CULTURE IN THE COCKPIT—CRM IN A MULTICULTURAL WORLD

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ABSTRACT

Crew Resource Management (CRM) is fundamentally a method for enhancing personal interactions among crewmembers so that safety and efficiency are increased, and at its core involves issues of culture and social interaction. Since CRM is increasingly being adopted by foreign carriers, it is important to evaluate standard CRM techniques from a cultural standpoint, especially if some of these techniques may be enhanced by adapting them to particular cultures. The purpose of this paper is to propose a model for an ideal CRM culture, and to suggest ways that CRM may be adapted to suit particular cultures. The research method was a simple literature search to gather data on CRM techniques and multicultural crews. The results indicate that CRM can be tailored to specific cultures for maximum effectiveness.

INTRODUCTION

Crew Resource Management (CRM) has been adopted by virtually every major U. S. airline as a highly effective method of training airline crews to be safer and more efficient. One of the fundamental tenets of CRM is to improve communications and interpersonal relationships between crewmembers. While this idea has been one of the reasons CRM has succeeded in developing better flight crews, it is also very dependent on cultural values, and many critics have questioned the effectiveness of CRM when applied to non-U.S. flight crews. Since the world is rapidly becoming a global workplace, with an exponential growth in air travel, it is vital that foreign carriers foster the same level of safety and crew coordination that has been achieved in the U. S. via the methods of CRM. But if cultural differences invalidate the fundamental precepts of CRM, then trainers are presented with a dilemma. Do they con-

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tinue to apply CRM even though its basic concepts may be lost on crewmembers from other cultures, or do they attempt to adapt the proven principles of CRM to be culturally specific? For the purposes of this study, culture is defined more specifically as *national culture*. While organizations and professions tend to have their own cultures also, these will not be addressed. The focus of this study is strictly upon cultural differences arising from nationality.

BACKGROUND

The classic definition of crew resource management is "the effective utilization and management of all resources—information, equipment and people—to achieve safe and efficient flight operations" (Pettitt, 1995). The widespread introduction of CRM techniques into airline operations in the United States began in the late 1970s, primarily because of a combination of airline crashes due primarily to crew error, and the results of some groundbreaking research conducted by NASA into the causes of airline accidents. NASA's research indicated that more than 70 percent of airline accidents involved some degree of human error, and most of these errors were due to failures in communications, teamwork and decision making (Helmreich, 1997). A variety of programs were subsequently developed, collectively known as crew resource management, to deal with the emerging realization that most accidents could be prevented by improving crew interactions. CRM is grounded in social, cognitive and organizational psychology, as well as in human factors research (Helmreich, 1997), and has become a fixture in every major U.S. airline's training program. One of the basic assumptions of CRM is that human error is a universal phenomenon, and the techniques of CRM thus serve as a "safeguard for the limits of human performance" (Merritt & Helmreich , 1996, p. 2).

While it's difficult to quantify CRM's effect on the safety records of U.S. airlines, the Federal Aviation Administration (FAA) is sufficiently convinced of its value that it has made CRM training mandatory for all major and regional U.S. carriers (Helmreich, 1997). While the FAA exercises jurisdiction over all U.S. airlines, it has no authority over foreign carriers. Nevertheless, many foreign carriers have also implemented CRM training for their crews, and many more will certainly follow suit. This is certainly encouraging, but some CRM experts have raised the question of whether CRM's techniques are based upon cultural values that are unique to Western European society and so may not be applicable to other cultures. With the explosion in international air travel, and the growing trend toward forming alliances between multiple U.S. and foreign carriers, there is a growing concern with the issue of CRM vs. national culture, and with finding ways to adapt CRM so that it is universally applicable to all cultures.

DEFINITION OF CULTURE

Culture is defined as "the values and practices that we share with others that help define us as a group, especially in relation to other groups" (Merritt, 1993, p. 13). There can be many different types of cultures (national, organizational, occupational, etc.), but in this study only national culture will be considered. Cultures can also be thought of as a system of interconnected, hidden rules. The rules of one culture usually do not mix well with those of another culture. As a result, when a person tries to interpret another culture using the rules of their own culture, they find it strange, irrational, uncontrollable and unpredictable (Jones, 1996). In light of these definitions of culture, it is quite obvious that CRM, which at its fundamental level addresses issues of human behavior, should probably be tailored to fit the culture in which it is applied. The challenge then is to classify the multitude of national cultures that exist on our planet in such a way that CRM techniques may be effectively tailored to each culture. The first question that must be answered if we are to do this is: Can national cultures be grouped in such a way as to make this task more manageable? Fortunately, the answer is yes.

OVERVIEWS OF VARIOUS NATIONAL CULTURES

In his ground-breaking research on the role of national culture in relation to flight crew behavior, Hofstede identified three aspects of national cultures which are particularly relevant to CRM—the relationship between subordinates and superiors ("power distance" or PD), the ways that different cultures deal with uncertainty ("uncertainty avoidance" or UA) and the extent to which individuals' behaviors are influenced and defined by others ("individualism-collectivism" or IND) (Hofstede, 1991). Power distance can be further defined as the extent to which the less powerful expect and accept that power is distributed unequally. Other research has indicated that there is also a significant inverse relationship between PD and IND. Cultures that score high on individualism tend to score low on power distance, while cultures that score high on collectivism (i.e., low IND) tend to have much greater power distance. While Hofstede's research did not indicate a similarly strong correlation between UA and either PD or IND, later research indicates that there is a correlation. Specifically, cultures which score high on UA (indicating a preference for rules and set procedures) tend to score high on PD and low on IND (Merritt, 1998). Countries which fall into this category include Korea, Taiwan, Malaysia, Brazil, Mexico and the Philippines. Conversely, those cultures which score low on UA (indicating a greater tolerance for ambiguity and a desire for more flexibility) tend to score low on PD and high on IND. The United States, New Zealand, South Africa, Ireland, Great Brit-

ain, and Australia all fall within this category. Figure 1 gives a graphical example of these correlations.

Another convenient way to classify national cultures is "high context" versus "low context." In high context cultures, much more emphasis is placed on communications, although they tend to "talk around" rather than directly state their point. They also tend to focus more on the people they are dealing with, rather than on the goal or task that is to be accomplished. Also, *who you are* is more important than *what you do*. Examples of high context cultures include Russians, Asians, Southern Europeans, and Central and South Americans. Low context cultures, which include Germans, Scandinavians, Northern Europeans and Americans, communicate much less, and tend to be direct and to the point in their communications. They also focus primarily on the goal or task, rather than the person—what you do is more important than who you are (Jones, 1996). In general, high context is associated with high PD, low IND, and high UA, while low context is associated with low PD, high IND and low UA.

These aspects of national culture strongly affect the level and nature of communications and social interaction among flight crews (Merritt, 1993). Since communications and crew interaction form the basis of CRM, national culture must certainly be considered when attempting to implement CRM in a multi-cultural environment.
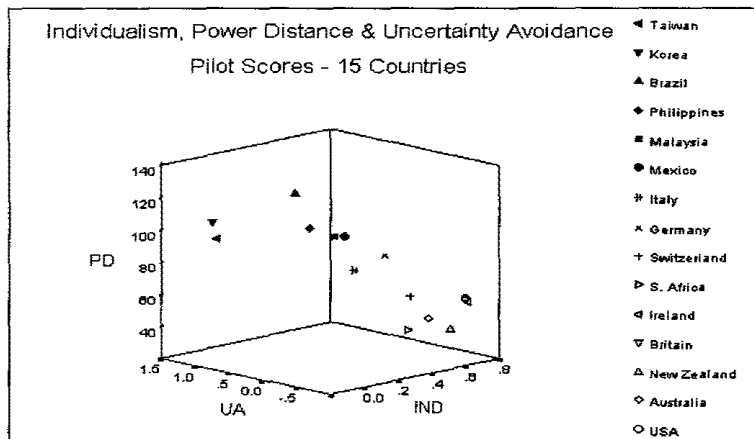

Figure 1. IND, PD and UA for Different Cultures (Merritt, 1998)

ASPECTS OF NATIONAL CULTURE
RELEVANT TO FLIGHT CREWS

Crew members from individualist, low context cultures will tend to be much more independent and self-reliant, and prefer more individual responsibility with open and direct communication only as needed (Merritt, 1993). These characteristics fit in well with the CRM concepts of assertiveness and questioning the decisions and actions of superiors. On the other hand, low context cultures are less likely to respond to CRM's call to share responsibilities and improve interpersonal relations. In fact, a U.S. airline captain once referred to these aspects of CRM as "hot tub harmony" (Helmreich and Merritt, 1997, p.1)

In contrast to low context cultures, crew members from collectivist, high context cultures prefer much more interdependence and group oriented activities, with more indirect and a greater volume of communications (Merritt, 1993). Pilots from these cultures will tend to do very well at communicating, sharing responsibility, and building group cohesiveness, but will almost universally avoid, sometimes to an extreme degree, questioning the actions or decisions of their superiors.

As a practical example of the differences in national culture that may affect the success of CRM training, consider the following findings from Merritt and Ratwatte (1998). Brazilian pilots rated advancement to high level positions as the most important work value. Taiwanese pilots ranked it next to last, while Anglo pilots (U.S., Australia, Ireland, etc.) ranked having sufficient time away from work for personal or family life as the number one work value. Korean pilots feel greater shame when they make a mistake in front of other crewmembers (one Korean crew chose to remain in their burning cockpit following a crash rather than face the humiliation of having crashed their aircraft). Filipino crews view their airline as a large family and expect their captains and management to behave in a benign, paternalistic fashion. Taiwanese pilots show the strongest preference for rules and set routines. These are just a few examples of the cultural differences found among international airline crews. No wonder many CRM professionals are calling for CRM training that is specifically adapted to the culture of the crews being trained.

UNIVERSALS ACROSS ALL CULTURES

Having sufficiently established that there are significant cultural differences among flight crews of different nationalities, one may ask the question—Are there any universal values shared by flight crews from all cultures? Recent research indicates that there are. In a survey of pilot attitudes about cockpit management, measured via a Cockpit Management Attitudes Questionnaire (CMAQ), researchers found that pilots from every cultural group

surveyed strongly agreed that coordination and communications (briefing and verbalizing plans, coordination between cockpit and cabin crews, etc.) were vitally important (Helmreich and Merritt, 1997). This is encouraging since communications between crewmembers is a key element of CRM. On the other hand, another key element of CRM—questioning authority—turned out to not be universally accepted among all cultures. The study found that there were extreme cultural differences as to whether junior crewmembers should question the actions of captains, with low context cultures strongly agreeing that junior crewmembers should question their captains and high context cultures strongly disagreeing.

Given these results, we may conclude that there is definitely universal acceptance across cultures for some CRM elements, while others are not universal at all. In light of this fact, it is probably not possible to develop a universal CRM curriculum. Fortunately, as discussed previously, research also shows that cultures generally fit into one of two categories—low context or high context—so that rather than develop a multitude of different CRM approaches, only two should suffice. The challenge then is to develop a tailored CRM that stresses the universals that all cultures agree upon, while presenting the other key elements in a way acceptable to the particular culture in question.

TAILORED CRM FOR DIFFERENT CULTURES

Before considering how CRM may be adapted for various cultures, first consider whether there is an ideal national culture that is best suited to CRM. Since the primary goal of CRM is to reduce crew errors by improving interpersonal communications and by promoting a more healthy working relationship between junior and senior crewmembers, the ideal culture would be one which scored low on both IND (which indicates a greater tendency to be group-oriented and to emphasize interpersonal communications) and on PD (indicating less of a gap between superiors and subordinates). A high UA score would probably also be desirable, especially for airline crews. So then, a crew with low IND, low PD and high UA would probably be the ideal crew from a CRM perspective. Unfortunately, no such crew exists, because cultural characteristics seem to preclude the right combinations of IND, PD and UA. Perhaps the best one can hope for is a culture that falls into the midrange for all these variables. If so, then figure 1 indicates that German crews would be best (with approximately mid-range values for IND, PD and UA).

Having established that there is probably no national culture that perfectly suits the basic principals of CRM, then we must decide which techniques will work best for each culture. There are numerous anecdotal stories about CRM instructors encountering problems with crewmembers from non-Western

European cultures. For example, one Japanese airline captain wrote,

> Japanese modesty is not seen as a virtue in the American culture. In the team discussions during the CRM seminars, I felt that the Americans did not easily accept another person's opinion, whereas Japanese tend to accept another person's opinion whether right or wrong in order to preserve harmony within the group (Yamamori, 1986, p.76).

On the other hand, the same pilot wrote, "Authority is rarely challenged in a group-oriented society [like Japan]. But as we in the airline industry know, this kind of attitude has led to many fatal accidents" (Yamamori, 1986 p. 79). CRM classes that stress questioning authority, and the need to decrease PD, would probably be most beneficial to Japanese crews. At the same time, the heavy emphasis on interpersonal communications and group cohesiveness probably would not be necessary, since this comes natural to the Japanese. The Japanese are generally representative of a high context culture, and so the lessons learned with them are probably applicable to other high context cultures also.

As indicated by the Japanese pilot, Americans (and other low context cultures) would probably benefit from more emphasis on interpersonal communications and less on questioning authority. Even though good crew coordination is one of the universals defined above, crews from low context cultures still find it hard to practice the extensive communications that typifies high context cultures. On the other hand, questioning authority seems to come natural to these cultures. Consequently, emphasizing communications and group relationships would be more beneficial to low context cultures.

Does this mean that traditional CRM will not work unless it is culturally adapted? No! But it does imply that perhaps CRM can be adapted to both take advantage of the strengths of a particular culture and to strengthen its weaknesses.

RECOMMENDATIONS

There are several recommendations that may be made based on the results of this study. First of all, CRM could be made more effective by adapting it to the culture in which its being taught. Since cultures can broadly be divided into two distinct types (low and high context), the simplest approach is to design two different CRM curriculums. While these would not be exactly customized for every culture, they would be broadly applicable within the two cultural categories. Specifically, CRM for high context cultures should focus on lowering the typically high PD value that characterizes these cultures. The communications aspects (IND) of CRM could be correspondingly de-emphasized in high context cultures (although not eliminated).

As for pilots from low context cultures, the traditional CRM emphasis on questioning authority and making your opinion known could be de-emphasized somewhat in favor of more training in interpersonal communications. This would also take advantage of the universally acknowledged (even among low context pilots) importance of good communications in the cockpit. In other words, CRM for these pilots should focus on decreasing their IND while maintaining their already low PD numbers.

CONCLUSIONS

CRM is a proven method for enhancing the safety of airline crews, and thus airline operations. However, CRM does suffer somewhat from a cultural bias toward Western, "low context," cultural values. When CRM methods are taught to airline crews from other cultures, the effectiveness of the training could be enhanced by tailoring CRM to the culture of these crews. While this may appear to be an impossible task given the multitude of cultures that exist on the planet, research has shown that cultures may generally be classified as either "high context" or "low context." Because of this, it is very feasible to adapt CRM to either of these cultural groups, and thus to greatly enhance its usefulness and value.

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