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## **DEVELOPING A FORMAL PROGRAM TO IMPROVE PILOT JUDGMENT**

Thomas J. Connolly, Ed.D.

The aviation community and in many respects our education and training systems have over the years considered judgment to be a natural consequence of experience. And yet most of us would agree that the secret to being really good at almost anything, including being a pilot, is best described as having "good judgment." However, the art of teaching judgment is still a secret. Very few people who deal in the magic art of education would quarrel with that statement. As one unknown observer put it--"It is almost as if we expect the good student to come to us with a solid foundation of the 'right stuff'--good judgment. During training he might increase it slightly by mere association with his instructor who obviously has plenty of it. But the rest he will have to acquire by experience, by hour after hour of flying, by countless exposures to situations which require that rare quality of good judgment." Another way of expressing it is to say that the only way one can acquire good judgment is through experience, and experience is defined as a series of poor judgments!

What all this means is that up until now there has been no formal attempt to include judgment or decision-making as a specific training requirement. A number of research projects conducted over the past fifteen years have concluded that most aircraft accident fatalities have been directly related to poor judgment or decision-making on the part of one or more of the aviation professionals involved. It normally appears in the accident report as "human error." The Federal Aviation Administration has acknowledged the need for such training, and has moved to include judgment as one of those subject matter areas that should be taught. This action presents tremendous opportunity and challenge to the education community at all levels.

Some training materials have been developed. They explain the factors which define the element of risk and risk management which has been identified as one of the primary elements in poor judgment. Materials are also available which address the effects of stress on decision-making and various methods for identifying and controlling hazardous attitudes.

and continuous training in much the same way that technical skills are currently improved.

As we continue the development of training materials and the conduct of research, it becomes clear that there needs to be a more coordinated effort by all. There needs to be a commitment by government, the industry and all concerned training organizations and academic institutions to effectively implement this new education issue for the 90s.

We have seen remarkable advances in technical development and refinement. Accident reports make it painfully clear that the catastrophic failure of equipment or systems is indeed a rare event in modern aviation. We do see failures, but usually, when an accident follows, we find that the failure was not the direct cause of the accident; rather the cause is usually an error--not in procedures--but in judgment or decision-making by the crew and/or others involved in the situation.

Our challenge then for the 90s is to address the cognitive and affective aspects of judgment as a formal part of our educational and training programs. The question is whether we can effectively teach people how to consistently recognize and control those factors which cause them to make bad decisions. As I indicated earlier in this paper, in the past we have had to rely on the selection process to identify those that had the "right stuff" and on experience to develop their "airmanship." But the human error problems continue to occur on a regular basis almost from the beginning of aviation right up to today. We can be more selective, have more highly trained and knowledgeable airmen; we can give them the best possible equipment and yet the accidents continue. The problem is aggravated today as we find ourselves confronted with a mushrooming demand for qualified personnel; we need more people, and we are giving them greater responsibilities earlier in their careers. We no longer have the luxury of depending on experience alone to eliminate the human error problem.

Another aspect of this subject is that it addresses things like attitudes, communication, and management styles which were not previously considered to be integral parts of the formal pilot training process. No one is suggesting

that we attempt to change personalities. We are not psychologists. But we can address behavior as a product of personality, attitude, and background. These are the primary determinants of performance. We can change attitudes! The attitudes we can affect include decision-making, interpersonal relations, leadership and leader responsibilities, personal characteristics and reactions. Changing attitudes may result in more flexible behavioral strategies and more coordinated behavior in critical situations when maximum effectiveness is an issue.