COMMUNICATION SKILLS: A MANDATORY COMPETENCE FOR GROUND AND AIRPLANE CREW TO REDUCE TENSION IN EXTREME SITUATIONS

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1. ABSTRACT

The main objective of the present work paper is to discuss the relevance of developing communication skills beyond technical communication among different levels of airplane operations, particularly, during a flight under extreme situations. Conclusions obtained so far have pointed out the urgency of inserting the subject "Communication as a social interaction skill: theory and practice" into the curricular disciplines of Aviation schools, regarding communication and social skills as a fundamental requirement for the graduates to obtain the necessary discernment for becoming active professionals in the aviation industry. At the basic stage of their education, the graduates should essentially receive knowledge on non-technical issues, which could provide them with a concern about the universe in which their profession is performed, and with the ability to overcome future adversities, always prioritizing safety in the flights. In order to achieve a broader debate on this subject, the present research has been defined as a qualitative approach, and guided by incidents reported in the United States through the ASRS (Aviation System Safety Report), as well as reports of accidents provided by The National Transportation Safety Board(NTSB) and Centro de Investigação e Prevenção de Acidentes (CENIPA, Brasil).

Keywords: Airplane Operations. Communication Skills. Flight Safety. Managing Risks.

2. INTRODUCTION

As estimated by the Federal Aviation Administration (FAA), human error accounts for 60-80% of accidents and incidents of flight (in AC 120-51E, 2004, p. 4). And the dysfunctions related to human communication appear as substantial part of the causes highlighted by the Aviation Safety Reporting System (ASRS), the FAA system that collects voluntarily submitted aviation safety incident/situation reports from pilots, controllers, and others.

According to research conducted by Sexton and Helmreich (2000, p. 1), since the creation of ASRS, over 70% of these reports have accused directly or indirectly, problems associated with failures in interpersonal communications. The authors concluded that an effective communication system is not enough to overcome the lack of technical competence in flight operations. But, on the other hand, also found that technical competence is not able to prevent the catastrophic effects of poor communication.

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A recent study performed by Kutz (2000, pp. 24-32) has detected a significant deficiency in the aviation community's ability to communicate. To overcome this gap the author recommends that communication skills should be developed from the basic writing skills, including grammar, spelling and punctuation up to interpersonal relationship.

Aviation Safety Reporting System's (ASRS) reports from July 1998 to March 2002 showed that in 1.182 maintenance incidents and accidents, around 8% had communication as one of their contributing factors. Failures in transmitting information may result in greater errors.

Krifka, Martens and Schwarz (2003, p. 1) postulate that "factors related to interpersonal communication have been implicated in up to 80% of aviation accidents in the last 20 years"

Even aviation professionals believe there are potential failures related to language and interpersonal communication. Failures in interpersonal relations hinder the synergy of the team, especially in emergency situations, making the task of delegate functions more difficult. According to Morgeson et al.(2005, p. 585), adequate social skills enable individuals to adopt the desirable social role to manage conflict, coordinate their work and work in a more cooperative and integrated form with others.

Kutz (2000, p. 32) states that to develop oral, written and interpersonal skills, a communication training should be incorporated to the curriculum of aviation.

A research entitled Perceptions Of Communication Training Aviation Flight Among Collegiate Educators (Ruiz, 2004), published in the Journal of Air Transportation (Volume 9 Number 1—2004), showed that American students are not verbally prepared to the challenges of aviation activities and need some kind of support to help them to become more proficient in the language. For pilots and controllers, in particular, the choice of words can significantly affect the flight outcome. "If someone talks in a way that does not match with our idea of how a credible speaker should talk, we're less likely to pay attention to what that person has to say," says Bruce E. Gronbeck, professor of communication studies at the University of Iowa (in Ruiz, 2004, pg 34).

From this perspective, flight schools present themselves as a space where the communicative action, which should be developed systematically, must meet the goals of an education that aims to provide "assertive communication" to the individuals. To be effective, the training of communication skills should be embedded throughout the professional education before individuals start working at airline companies. In fact, it should be a requirement for students to be certified as air pilots and airline staff.

Although the CRM (Corporate Resource Management) may have both positive and detectable effects on the behavior of the crew, CRM failures continue to be the cause pointed in almost 30% of aviation accidents (Wiegmann & Shappell, 2001, p.28). Macroscopically, aviation professionals believe that, in addition to general social dynamics of group interaction, there may be potential problems related to language and interpersonal communication.

According to Baron (2005, p 1) CRM training has shown to be efficacious for pilots, flight attendants and ground staff when viewed separately. Unfortunately, in real flight operations, there are cognitive and physical factors that cause these disparate groups to work less than efficiently between their groups, particularly when a cohesive environment is critical, such as in an emergency.

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What are the possible causes of this occurrence of communication failures? CRM training is provided by airline companies, focusing on the performance of employees as members of a team. Professionals of this area believe that any feature of management resources, such as CRM training, have strong roots in individual performance. For this reason, there is the need to insert the subject "Communication Skills" in aviation courses, where the level of individual communication skill should be the focus of development. This is because everything starts in the individual and, if the individual does not possess such skill, previously developed and assimilated, knowing beforehand their own strengths and weaknesses, it will become very difficult for him to think and interact in group, as oriented by the CRM philosophy.

If future aviation professionals are not trained and evaluated on their interpersonal communication and social skill, that is, in the significant involvement with others, the result will be, very often, this professional will represent a serious latent failure, when accepted by an airline company.Perhaps no other essential activity is as vulnerable to failure through human error and performance limitations as spoken communication" (Monan, 1988, p. 3).

If the ground staff and air crew have not studied the theory of communication and have not learned, assimilated and developed the necessary skills in this aspect, how will they know to properly use the communication tools needed in the practice of their profession? It would be like building the roof before the house. That is, the air crew needs to master this skill, learned and developed in the course they attended, before being hired by an airline company. Without this ability, the CRM will not be efficient, because communication is the key tool to use available resources (human resources, equipment and information) that interact in this situation. The ability of communication supports CRM, by providing a means to achieve the team situational awareness, problem solving, distributing the workload and many other management functions.

A training program of two or three days does not change immediately inappropriate habits that have been acquired since the beginning of professional training. Furthermore, although the CRM training is sufficient to adjust behaviours and attitudes, according to Helmreich, Hines & Wilhelm (1996, p. 5) "not all of its provisions have left the classroom to reality".

Due to the problems raised by the referenced authors, this article aims to demonstrate the relevance of training communication as a skill of social interaction to follow the training of all professionals in the field of aviation throughout the course, identifying the students' individual skills, not only when they are hired by airline companies and get CRM training, in order to mitigate these errors related to communication skills and thus improve flight safety.

3. COMMUNICATION SKILLS

Communication is the main tool of relationship technologies, able to generate best life quality and safety in the work environment. According to Fred Harms, operations Safety Program Manager of FAA (Federal Aviation Administration)"Communication is a personal responsibility. One of the factors that contribute to error control is effective communication. Most of us have never received any formal training on effective communication when we learned how to fly except for radio communication".

The concept of communication skills is linked to a number of terms that include social and interpersonal skills. In literature, these terms tend to be used interchangeably. Some scholars have tried to differentiate between these terms; however, such distinctions have not

been widely recognized (John O. Greene, Brant R. Burleson, Lawrence Erlbaum Associates, 2003, p. 136).

Communication skill, according to Wiemann (1997, p.198) is the ability of choosing between different available communicative behavior, those that successfully fulfill their own interpersonal goals. Another definition indicates the influence of communication as a "Process of generating specialized behavior directed towards a goal" (Trower, 1982, p. 136). Simply put, Brooks and Heath (1993, p. 7) defined how the process by which information, meanings and feelings are shared by people through the exchange of verbal and nonverbal messages.

In academic and professional spheres, the most common use now tends to be "communication skills" (Dickson and Hargie, 2004, p.xi). In this article, the term "communication skills"; reflects the verbal and nonverbal competence, written and social strategies, used to interact, influence and solve problems within the group.

The socially competent or skilled behaviour is a set of behaviours emitted by an individual in an interpersonal context that expresses feelings, attitudes, desires, opinions, or rights in an appropriate manner to the situation, respecting these behaviours in others, and that usually solves the immediate problems of the situation and reduces the likelihood of future problems (Caballo,1991, p. 126).

Scholars from various fields, study the communicative competence within many relational contexts, institutional and cultural, because they believe that success, in personal and professional relationships, depends, in large part, on communicative competence, and, according to John O. Greene (2003, p. 35-43), to become proficient in any skill, one must understand the conceptual and behavioral part and have the opportunity to train since the beginning of his or her training and obtain feedback on how well he or she is performing the skill, and use such skill frequently enough so that the future professional develops and integrates it properly in his or her behavioral repertoire

There is a general agreement (see Klampfe, et all, 2001, p 5-6) about the importance of interpersonal communication in technological environments and the need for training these skills (sometimes called non-technical skills) to complement the technical education.

Airport Consultants Council (ACC) and Federal Aviation Administration (FAA) have published a list "Best Practices" (2008) to foster better communication with others. However, a list, or a few days of training, although it is a positive action, cannot be seen as sufficient to promote the immediate acquisition of good communication.

An issue that adds complexity to the debate in progress is the need to recognize that each area of aviation requires a specific approach, and that training in communication skills should be directed to form a real task force, a network of well trained in technical skills and non-technical oriented toward the same goal: air safety.

3.1 The Importance of Communication Skills in Extreme Situations

According to Neil Johnston from the Aerospace Psychology Research Group (2003, p. 2), emergencies are rare; however, abnormal situations are common in aviation. An abnormal situation, if not properly addressed, can become an emergency situation. When operations are no longer routine, action planning, the process of delegating responsibility and monitoring of tasks should be fully explained by an accurate and timely communication. Failures in

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interpersonal relationships make the team synergy difficult, especially in emergency situations, affecting the decision-making process and also making the task of delegating functions more difficult.

Kanki & Smith (2001, p. 103) say that communication is established following a logic and a stream which outcome is the effective resolution of a given situation. Under critical circumstances, the chain of communication is one regulator aspect. First, the necessity must be transmitted accurately and clearly, second, the need must be properly interpreted, third, a response must be prepared taking into account the need and, finally, one must realize that the need has been met. Feedback is the key to the redundancy and correction. For this reason, feedback is considered a vital aspect of communication in aviation, especially in unusual circumstances.

Research by Segrin and Flora (2000, p. 492-493) showed how communication skills can generate benefits in people's lives. Those with higher levels of skills deal with stress more easily and are more resistant to the harmful effects of a risk, while individuals with few skills suffer a worsening of problems when faced with stressors. Therefore, in aviation there are considerable advantages to develop a clear communication (Tourish and Hargie, 2000, p.157).

Verbal and non-verbal communication will be present before, during and after an emergency. Air traffic controllers, maintenance of aircraft technicians, pilots, dispatchers, flight attendants and runway officers should be able to clearly convey pertinent information to the appropriate people at the appropriate time. Ultimately, the safety of each flight depends on effective communication among all involved parties (Ruiz, 2004).

The need to start training communicative skills in the initial stage of preparatory courses is similar to the training requirements of football players. We must first determine what specific needs should be developed to work in teams. The abilities of each professional in the field of aviation are different as in a football team (for example, goalkeeper, center forward, forward, etc. ..) each one has to develop specific skills and understand his or her importance within the team to the best performance; otherwise, it may result in waste of time teaching skills they already have or will not be as useful and end up not really developing skills that are needed or need improvement.

According to Kip Hawley, administrator of the U.S. transportation safety, the evolution of security at airports, currently focuses on the social skills training of agents. Part of this training is geared towards maintaining a calm state of mind and the recommendation to ensure an organized working environment in order to reduce the occurrence of aggressive approaches in the way of speaking and behaving, mitigating the disruption which may provide answers disproportionately violent, as in the case of terrorist actions.

In contrast to the industrial operations where teams work with the same team over months or years, the flying commercial crew works with a different team in each flight as well as medical staff who also work with different people in stressful environments, such as the surgical centers. Therefore, we can make an analogy with the medical professionals and the flying crew (Spencer, 1976, p.1177-1183).

Communication skills are part of the undergraduate curriculum in medical schools in the U.S. Recent researches have shown that the overheated atmosphere of an operating room generates enormous problems and almost all of them are the result of lack of communication skills. Believing that communication skills can be taught and improved, aiming at more assertive future doctors that know how to communicate effectively with patients and

colleagues, this learning process begins as soon as students enter the medical school, and proceeds all stages of the curriculum (Lloyd, Bor, Blache, Eleftheriadou, 1996,.p.6)

This article proposes that, this same line of thinking used in the training of medical professionals, should be applied in the training of aviation professionals. In aviation, as well as in hospitals, training of communication skills are crucial in emergency situations where the interaction among the group is essential, especially because it often requires that teams are helped by members of several other sections and strategic groups of the company, as well as members of external agencies

There is a clear need to review the position of the flight schools that, in general, consider the technical content of their responsibility, not having, however, the same attitude about the formation of non-technical skills, which depend on the perception of the student's need and his effort to overcome. In this case, the development of students will occur within their skills, getting on the margins the development of subjective character skills such as discernment, decision making and social interaction, which will be critical in circumstances of intense risk.

Flight Safety Foundation (2009) believes that technical and non-technical aspects of flight operations are just like two sides of a coin, and we cannot evaluate them separately. So the first rule of this principle is that the technical skills and techniques should be considered together. That is why it is important to change the traditional teaching and training for a more holistic assessment of students.

4. COMMUNICATION WRITING SKILL

Written communication is everywhere and plays an important role in the aviation industry. Therefore, the written information must be effective, to establish a good communication relationship between the parties. Who writes should know the reason or purpose of writing, be clear, include and explain all the necessary information, and specify deadlines.

In aviation schools, writing activities do not represent the writing form expected by the aviation business, and students are not successfully trained to write reports or other documents that are important to their tasks. According to Ruiz (2004, p. 2), students often balk when they have to write a term paper. And it may be justifiable: pilots, for example, do not need to write more than 20 pages about the use of GPS. For many times, these become exercises for replicating information, most of time using the cut and paste function on the computer. If this assignment may improve the basis of student's knowledge about a particular subject, it does not improve necessarily communication skills. Ruiz (2004, p. 2) argues that the writing assignments in flight schools need to reflect realistically the types of communication these professionals will find when they perform their functions.

According to the Advisor Circular (AC) number 120-72 from 09/28/2000. Communication Skills are the backbone of the Corporate Resource Management (CRM) and Maintenance Training Resource Management (MRM), but specific aspects of communication are different in each work environment that involves aviation personnel for aircraft maintenance, communication encompasses much more than verbal interaction. Communication includes not only the interaction face to face, but also and mainly written communication, such as business retention, documents, procedures, orders and reports.

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The work cards depict the work to be done and serve as a means of documenting their completion in order to allow a release to service (RTS). These documents are stored and maintained to provide a solid trail of documentation. These maintenance cards contain, among other things, a description of the type of maintenance work (task), the necessary material, the necessary prerequisites and safety considerations the job requires, including work safety, fire and environmental protection. Work cards contribute to a much larger proportion of incidents involving communication.

Aviation maintenance provides a supreme test of the turnover process. When turnover errors are made, the consequences can be severe, as demonstrated by the accident involving Continental Express in 1991. The NTSB attributed this accident, in part, to the lack of one shift communicating to the next that the screws on the upper leading edge of the horizontal stabilizers had been removed and not replaced (Parke, Patankar and Kanki, 2003, p. 1).

The study of "Shift Turnover Related Errors In Asrs Reports" (2003, p. 3) showed the work cards as a contributing factor in a much higher proportion of incidents involving turnover communication problems. This fact suggests that increasing the completeness and correctness in writing will result in a significant reduction in shift turnover communication problems.

To keep a better written documentation, such as statements of the chief, logbook, Flight Attendant Report (FAR), work cards and reports, is essential for security, since it makes easier the understanding, avoiding misinterpretations. And it reflects, consequently, on interpersonal relationships.

The aircraft maintenance is an ongoing process carried out between shifts, thus asynchronous communication (where there is a lag time between the responses) is used to a greater extent than synchronous communication (real time). During the professional training it is important that one is trained in this specific form of communication, knowing how to interpret what is written and knowing how to write correctly what should be done.
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Poor instructions normally impose loads on working memory unnecessary to understand the meaning of the text, in this case, there is the danger of ambiguity, the working memory is challenged to discover the correct meaning of the instructions and run the risk of the message to be misunderstood which, in aviation, can mean a disaster.

An example of poorly written communication can be seen in the crash of ValuJet. According to the card No. 0069, provided to researchers, it was written "If the cylinder has not been expended, install a security cover". Many outsourced employees working in the company SabreTech, who were servicing the aircraft of ValuJet, were immigrants and did not understand the English language. Of course, the language problem of employees who did not speak English and, on the other hand, the ValuJet engineers who do not understood Spanish and who wrote the orders as if they were writing for themselves, in other words, the "engineerspeak" contributed to the errors in the chain of events. The covers were not placed because the written order was confusing to employees. In addition, the manager who prepared the documentation of oxygen cylinders to send to the ValuJet headquarters in Atlanta, wrote Oxy Canisters and then wrote "Empty"; between quotation marks, as if he did not believe much in it. The Commander relied on the flight manifest, and believed that as the cylinders were empty, he was not violating FAA regulations prohibiting the transport of hazardous materials in cargo aircraft.

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The National Transportation Safety Board (NTSB) determined that due to the pressure difference, the oxy cylinders, which were without the protective cover, have become true blow-torches, causing a fire and killing all its occupants.

In aviation, where there is a great technological development, the fact that a word affecting a whole situation is considered remote, but as we see in the example cited above, it occurs. The linguistic can affect a situation turning it into a catastrophic event.

In his work for an insurance company against fire, Edward MacNeal (1997) has analyzed hundreds of reports involving accidents. At first considered only the physical conditions, such as faulty wiring, but it became clear that the linguistic meaning, residing in the name or linguistic description commonly applied to the situation was affecting people's behavior. The word "empty" inevitably suggests a lack of danger. Its default language is associated with zero void, negative, inert. The word "empty" used in the analysis of physical situations, does not take into account, for example, steam or traces scattered in the container.

4.1 Effective internal communications start with effective skills in communications

Tourish and Hargie (2000, pg 157) explain that communication is a vital resource and should be understood as a management tool. After all, the authors make it clear that the internal communication involves exchanging information, seeking feedback, making decisions based on information, decision-making in groups and discussing proposals.

An important study in the field of communication skills was conducted by Mouden (1992, p. 141) to investigate the most important factors in the prevention of air accidents. In his study Mouden has included interviews with airline executives, upper management, and personnel management and aviation safety officials to determine which management actions they considered most effective for the prevention of accidents. The factors most cited by managers as having strong influence on safety, were: effective communication, training and standard operating procedures.

Mouden's study demonstrated the need for adequately trained professionals, trained and sensitized to deal with the internal communication of an airline company. He noted that internal communication is less effective than is believed to be, but its flaw is discovered after some unpleasant event.

The lack of proper communication can have any or all of the following undesirable consequences:
1. The quality of work performance may be reduced.
2. Time and money can be lost through errors that occur because of not-reported-important information or misinterpreted messages.
3. The inadequate communication can cause frustration and high levels of stress.

An example that reflects the consequences of an ineffective internal communication can be given by the disaster NASA (National Aeronautics and Space Administration) for the Mars Climate Orbiter in September 1999, "a failure to recognize and correct an error in transferring information between the teams caused the loss of Climate Orbiter" said Edward Weiler, NASA associate administrator for Space Science. NASA had instituted the metric system for all units of measure and, apparently, this change in pattern was not effectively communicated to all teams and organizations involved in that mission, one team used a unit of measurement in English (inches, feet and pounds) one of the systems used by NASA before

the standardization, while the other team used metric units (meters and Newton). These mismatch metric units prevented the transfer of navigation information between the team of spacecraft Mars Climate Orbiter, at Lockheed Martin in Denver, which used measures in English, and the flight team at Jet Propulsion Laboratory of NASA in Pasadena, which used the media metric (Mars Polar Lander mission, NASA, 1999).

As a result NASA lost 125 million U.S. dollars. It is irrefutable that such ineffective communication has resulted in a huge financial loss, of innumerous hours of effort, and the loss of critical data that the mission would generate.

Effective communication builds trust among team members, the reliability of operating systems, the credibility and the goals to reach and support between sectors. However, an ineffective communication tends to generate disruption by the inconsistency of information and situation reading systems whether personal or cyber-deciphered, loss of communication between groups and delayed reactions, and in the midst of this jarring scene, tends to create panic situations.

The property of maintaining security within an airline is directly related to how this company is structured to keep the communication flows that support the processes of decision-making. Inadequate or poorly constructed documents could compromise security, create resentment and cause embarrassment. In an industry with very high risk, such as aviation, internal communication should be used as a tool to generate safety and interaction.

Within a context where it deals with common pitfalls, it is not enough to say that people have knowledge about something. On the contrary, the key is being aware that people will make use of a relevant communication at the right time. This distinction has significant implications for what can be defined as one of the most important functions of communication security: to serve as reminders or clues that help you access important information, which remain stored in memory before an emergency situation

Flight schools should offer specific training in risk communication, calling attention to the characteristics of texts, once they influence the interpretation. In this case, where human lives are at stake, students should be trained to develop specific skills of written communication; know who they are communicating, what message they are sending and through what channels, what the obstacles and noises of the process are; and what effects it produces in the safe flight operational.

5. VERBAL COMMUNICATION PROBLEMS

The NTSB and the Transportation Safety Board of Canada have both found out that inadequate operational control and inadequate collaborative decision making have been contributing factors in air carrier accidents. The greatest causes of these accidents happen because of lack of vision of the joint responsibility of pre-flight planning, necessary among all those involved. Many problems encountered by flight crews and aircraft dispatchers have very little to do with the technical aspects of flight operations. Instead, most problems are associated with ineffective communication (A.C., 2005, No 121-32A ,

Cushing, (1995), in his book Fatal Words, raised the rain problems of communication in aviation:

Much of what we take for granted about language and communication in everyday life is simply false. The processes through which people communicate and understand each other are much more complex than they superficially appear to be. Training should include some sophisticated discussion of the social and cognitive aspects of these processes and the ways these aspects can interact to lead the processes themselves awry (Cushing, 1995, p. 90).

According to the International Civil Aviation Organization (ICAO), between 1976 and 2000, more than 1,100 passengers and crew lost their lives in accidents where language issues played a contributory role (Mathews, 2004).

EUROCONTROL (2006) organized in Europe, a survey among pilots and air traffic controllers to evaluate the communication problems. The survey revealed a large number of reported occurrences of problems of air-ground communication in Europe between March 2004 and April 2005. Problem areas reported included communication loss (due to change of frequency, sleeping VHF radio receivers and equipment failure) and readback errors / hearback (because of call signs similar expectations of the pilot, changing frequency). Linguistics (accent, speech rate, phrasing ambiguous) were involved in a number of communication problems and could generate major problems if not corrected by the crew or controller.

The study of EUROCONTROL concluded that research participants understand that it is important that pilots and traffic controllers have good communication skills in order to avoid problems and undesirable situations, and for this reason, there is urgent need for communication skills training, aiming to improve the attributes of clear communication.

It is crucially important to conduct research in each country in order to provide an effective survey, which allows studying the emotional, cognitive, structural variables, and the components present in the communication process, in order to increase understanding of these variations in the way language is used. Through this research, like the place in Europe by EUROCONTROL, it would be possible to isolate aspects of effective communication of the negative ones that present themselves for training aspects and specific behaviors, producing significant improvements in the training of aviation professionals, since their training, and developing the ability to communicate more assertively, not based on "what" people say, but "how" they say.

If the training is carefully planned to mitigate the problems caused by the negative effects of communication skills related to strong patterns of cultural behavior (e.g. not to question top decisions, to speak more than necessary, not comply with norms and standards, etc..), will certainly transcend negative regional influences to the profession and compete for the creation of an standardized assertive behavior. Cultural habits that may negatively influence communication skills can be tracked in an attempt to transform incongruent behaviors with job performance skills that can contribute to developing a safer flight environment.

6. TRAINING COMMUNICATION SKILLS (CST)

It is essential to communicate effectively in a management system of emergency, given the stressful nature and pace of the environment and the vast amount of information presented. The training of communication skills in aviation courses should develop interpersonal communication and techniques that are essential for establishing and maintaining productive

relationships necessary to successfully meet the objectives of maintaining flight safety especially in an emergency or abnormal situation. This training should remain integrated in all disciplines of the course and must also examine the dynamics of interpersonal communication verbal, nonverbal and written in relation to emergency management. At the end of the course the student should be able to:

- Identify the principles and practices of effective communication, being able to implement strategies of range;
- Evaluate the skills of personal communication, and develop personal goals and actions for continuous improvement of these skills
- Analyze the needs of communication in a system of emergency management, identifying and overcoming barriers.
- Evaluate the different communication styles, identify their implications;
- Master the patterns of nonverbal communication, and be able to answer them;
- Evaluate the nonverbal behaviors.
- Assess and strengthen the personal skills of listening.
- Learn skills to give and receive feedback.
- Discuss the importance of writing effectively and become aware of the impact of the messages.
- Adapt their behavior, using appropriate language to the recipient.
- Respect, accept and support each other, avoiding value judgments immediately.
- Understand the main ideas and feelings of the sender.
- Distinguish fact from opinion and the difference between "speaking to provide information" and "talk to persuade someone to think, feel or act a certain way."
- Recognize when a listener does not understand the message.
- Express ideas clearly and concisely.
- Keep assertiveness (being open and willing to take active roles to ensure the accuracy of the communication).
- Provide guidance and understandable instructions.
- Control anxiety in situations of communication.
- Involve others in the matter on which they are speaking.
- Use grammar correctly.
- Understand the "language" of automation and its impact.
- Master the synchronous and asynchronous communication.
- Develop discernment.
- Develop the ability to recognize inconsistencies or discordances.
- Master the standard phraseology.
- Know manage time and correctly use the voice (volume, tone, pauses, clarity).

We believe that the combination of those skills with technical training allows the creation of productive relations and more effective methods to control risks in critical environments.

7. CASE STUDIES

For the present article, we have used some excerpts from the Cockpit Voice Recorder (CVR), compiled from the National Transportation Safety Board (NTSB) We also have used the Aviation Safety Reporting System's database which is the world's largest repository of voluntary, confidential safety information provided by officials from the front line of aviation, including pilots, controllers, mechanics, flight attendants and dispatchers. Such narratives are rich sources of information for policy development, research, human factors, education and training. In these researched sources we have used reports that indicate the occurrence of communication skills.

On January 25, 1990, Avianca Boeing 707-320C, prefix HK 2016 AV-052, had left Medellin that afternoon, stopped in Bogota and went straight to New York. The flight ended in a needless tragedy: A dry crash caused by a breakdown of communication.

Crew: Fatalities: 8 / Occupants: 9

Passengers: Fatalities: 65 / Occupants: 149

Airplane damage: Destroyed

Below is an excerpt from the recording of the Cockpit Voice Recorder (CVR), Cited in NTSB Identification: DCA90MA019

CAM 1, 2, 3 = *Flightcrew comments*
APPR, TWR = *Controller transmissions*
RDO 1, 2, 3 = *Flightcrew radio transmissions*
GPWS = *Ground Proximity Warning System*

TWR - Avianca 052 heavy Roger climb and maintain two thousand turn left heading one eight zero
CAM1 - We don't have fuel
CAM1 - Tell them we are in emergency
RD02 - That's right to one eight zero on the heading and we'll try once again we're running out of fuel
TWR - Okay
Note - Avianca 052's engines began flaming out from fuel starvation less than 9 minutes after this point.
CAM1 - What did he say
CAM1 - Advise him we are emergency
CAM1 - Did you tell him
CAM2 - Yes sir I already advised him
TWR - Avianca 052 heavy contact approach on . . .
RD02 - Approach Avianca 025 heavy we just missed a missed approach and we're maintaining two thousand . . .
APPR - Avianca 052 heavy. Climb and maintain three thousand
CAM1 - Advise him we don't have fuel
RD02 - .Maintain three thousand and we're running out of fuel sir
APPR - Okay fly heading zero eight zero
RD02 - Flying heading zero eight zero climb to three thousand
CAM1 - Did you already advise that we don't have fuel
CAM2 - Yes sir I already advise him.
CAM1 -OKAY
APPR - And Avianca 052 heavy I'm gonna bring you about fifteen miles north east and then turn you back onto the approach is that fine with you and your fuel
RD02 – I…I… I guess so thank you very much
CAM1 - What did he say

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CAM3 - El hombre se callentó!
CAM2 - He said that 15 miles in order to get back to the localizer
RD02 - Can you give us a final now Avianca 052 heavy
APPR - Avianca 052 affirmative sir turn left heading.
APPR - Avianca 052 climb and maintain three thousand
RD02 - Negative sir we just running out of fuel we okay three thousand now okay
APPR - Okay turn left heading three one zero sir
CAM3 - Flame out flame out on engine number four
CAM3 - Flame out engine number three essential on number two
CAM1 - Show me the runway
RD02 - Avianca 052 we just lost two engines and we need priority please
APPR - Avianca 052 turn left heading two five zero . . .
APPR - Avianca 052 heavy you're one five miles from outer marker maintain tow thousand until established on the localizer cleared for ILS two two left
RDO - Roger Avianca
End of flight 052 CVR and tower communication
Source: NTSB Identification: DCA90MA019

According to the NTSB report, AVIANCA's pilots; "warned that they had little fuel ... but in very calm tone and manner ... in a so polite and respectful form ... that nobody, neither on land nor in the air, came to realize that they were falling"

The captain, despite being international flights commander, did not speak English. A major factor of communication that seriously jeopardizes the security operations. The only one capable of understanding the language fairly basically, was the co-pilot, just so responsible for communications with the ground; however, as he was the youngest, did not dare to challenge orders or make suggestions in the operation of the aircraft. The flight engineer had some notion of the language, to at least understand the standard phraseology in communication, however, he was not effective in his communication either.

In an analysis by Helmreich (1994, p. 265–284), Avianca Flight 052 took inefficient communications on the status of fuel, which was the most critical situation. In fact, the whole communicative action of Flight 052 took place in only 8.4 percent addressed the situation of fuel, for a total of 39 statements. During the last 39 minutes of flight, the Spaniard pilot made 28 queries to his crew, emphasizing the lack of communication, the first officer and second officer failed to pass accurate information to the commander when it was vital to do that.

He also failed to relay the emergency fuel to Air Traffic Control (ATC), and he showed more concern for the commander's mood than with the state of imminent exhaustion of fuel. Moreover, after the missed approach at JFK, the engineer reported the state of the fuel to the flight attendant, and pointing to the amount of fuel meters, made a sound, it is believed, should be accompanied with the gesture of cutting the throat (Noble, 2006, p.2) . However, he also failed to relay the critical fuel for the commander and even joked about the air traffic controller (El hombre se callentó!), at a totally inappropriate time out of the operational context. Clearly frightened by the harsh conduct of the captain, the co-pilot denied to the captain he had declared an emergency and minimized to the air traffic controllers the need for urgent landing of the aircraft, using the incorrect word (Priority instead of Mayday). At that very moment, the flight 052 was doomed to a tragic conclusion. Instead of declaring emergency, the co-pilot told the tower that Flight 052 was "running out of fuel."

This phraseology, which is not common, does not mean an emergency request. If the co-pilot at that moment had declared a Mayday or "Pan-pan-pan" ",which is internationally known as

an emergency, the tower at JFKennedy Airport would have given Avianca 052 immediate priority for landing.

The word 'priority' does not define emergency priority. According to Kanki and Smith (*in*: Salas and Bowers, 2001, p. 115), it is not an easy task for instructors of aviation courses to refute arguments like "I can think of how to say it in a better way" and to convince students to accept that the procedural rule of standard discourse simplifies the job and is essential for safety. Standard phraseologies must be carefully constructed, trained, treated and tested. And the most important in this context is to make students understand that the standard speech meets the expectations of all those involved in a flight. Otherwise, if each one decides to improvise, flights could become catastrophic. However, it should be considered a difficult action to establish a script for each situation, because of the typical dynamics of the events that relate to a flight. However, repetition is indicative of a minimum standard of occurrences, and, indeed, may be considered in the training curriculum.

According to Noble (2006, p. 2) the ineffective intra and intercommunication in the cockpit and the organizational and cultural norms, such as the hierarchical distance (power distance) were important factors that influenced the poor communication. The commander was sending clear signs of stress while speaking in a loud voice, almost shouting orders to the other crew members, creating a climate of intimidation. This was probably one factor that prevented the cooperation and coordination of actions and decision-making consideration.

It has been frequently discussed the influence of individual factors that affect the performance of group communication. The words have a different effect in the mind of every person, because the experience of each person is unique. These differences may be small, but the overall effect of the differences can become large enough to cause misunderstandings and damage in many different proportions. If the listener does not have the same understanding of the word that the transmitter is using he could substitute for a different experience to match the word. Again, we discuss the meaning of the word 'priority' for the controller did not mean the same thing for the co-pilot. The controller meant that the co-pilot wanted to land before, and clearly against the intensity of the problem and the results recorded for the co-pilot an emergency situation.

According to Webb (2006. p. 6) to overcome the meaning of words differences, it is necessary the pre-existence of a set of skills. According to the author, a good trained listener suspects the meaning of words outside the standard context (in this case, the word 'priority'). So, it appears as a red flag and the receiver should ask the sender what the real meaning of the words used nonstandard for the spoken word was, leading him to realize he made the incorrect use of phraseology and giving him the chance to correct himself. The difference in meaning of the words can lead to catastrophic misunderstandings. Therefore, training in different communication approaches, referral to the assertive communication applied to different contexts, can avoid misunderstanding and susceptibilities
.
Fear, shame and anger cannot be obstacles to communication, especially in an abnormal situation where poor communication can develop to an emergency. It is essential to change this habit. In aviation, there is a conflict between the technical field (cockpit, flight control) and perceptual capacity of psychosocial contexts. There is a trend to sublimate the perception privileging regulatory actions - acting by the book - when the two fields tend to be complementary. This conflict builds up with excessive respect for hierarchy, the fear of making mistakes, and to seem unprepared, accompanying the crew throughout the voyage and the so-called critical time. Many accidents occurred motivated by lack of clarity in the communication process.

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The case reported below shows a communication problem between the cockpit and the flight attendants during an abnormal situation, which, due to lack of communication skills, could become an emergency in a fatality.

ACN: 714718. DATE 07/2006

Upon arr acft was met by fire and emer vehicles. It was not until i deplaned and asked a fireman what was going on that i was told that our #1 eng was on fire as we taxied in. Why, as flt attendant, were we not told? Why were we not debriefed? Why did we not stop immediately and evac? This is poor communication and does not represent the safety professional image we were taught. The capt spent more time berating the purser as pax deplaned than informing and assuring the pax and flt attendants as to the situation

The most common examples of problems in communication during emergencies involve the flight crewmembers not informing the flight attendants of the nature of the emergency, the time available to prepare the cabin, and the necessary special instructions, for example, to use only one side of the aircraft in the evacuation. This problem has arisen several times, despite instructions in flight manuals to relay such information to the flight attendants (AC No: 120-48, pg 1) The quality and timing of the information given to the flight attendants is extremely important in an emergency. Communications from the flight crew should be clear, precise, and instructional. A vague description of the situation without specific instructions may be misinterpreted and result in valuable time being misspent. The timing of the information transfer is as important as the quality of the information.

Not providing information may result in wasted valuable time. The transfer of information is as important as the quality of information. Studies and experience indicate that the flight crew should begin planning for an emergency soon after the first sign of fire. The advance communication can make the difference between a successful evacuation or the loss of an aircraft and its occupants.

When there is a break in the flow of communication, especially in an extreme situation, this loss can be interpreted as a failure and lead people to believe they are considered inferior in office for this reason not included in the exchange of information.

It is important for flight crewmembers and flight attendants to act as one cohesive crew, even though they are trained, scheduled, and generally regarded as two, independent crews. When it is necessary to act as one crew, the activities of the cockpit and cabin should be coordinated. One of the prerequisites for crew coordination is effective communication between all crewmembers. During the training of future professionals, they should know the functions of other members who form the operating environment, of which they will be part of, to understand and meet the requirements of daily flight operations.

Flight attendants should be aware of the events surrounding the flight. Report an abnormal situation as soon as possible, regardless of its nature, is imperative. Chambers (2001, p.29-

51) believes that the early communication establishes effective communication. Especially in the case of an abnormal situation that can develop into an emergency. Providing information tends to reduce the need for its search, creating extra space for the management of communication because everyone involved in security are ahead of the process, saving a precious commodity in these hours, the time.

The mentioned case evidences a communication problem between flight deck and flight attendants during an abnormal situation that, due to lack of communication skills could have turned an emergency into a fatality.

ACN: 395356. DATE 03/1998

Working the l1 pos on flt xx, it became apparent as pax started to board that large carry-on items were being brought on plane. I went out to agent, asked her to please monitor baggage as we were booked (and subsequently were) full. i returned to boarding door with a few gate chk baggage tickets. pax z soon then entered with an athletic bag approx the length and width of a coach bar cart (approx 36 inches long, 18 inches wide, 18 inches high). I told pax that the bag was oversized and would have to be cheked. I secured a bag chk ticket on it and placed bag on jetway. He objected saying he always brought it on board. I apologized and told him again it was too large. mr z initially went to seat xa to return a moment later saying that the bag was coming on board or he was not going on the flt. He brushed past me while saying this and continued out to jetway to retrieve the bag. I stepped into the cockpit, informed capt y that a pax was bringing an oversized bag back on board after i told him it would have to be chked. CAPT Y SAID 'NO, NO' AND SHOOK HIS HEAD IN THE NEGATIVE MOTION WHICH I TOOK TO MEAN THAT HE WOULD NOT PERMIT THIS TO HAPPEN. I stepped back into the forward area of the cabin and told pax z the capt said he could not bring the bag on board. pax z pointed to another pax in seat xb struggling to place his too large bag in the overhead, and another pax with an extremely large garment bag over his shoulder. i stepped away from pax z to ask these men to chk their bags and they too refused. i asked them again, explaining to them calmly that their bags were oversized but they ignored my request. meanwhile, pax z, used this opportunity to enter cockpit and speak to capt. pax z then brushed past me saying at least the capt understood customer svc. looking on the floor of the cockpit from the forward part of the cabin i could see the bag stuffed behind the capt's seat, the end of it protruding into the entrance. I went into the cockpit confused, and feeling betrayed and told him in a sincerely HURT VOICE that he 'MADE ME FEEL LIKE A FUCKING ASSHOLE FOR LETTING THE PAX PUT HIS BAG IN THE COCKPIT.' THE CAPT REPLIED IN A LOW, MENACING VOICE that 'i was to shut up, leave the cockpit, and not return, or he would remove me from the flt.' i left the cockpit immediately without saying another word to him for the rest of the flt

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as per his request. I am writing this flt rpt to raise several issues. I feel capt y's lack of support ruined all trust btwn the cockpit and cabin and was extremely poor crm. i was not comfortable and did not have any further com with cockpit inflt and wonder how i would have handled an inflt emer knowing i could not rely on the cockpit for support. i am curious what is faa and our acr policy of placing unrestrained, oversized pax luggage in the very small confines of the cockpit of an MD80. I will conclude this rpt by adding I have been a flt attendant for 12 yrs and that i have received several commendation letters and never a negative one from a pax. i have learned to solve the vast majority of pax probs without having to involve the flc and cannot think of another time I asked a capt to support me in a prob with a pax. I feel betrayed by capt y's decision and now wonder what sort of support we can really expect from the cockpit overall.

The most important role of communication is to establish the interpersonal climate among crew members and, therefore, it is a basic element to set the tone for the management of the flight. To Nevile (2006, p. 5) it is through it that other human factors are effectively carried out or become possible to gather information and share them, plan, lead, make decisions, identify and manage errors and problems

In the example above, the trouble began at check-in and turned into a snowball with unwanted results, and not evolved into a serious situation, because no abnormal event occurred during the flight, if it had occurred, it could have had negative results because the flow of communication was broken: the flight attendant no longer spoke to the captain and vice-versa. This type of communication causes negative reactions. Usually, the emotional reactions generate irrational behaviours and can lead people to work in a bad mood and generate refusals of supporting their efforts. A miscommunication often results in taking contradictory positions and in aviation, where teamwork is an important tool, it represents a serious failure.

The beginning of a flight, during the passenger boarding, communication can be very stressful and the choice of words is very important because it can motivate or discourage the crew when it is necessary to work as a team. Ground staff / airline crew should have knowledge of their strengths and weaknesses and be trained in judging social, flexible style and ability to handle various types of conflicts

Effective communication helps to reduce problems of irritation and stress. Malpractice in communication is often initiated by a passenger or crew member who is or are angry and if anger is not reduced we can generate a situation of breakdown of communication. It is necessary to hear what irritated people are saying and not just avoid them, this will solve the problem while it is small preventing it to grow and that the crew loses control over it.

Communications skill training should include understanding the internal and external influences on interpersonal communications. External factors include job title, corporate complexity, age, experience, gender, organizational culture, education, etc. Internal factors include speaking skills, listening skills, decision making skills, conflict resolution techniques, and the use of appropriate assertiveness and advocacy.

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The Two examples bellow illustrate how safe and effective flight operations are critically dependent the skill communication, to be successful, communication must fit the operational context and needs of the moment.

ACN: 818908 Date : 200901

*[….] I then wanted the Pilot Not Flying to show me the plot he made that proved we had passed the ETP. **He did not say a word and stared at the plotting chart. He then threw the chart at me and said 'You do it.'** Perplexed at that, I plotted our location and we were over a hour before reaching our ETP. At this time the cabin altitude began to fluctuate again, and I told the Pilot Not Flying to ask for a lower altitude again. The Controller asked if we declare 'Pan Pan,' and I said to say yes and we need time to advise. I decided to offset 4 miles right off course until we worked out a decision and prepared to descend further. **I told the Pilot Not Flying to declare an emergency and request a descent to FL320. He refused to declare an emergency and told me to do that myself as well.** The cabin altitude began climbing again so I started a descent to FL320. I got on the radio declared an emergency and descended to FL320. At that altitude we were able to maintain cabin pressure. I told the Pilot Not Flying to get back on the radio and request clearance to return. The Pilot Not Flying then asked to return to ZZZ2. The Radio Controller first cleared us direct XXXXX. I knew XXXXX was too far and told the Pilot Not Flying to ask for a revised clearance towards ZZZ2. The Controller then re-cleared cleared us direct ZZZ2. In conclusion, before **the event occurred, the Pilot Not Flying 'who is also my employer' had been sitting in the cabin with the Flight Attendant doing nothing to assist me with the Oceanic crossing and was lost when I needed him most.** During this flight I realized the importance of CRM and situational awareness of both pilots. If I hadn't plotted our route and maintained situational awareness I would have listened to the Pilot Not Flying and continued and possibly run out of fuel with no alternate airport for landing. **One way to prevent this in the future is to make sure the Pilot Not Flying has been trained properly and knows how to assist the Pilot Flying with important duties.**

ACN: 673686. Date : 200508

Synopsis
*Due to a verbal altercation with a coach pax, one of flight attendants called the capt and asked that the seatbelt sign be turned on. The capt refused, and then called me at 1l to get details, which i gave, saying we wanted the sign on to diffuse a situation in the aft galley btwn a pax and flt attendant. Capt said he didn't want to use the seatbelt sign for 'crowd ctl.' i relayed this info to my flying partners in the forward galley. Flt attendant x, who had been working in coach, heard the exchange and grabbed the interphone at the jumpseat by the forward cross aisle, called the cockpit and said 'this is flt attendant x, put the seatbelt sign on now!' the fo took the call and seatbelt sign went on immediately, and the pax sat down shortly thereafter. There was a breakdown in crm with the capt refusing to put on the seatbelt sign when asked by the coach flt attendant and then by me, as well as when flt attendant x took matters into her own hands, calling and alarming the plts, bypassing chain of command. This could have broken down coms further because it sounded like i put her up to calling when i didn't like his reasoning. **Poor communication between cabin and cockpit causes a breakdown in coordination and teamwork necessary to resolve a cabin disruption.***

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An important aspect of communication skill is to correctly identify the communication need dictated by the operational and interpersonal context. In addition to providing the pertinent information content needed (what is communicated), other aspects, such as when, to whom, and under what conditions, are equally important. Teaching specific, constructive behaviours may be useful in troublesome situation with passenger, employees and/or supervisor and conflict management or resolution

.Assertive communication is essential in good teamwork, it is a means of getting attention and respect from other people without being submissive or aggressive. Submissiveness leads to the 'door-mat effect' - people walk over you too easily.

Dickson (2004, p. 3) states that "The good news is that we can improve our ability to communicate." The implications of looking at communication as a social skill are the ability to be trained. Once the responses are learned they tend to become habitual.

All training activities involving crew members and ground staff, must offer the following guidelines based in the ACC/FAA Best Practices (2008, pp. 3-4) to help foster better working relationships and communication.
- Listen actively to the extent possible, try to understand the perspective of the speaker, ask clarifying questions, and repeat back to the speaker what you think was said.
- Show mutual professional respect.
- Engage in early, ongoing, and open communication.
- Be forthright and realistic with expectations.
- Be accessible.
- Show patience and flexibility when discussing differences.
- Practice timely communication.

The key instruments for achieving the goals mentioned above are learning communication skills that will develop in students their innate abilities and skills to practice effective communication in difficult situations. In these situations, it is important that such professionals have already explored their feelings about these issues and developed through training a skilled behaviour for conflict resolutions.

The excerpt below is part of the Final Report concerning the accident on September 29 2006, in Brazil, as typified "collision of aircraft in flight", occurrence involving a regular air transport aircraft and another executive one.

The controller by having mistakenly understood or not having understood felt himself uncomfortable to ask again, did not respond to the pilot's question .This initial lack of knowledge was the first link to break the chain of events that arose during the flight, which resulted in an accident.

FINAL REPORT. A-022/CENIPA/2008

PILOT: key, frequency one two six decimal one five, One three three decimal five for alternate. And what initial altitude for clearence?
ATC: ahn..., say again, please?
PILOT: altitude for take-off?
ATC: éh.... clear taxi to holding point runway one five, and report ready for take-off.

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PILOT: *okey, clear taxi to holding point one five, six zero zero x-ray lima.*
Source: RF A-022/CENIPA/2008, p. 52

In the dialogue transcribed above, the pilot asked about his initial altitude. The controller uses a marker of hesitation at the beginning of his response, as signalling a red flag that he had not understood or was in doubt ("Ahn ..."), and then makes the more general questions indicative of an understanding failure, used in aviation, denoting that the listener had not understood the wording of what he was told, and asked to repeat the transmitter ("Say again, please?").

The application of repetition of the phrase (Say again, please? "),by the controller, means a request for clarification. It is evident there is a difficulty in understanding what was spoken. The pilot, therefore, should have repeated the question in a clear and paused voice, as follows: "What initial altitude for take-off?" And when you receive the answer, consider whether this corresponded to what was asked.

The ability to process communication means that the information needs of pilot / ATC will be properly interpreted. Communications will be worded and the possible ambiguities resolved through active listening, investigation and clarification when necessary. Verify that the communications were well received is a standard practice in the prevention of errors

In the above situation, the controller did not answer the question of the pilot. There was a tangential response, the controller recognized the other in the communication process, but did not answer the substance of what was asked.

The pilot, at that very moment, realizing that there was no answer to his question should have called the attention of the controller for this failure. Pilots and controllers can avoid misunderstandings by providing timely information to each other in advance and asking again when they notice the lack of information, confirmation or correction.

Instead of calling the attention of the flight controller for the lack of an adequate response, the pilot chose not to clarify the altitude and went on performing the readback, neglecting to mention the lack of information about the altitude to be maintained during the execution of takeoff.

When callers did not seek to resolve such discrepancy, where there is divergence between the question asked and answer that did not happen, they are communicating without using the skills of critical thinking, which is also part of the Communication Skills Training (CST).

The Perceptual Evaluation of Communication (PEC) is to sensitize students to hear beyond the voice. They must instruct them to detect the speech and develop their auditory perceptual ability to establish the following prosodic aspects: voice quality, tone, volume, articulation, speech rate, rhythm and pauses, in order to detect the red flags and understand their impact on communication security

Red-flag words sometimes cause minor differences or misunderstandings. When a listener disagrees or feels a reaction to uncertainty from the transmitter as, for instance, a different tone, a question rather than an assertion, even silence, which may mean a hesitation, he should immediately clarify the situation before too late. He must be trained to understand red-flag words or phrases, even though the dynamics of communication will help to renew the stock of red-flag words. Experience curves associated with innate interpersonal skills can contribute to the perception of risk, even if a red flag has not been used. Again, we stress the importance of analyzing the context.

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Pilots and controllers must learn to recognize procedural communication errors and remain alert to the times when the "Red Flag" is present. Active listening, which is part of training in communication skills, helps to identify small details, and could transform faults of this nature in assertiveness, possibly changing the course of the disastrous. The Perceptual Evaluation of Communication (PEC), along with active listening, should be introduced early in the training of controllers and pilots, and become part of Communication Skills Training (CST) in order to help identify small details that can transform faults into assertiveness.

In the narratives below the reporters referred specifically to deficient documentation in the form of work cards, maintenance manuals, logbooks, and turnover documentation. Have better written documentation improving documentation especially work cards would likely improve turnover communication problems dramatically.

ACN: 819675. Date : 200901

Synopsis
[...]Airworthiness Release was missing from log page in which a Line Check Inspection had been performed. Aircraft was delayed. Not sure how the 3 of us missed this. The aircraft also had an oil check along with the line check. The oils were added to the top half of the log page. The only thing I can think of for why this was missed, is not reading the full discrepancy, seeing (oil) only -- the first word of the discrepancy. I was Acting Supervisor at the time of this event. Only 2 of us on shift. I was filling 3 roles at the time: Supervisor, Lead, Mechanic. When signing off an oil check and a line check inspection, ensure the discrepancy and action block clearly state 'Line Check' and 'Oil Check' due. The first word should always be 'Line' to draw your attention to it. And, of course, pay more attention to details. Have a person do the review that is not playing 3 roles at once.

ACN: 803646. Date : 200809

Synopsis
Callback conversation with rptr revealed the following info: reporter stated the cabin pressure controller on the dhc-100 is also the computer for this system. The lack of **communication** *between the avionics group and the quality control inspectors, including the wording used on their maint write-up form for the pressure controller, contributed to inspection not accomplishing the required pitot/static leak check rii inspection.*

ACN: 681898. Date : 200510

Synopsis
A B767 was dispatched with an interim repair that required progressive inspections. Inspection was accomplished but deferred item was not updated in logbook or acft maint history. Communication between the depts was not adequate and there was no follow-up between the 2 depts.

ACN: 628475. Date: 200408

Synopsis
A B737-500 during a 'b' chk upper wing fasteners were found corroded and written up by an inspector. Engineering wrote up a repair that was in conflict with the inspector's write-up.

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ACN: 857727. Date : 200910

Synopsis

A Lead and a Mechanic report about a leased PW-2000 engine that was installed on one of their B757-200 aircraft and serviced with a different type of engine oil.This situation could have been avoided by employing better **communication***. The job instruction cards being employed only direct the Technician to service the engine and components, and do not specify oil type (again, usually not needed).*

Many problems encountered by flightcrews, maintenance, flight controllers and aircraft dispatchers have very little to do with the technical aspects of flight operations. Instead, most problems are associated with ineffective communication having as consequences: poor group decision making, inadequate leadership, and poor task or resource management. The example below demonstrates this lack of communication and its consequences

ACN: 853054 Date : 200901

[.....]This is not the first time this has happened a different Maintenance Controller did the same thing and stated that he tried to tell me of an MEL that was added or cleared but couldn't get in touch with us, so in their mind as long as they try regardless of the outcome, it is all they have to do, and when questioned about it, they say they don't have to tell us via the phone, instant messenger, or in person, because they have been instructed that all they have to do is add the MEL to the system and it will show up on our desk via the plot. Now my concern is that if this had been a serious mel like a anti ice MEL, or anti skid MEL and they don't tell us, and the aircraft departs all souls on board could have been lost. Time and time again we have this same problem of poor or no **communication***, the cause I feel in this case is that management refuses to put in place a* **communication** *policy and make it standard operating procedure, and hold employees responsible if it is not followed. We as dispatchers share the responsibility of the safety of each and every flight with the captain of those flights, yet we are the last to know of safety issues regarding these flights, because management will not recognize that we are a part of the checks and balance necessary to have a safe flight and controlled airline. There has to be a paradigm shift regarding the control and* **communication***s of all aspects of these flights, including the implementation of MEL's and anything that affects the operations of the airline in the eyes of safety of flight. Currently if there is something wrong with the aircraft we the dispatchers will not find out about it until the pilot calls it into Maintenance control. Then we find out about it sometimes. It would be better if the Captain would call us first, tell us of the maintenance issues, and then we would pass them along to maintenance control, this way we would be involved from step one and this would insure that we are a part of the process of adding and removing MEL's and to insure that the paper work is done correctly and the crews are made aware of any discrepancies or issues regarding that flight. The company has done a major office remodel to help* **communication***, most feel this is not going to help, unless there is a* **communication***s policy put in effect. Given what happened in this instance it doesn't matter if your 15 feet apart or on the other side of the world, Maintenance control has never been required to have positive* **communication** *with the dispatchers. I feel that we will continue to have operational control issues until the company takes the necessary steps to develop and implement a* **communication***s protocol, to define how each and every process happens, and to establish that the dispatcher should be*

*in the front of the **communication** process not at the end. In regards to positive **communication** when adding MEL's or anything else it would be beneficial that Maintenance control either use the instant messenger to tell us of the MEL and require a response that it was received to insure we were notified, If they didn't get a response they should take other steps to insure we get the information regarding MEL's or any other information regarding safety issues, so that there is proof positive that we got the information. For a professional to simply state that I tried, and to think that it is all that needs to be done, even if they don't get a response from the dispatcher is a true travesty in the eyes of safety.*

Synopsis

*A Dispatcher reported an ongoing breakdown in **communication**s between dispatch and maintenance control with respect to MEL items that impact dispatch release requirements.*

The benefits of training communication skills with the vision of general operating provide a better understanding of the importance of information management that has a direct impact on the operations of flight safety and better interface with other functions, consistent with the concept of joint responsibility.

8. CONCLUSION

This paper can be identified as an experience report, which central objective was to present a proposal to integrate the communication as a skill of social interaction in the curriculum of all schools focused on aviation as a requirement for certification of the student, to mitigate these errors related to communication skills, especially in extreme situations and, consequently, improve flight safety. Therefore, the theoretical approach and case studies conclude that:

The biggest obstacle in an extreme situation is communication because the interpersonal interactions tend to deteriorate. The key to prevent that an extreme situation turns into a disaster is to bring communication back on track.

Recently, a survey was conducted with members of an organization of emergency in the United Kingdom to identify key non-technical skills necessary to manage an emergency situation. Communication skills were identified as key skills to work in teams and manage stress. It is expected that the early learning of these skills directed to practice, will improve the individual skills necessary for teamwork especially in an extreme situation.

Another basic rule to this principle is that technical skills should be evaluated in an operational context that allows the integration of communication skills to evaluate overall performance of flight crew / ground crew.

Schools must have pilots, stewards, flight engineers act as instructors who will work in cooperation with professionals specialized in communication training producing significant programs. The development team is essential to integrate communication skills with technical skills in training.
.
Typically, the process of training the future professional is focused more on technical development and less on interpersonal issues. That makes professionals face a new challenge when working, to communicate interactively and assertively with their peers especially in an extreme situation, under continuing pressures.

Nobody chooses to be a bad communicator, however, practicing good communication skills are not easy, but it is possible. It involves personalities, styles and habits, and changing habits can be an overwhelming task, but training can break old habits and develop skills that lead to a reduction of accidents. Possessing excellent communication skills should be an important part in hiring staff.

At least, if the habits of good communication, have profound effects on flight safety that raises the question. why do not we train professionals committed to the excellence of communication? The communication has to be evaluated and attacked on all levels: managers, pilots, flight attendants, aircraft dispatchers, flight controllers and aircraft mechanics. These levels are all connected and poor communication is contagious.

In summary, communication skills should be incorporated into the curriculum since the beginning of learning, through clearly defined goals in the evaluation process, with clear performance standards, and not just relegated to a curriculum module in human factors. It should be a topic for further training enabling students to become proficient in this vital part of their work. Inefficient communicators increase the possibility of human error.

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