

Cultural issues in aviation



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The over-riding goal of the aviation industry is to operate aircraft safely. In order to do this, individuals must interact in teams continually making decisions. For a team to make competent, correct, efficient decisions, individuals must communicate effectively with one another, understanding each other's meaning and thus achieving similar goals. Today the aviation industry is indeed a global industry, with people from diverse cultures and backgrounds and individuals of different ages and gender interacting, working either side by side as equals on an equivalent hierarchical footing or as leaders and subordinates.

This diversity of individual team members can cause barriers in communication, affecting the interpretation of the communicated meaning and may in turn affect how teams make decisions affecting the safe operation of aircraft. Communication The Merriam-Webster (2009) online dictionary defines communication as: "a process by which information is exchanged between individuals through a common system of symbols, signs or behaviour". Transport Canada (2001) defines communication as: "The process of exchanging ideas and information by the use of a common system of verbal and non-verbal signals". Both therefore define communication as exchanging of information through use of a common system. However exchanging information, with or without using a common system, is only a small part of the entire communication process. The key to communication is for all parties to correctly understand each other as described by Transport Canada (2001): "Effective communication is being able to communicate your thoughts and feelings in such a way that the other person shares the same meaning you do". The key here is to share

the same meaning you do??™ , but this is not as easy as it sounds.

Mehrabian and Ferris (1967) explain in an early edition of the Journal of Counselling Psychology that communication does not occur only through spoken or written means (verbally).

Humans also communicate by body language (tone of voice, eye contact or gestures) and symbolic means such as the way of dressing (non-verbal).

Mehrabian and Ferris go on to explain that only 7% of communication is pure verbal (the words that we speak). 38% of communication is unconscious signals such as tone or sound of voice, with the final 55% being body language and symbolic means. This would then mean for example that pilots must rely on only 45% of their ability to communicate when communicating through interphone with cabin crew or over the radio with maintenance, operations and air traffic control personnel.

Even communication between each pilot in the cockpit will be limited to some extent due to the confines of the cockpit in not allowing the pilot to fully express his or her full body language potential. Effective communication is particularly important in the aviation industry because it takes teams not individuals to safely operate aircraft. These teams made from Pilots, Engineers, Cabin Crew, Operational Staff, Air Traffic Control and all must communicate, ensuring they continually ??? share the same meaning??™ to achieve this goal of safe aircraft operations. In an interview conducted by Schultz (2002), Donald Davis (Old Dominion associate professor of psychology and an expert in the nature of human organization) stated that flight crews must be proactive and coordinate efforts together and that competent performances of individuals is insufficient to achieve goals.

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Which reinforces that teams must communicate effectively to achieve safe operations. However the way in which we communicate (verbal and non-verbal) can be further distorted through barriers to communication such as culture, diversity and gender. Culture Cross-cultural contact is the norm rather than the exception in the aviation industry today. Team members will often differ greatly in education, age, experience and expectations. The International Civil Aviation Organisation (2004), Human Factors Digest No. 16, defines culture as:??? A shared system of belief (what is true), values (what is important), expectations, and behaviour meanings (what is implied by engaging in a given action) developed by a group over time in order to meet the requirements of living and operating in a particular (geographical) niche.??™ It could be argued that geographical location is not a factor 100% of the time, particularly if we look at how the aviation industry continues to standardise how we operate aircraft or how staff are trained. Pilots for example are trained in much the same way the world over and because of this standardised training pilots will have their own special culture to some degree. Culture therefore does not only develop within a certain country or throughout a particular race. Cultures can develop within companies (and industries as described with the pilot example) and can further develop at departmental level within companies. Regional cultural differences may encompass large areas, which can have a dramatic effect on communication and subsequent airline safety as described by Davis (Schultz, 2002):??? Regions with high accident rates also share similar cultural values, such as power distance (the inability of subordinates to question the actions of superiors and recommend alternative courses of action) and uncertainty

avoidance, which emphasizes rigid adherence to rules and procedures that reduces the directness and bluntness of communication^{??}™. This particular cultural trait is often found throughout the Asia region and is perhaps shown by China Air (National airline of China) having the worst airline accident rate in the world between 1986 to 1998, resulting in 561 fatalities (Schultz, 2002). Although the accident reports do not reveal power distance to be the contributing factor, a recent study by the United Kingdom CAA (2008) shows that 75% of all accidents that occur involve human factors, and since communication is one of the larger facets in human factors it can be argued that (as in the case of China Air) the effects of culture on effective communication may be a major cause of accidents.

Another cultural component that can hinder effective, English mandated, aviation communication is where English (at least for one of the individuals) is not the first language. A report on an accident involving Colombian Avianca (National Transport Safety Board (NTSB), 1993) stated that the crew was reported to have asked for “ priority” landing which, due to language differences in English and Spanish, can be interpreted as an emergency to the Spanish-speaking pilots but not to the English-speaking Air Traffic Controllers. The report states that the miscommunication between the Flight Crew and Air Traffic Control played a large part in the Avianca Boeing 707 running out of fuel, crashing and killing 72 people. The most deadly aviation accident to date, killing 583 people was the runway collision of a KLM Boeing 747 and Pan Am Boeing 747 at Los Rodeos airport in Tenerife. The NTSB report (1977) cited miscommunication between the KLM flight crew and Air Traffic Controller as being a major contributing factor in the accident, with

the KLM pilot stating ??? We are now at takeoff???, which the controller took to mean that the aircraft was at the holding point waiting for clearance to take off, rather than actually taking off (rolling down the runway).

This particular problem is being addressed to some degree by the International Civil Aviation Authority (ICAO) and National Civil Aviation Authorities mandating minimum English language proficiency tests for Pilots and Air Traffic Controllers (ICAO, 2001). Whether this will help standardised aviation phraseology and how it is interpreted (as we have seen in both the Avianca and Tenerife accidents) is to be seen. Making decisions is a constant in aviation with information always rapidly changing and teams having to think, communicate, learn and make decisions at a fast rate.

Therefore the way in which individuals learn is particularly important in a team environment when learning is achieved through communication. Sitler (2004) wrote that men and women learn differently and referenced several studies by King and Retzlaff (2003) showing actual differences in the parts of the brain used when men and women are thinking and coming up with the same answers. The same study showed: ??? female pilots were found to have greater extraversion, conscientiousness and agreeableness. These traits may be ideally suited for modern and future military and space operations which will emphasise increased collaborative functioning??™.

Sitler also referenced an Emanuel and Potter (1992) study that found that men prefer debate-like situations while women like to share and learn by interacting in a collaborative manner. Females tend to be more participatory in their learning styles and males more independent. Therefore, if men and

woman learn differently and use different techniques and different parts of the brain when talking and communicating this diversity will most likely create barriers when communicating.

To achieve effective communication individuals must have skills such as inquiry, advocacy, listening, conflict resolution and critique (Transport Canada, 2001). Men are more competitive and ??? matter-of-fact??™ where as woman are more collaborative and will be more willing to negotiate. If Transport Canada is correct, an assumption can be made that women are better communicators than men and therefore potentially better suited to a leadership role.

However, because traditionally the leadership role in aviation has been a somewhat ??? heroic??™ stereotypical male this can cause difficulty within teams when communicating and making decisions with, or taking commands from, women leaders. DiversityAs well as gender providing its own diversities between individuals and barriers to communication, culture can also create barriers through the many different ways in which individuals are raised and educated. Both can create barriers to communication through the diversity of each. But as the Merriam-Webster (2009) online dictionary defines diverse as ??? differing from one another??™ there are still many other individual differences between people that are not born from gender or culture alone. Diversities caused by education, including recent training (currency), experience, age, marital and parental status, income, and religious beliefs can all create barriers to communication. Dynamicflight.

com (2004) suggests that lack of common experience can create a misunderstanding when transferring words between individuals because many words can mean different things – as was also shown in the Avianca and Tenerife accidents. Dynamicflight.com goes on to state ??? A communicators words cannot communicate the desired meaning to another person unless the listener or reader has had some experience with the objects or concepts to which these words refer??™. This is why it is important to ensure effective communication is achieved when teaching students, particularly with pilots in the ab-intio phase of their flight training.

Older pilots tend to experience a decline in working memory and have a declining ability to allocate resources to multiple tasks. (Morrow, Chang et al (2005)) They state that: ??? This will decrease communication efficiency and potentially impair concurrent task performance in multi-task environment??™ and that age-related declines in communication will normally overcome expertise (or experience) that will reduce safety and efficiency. A common fact is that often a team is only as strong as its weakest (or slowest) member. So if an older team member is unable to conduct and process tasks as quickly as the rest of the team, this will affect the efficiency of communication. Culture, gender and diversity will generally cause barriers to effective communication, but where culture, gender and diversities are similar they can and will enhance communication. The aviation industry continually endeavours to standardise processes through training and standard operating procedures to rid communication of its barriers.

ConclusionThe safe operation of aircraft requires effective communication

which will always be a challenge when using teams of individuals from various diverse backgrounds and upbringings.

Effects of poor communication can lead to frustration, duplication of effort, conflict, errors, lower quality and performance which can culminate in incidents or accidents. Effects of good communication are higher understanding with each other and between teams, coordination, agreement on the division of tasks, feeling of involvement in decision making and increased satisfaction which all aid in the safe operation of aircraft. The global aviation industry is closely interlinked through strict regulations that force companies to interact with common Air Traffic Control, regulatory bodies, contractors and so on.

Airlines operate throughout the world often into many different cultural regions so standard phraseology is one step closer to consistent effective communication. However general diversities, gender and cultural differences need to be accepted as fixed human traits that will continue to play a part in ineffective communication, therefore the industry must recognise and accept these traits, developing new safety nets that continue to catch and stop ineffective communication developing into occurrences in the industry.

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