Safety Culture in commercial aviation: Differences in perspective between Chinese and Western pilots

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A B S T R A C T

This paper examines the effect on aviation safety of cultural differences between Chinese and Western commercial airline pilots. James Reason and Alan Hobbs' Safety Culture model of a Just Culture, a Reporting Culture, and a Learning Culture was applied to the vertical aspect to measure Safety Culture in a multi-dimensional mode; a comparison of Chinese culture and Western culture on aviation safety was applied to the horizontal aspect to investigate the two different cultures. Qualitative and quantitative methods were used for this research. The interviews yielded five topics: trust, *guanxi* (relationship) vs. equity and equality, power distances, harmony among people, and sharing information and knowledge. For each of the five topics, questionnaires were developed to investigate the effects of cultural differences on international commercial airline pilots. A major finding was that the cultural differences strongly influence the pilots' trust and satisfaction with the implementation of a Just Culture, a Reporting Culture, and a Learning Culture in their company. The Western pilots were more satisfied with those aspects of the Safety Culture model than were the Chinese pilots. Leadership that builds trust, includes a high power distance, and allows them to maintain harmony with their colleagues in a Reporting Culture is desired by Chinese pilots. Because it might have generated negative responses from their colleagues, Chinese pilots were more hesitant than were Western pilots to share information and knowledge. Finally, managers' work histories, communication skills, good examples, team reporting, and incentive programs were suggested as vital for assuring the success of the Safety Culture.

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1. Introduction

The aviation industry is known for making efforts to create and enforce high safety standards to reduce aviation accident and incident rates. Whenever an accident occurs, it draws considerable attention from the public, and the involved airline's reputation dramatically declines. Moreover, aviation is an international business, even if an airline flies domestic routes only: international travelers come from all corners of the globe to visit, either for pleasure or for business. The International Civil Aviation Organization (ICAO) (2006) has made it mandatory for all members to implement a Safety Management System (SMS). There is rising interest in understanding what the Safety Culture of an airline is, and airlines are actively seeking assessments and improvements of their Safety Culture (Patankar and Sabin, 2010). In addition, cultural differences have been extensively studied in business management (Hwang, 1987; Quanyu et al., 1997; Roy et al., 2001; Porvis, 2004; Friedman et al., 2006; Gao et al., 2010; Bedford, 2011). However, there are few examinations of how different cultures may affect aviation safety management. Aviation industry workers have a great opportunity to be involved in a multicultural working environment because many of them have multicultural backgrounds, and airlines hire crew members of different nationalities in order to provide appropriate service in different countries. This makes culture and cultural differences more important in this high-risk industry.

It is also noteworthy that there are major differences between Chinese and other Asian cultures, and between Chinese and Western cultures. These differences may affect the success of implementing the Safety Culture in the SMS. However, little published research links the cultural differences and analyzes how to overcome the operational difficulties and barriers of Chinese airlines so that they can effectively meet international standards. Does the Chinese social context affect aviation safety in general and safety management in particular (Tharaldsen and Haukelid, 2009)? This research aimed to answer that question by exploring whether Chinese social relationships influence both aviation industry and individual safety behavior.

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Multifaceted approaches—in-depth interviews and surveys—were used to understand how Chinese and Western cultures influence the Safety Culture, particularly in the Just Culture, Reporting Culture, and Learning Culture model. A second purpose of this research was to determine how and why Chinese pilots struggle with understanding and following Western safety management systems. The results may provide references and recommendations to improve the implementation of aviation safety management.

2. Safety Culture

2.1. What is Safety Culture?

Safety Culture is about how an organization values the importance of safety. From a philosophical point of view, Safety Culture is related to safety values. One may ask what the priorities of an organization are, how employees respond to emergencies during their work, and whether an organization puts safety at the highest level when doing business. When an airline claims that safety is its number one priority, it means a commitment from top management that they do not take any chances with safety. Thus, the Safety Culture must be integrated with the organization's business plan and daily practices (Patankar and Sabin, 2010).

From a practical perspective, leadership strategies also shape the Safety Culture (Patankar and Sabin, 2010). Whenever an airline establishes any safety policies and procedures ("rules"), and whether they are successful, is determined by its employees' attitudes and adherence to those rules. Managers are essential for delivering the safety concept of the organization to subordinates. How to convince employees to believe in the company's safety policies and how to train or educate them to change attitudes and behaviors is one of their major missions. Finally, the outcome of an organization's safety performance requires employee feedback about their recognition and acceptance of the Safety Culture.

Some latent problems are associated with the interactions between individuals, groups, and organizations because of the dynamic, perpetual, multifaceted, and holistic nature of Safety Culture (Choudhry et al., 2007). The organizational and cultural factors that underlay disasters in high-technology industries have been researched (Turner and Pidgeon, 1997; Weick et al., 1999). Researchers have indicated that both factors significantly affect the safety of work behavior (Brown et al., 2000; Oliver et al., 2002; Tomas et al., 1999). However, few studies have examined how cultural factors affect the Safety Culture in the contemporary high-technology aviation industry. Cultural issues should be considered one of the important factors that affect the establishment of an appropriate Safety Culture.

2.2. How to measure the Safety Culture

To assess the Safety Culture of an organization, various methods and approaches have been used: case studies, surveys, field observations, interviews, focus group discussions, etc. (Patankar and Sabin, 2010). Each method has its advantages and disadvantages. Still, additional creative methods are needed.

Reason and Hobbs (2003) indicated that the Safety Culture is the core value of a healthy organization dealing with a high-risk environment, and that it includes the beliefs, attitudes, and values of the company. They also pointed out the three important elements of the Safety Culture: a Just Culture, a Reporting Culture, and a Learning Culture. The model has multiple perspectives, and it can examine the Safety Culture in a more practical way than can a mono-level model because these three approaches refer to safety values, safety climate, leadership strategies, and safety performance.

2.2.1. Just Culture

Dekker (2009) said of a Just Culture: "the desire to balance learning from failure with appropriate accountability has motivated safety–critical industries and organizations to develop guidance on a so-called 'just culture'" (177). The spirit of a Just Culture is based on the understanding by all employees of what behaviors are acceptable and what are unacceptable. Establishing a border between acceptable and unacceptable is critical. Individuals are accountable for their actions if they knowingly violate safety procedures or policies. Frankel et al. (2006, p. 1692) stated that "A Fair and Just Culture is one that learns and improves by openly identifying and examining its own weaknesses. Organizations with a sound Just Culture are as willing to expose areas of weakness as they are to display areas of excellence".

It is important to monitor organizations and to judge whether employee behavior is acceptable or unacceptable. A Just Culture balances learning from mistakes and disciplinary action. In the West, Just Culture principles in safety management have been broadly implemented in healthcare services to ensure overall system safety and quality (Miller et al., 2010). However, is it implemented well in civil aviation, especially in Chinese societies?

2.2.2. Reporting Culture

The Reporting Culture is also an important factor of risk management. Accidents are not only accidents but are also failures of risk management (Dekker, 2007). The organization's Safety Culture and commitment to safety finally determines whether people are willing to report safety information (Dekker, 2007). If there is no open commitment from the organization, employees will be afraid to provide reports since they might be used against them (we might want to call them "whistle-blowers"), or they might be considered "bad apples" by their peers (Dekker, 2007). There are two major categories of safety report: mandatory and voluntary. The ratio of these two categories will be a "health check" for an organization's Reporting Culture. Thus, how much the employees trust that it is safe for them to report safety information to management is an essential factor that reflects whether an organization has a successful reporting system (Patankar and Sabin, 2010).

2.2.3. Learning Culture

The spirit of a Learning Culture is to learn from mistakes in order to improve knowledge of the system in which it is used. Sharing safety information can lead to a safer working environment in the aviation industry. Therefore, the Learning Culture is focused on lessons and learning, and people can see that incidents are not shameful, nor are they caused only by specific individuals but by groups that do not share safety information.

Reason and Hobbs' Safety Culture model (2003) can assess the Safety Culture from different aspects and may provide a comprehensive viewpoint. In addition, a Just Culture, a Reporting Culture, and a Learning Culture are all crucial factors that reveal how an airline values the Safety Culture, and how it leads and develops safety strategies to fulfill the concepts to examine its employees' perceptions and attitudes about safety, as well as their safety behavior.

3. Chinese vs. Western Culture

3.1. Elements of Chinese Culture

There are three major elements of the Chinese culture that are considered relevant to aviation safety: *guanxi*, high power distance, and harmony among people.