.

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