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COCKPIT MANAGEMENT AND SBO'S

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I have been asked by People Express to discuss the subject of SBO's as used in our cockpit management training program. I shall give you a quick overview and then ask those of you who may be interested in further detail to either talk to me directly or read through our supplemental material which is contained in the blue binders on the table in the back of the room.

The worth of any training program depends upon the amount of lasting, beneficial behavioral change that takes place within participating pilots. If no such change occurs, the program is worthless.

Since so much depends upon the amount of lasting, beneficial behavioral change that takes place within participating pilots, it seems logical that we should precisely identify the change desired. Once done, this then defines the course content and provides a fine means of measuring the effectiveness of the program.

One of the primary tools we use to accomplish this task is the *specific behavioral objective* (SBO). An SBO is simply a statement which specifically identifies a small segment of the final behavior sought, and a little more. The key work is *specific*. We pinpoint *exactly* what it is we want the pilot to *do* after completing training, and what we should evaluate from the point of view of both the program and the pilot.

It tells the junior crewmember exactly, specifically, what he should *monitor* and *support* insofar as the management function is concerned. It gives greater meaning to the term "second in command." And finally, it tells the supervisory pilot exactly what he should *observe, evaluate, and instruct,* insofar as the management function is concerned.

This means that we must specifically target our SBO's toward each flightcrew position--captain, junior crewmember and supervisor. Therefore, because each SBO represents only a very small segment of pilot behavior, we end up with a lot of SBO's.

At first we might think all we had to do to create a good cockpit manager is simply to teach him the necessary skills, as we do when we check him out in a new aircraft. But it's not that easy. A pilot will use only those skills which are consistent with his beliefs, his attitudes, his philosophy, and with his factual knowledge base.

A pilot's attitudes form a protective umbrella that permits those skills consistent with the attitude to flourish. Any skill which falls outside of this umbrella will soon perish. By the same token, the skills we use must also be supported by a strong and compatible knowledge base. Once again, any skills we are taught, which are not so supported, will also soon disappear from our normal practiced behavior.

The situation we are apt to find in the industry today, among experienced pilots, is a mish-mash of favorable, unfavorable, and missing management skills. Since we do not instruct our pilots in cockpit management methods, we find they have relatively few management methods, and some of those they have are not appropriate. One of the problems is that the protective umbrella of attitudes is not always proper, nor is the associated knowledge foundation.

Therefore, we must also work with attitudes and knowledge. We work with both in very much the same way we deal with SBO's that identify management skills. We call them attitudinal SBO's and knowledge SBO's. A true behavioral scientist might not like this, but it works for us.

We must eliminate the negative skills, and add positive ones to provide a well-balanced repertoire of skills protected by a strong attitudinal umbrella and knowledge base.

SBO's form a series of small, managable steps that lead inevitably to goal accomplishment. If we have a goal of a certain management style, we can teach behavior that is consistent with this style, and the goal will be attained.

Our SBO's are also designed to indicate the media that will be used to evaluate the behavior. We have primary SBO's which will be checked on each training and check flight. We have primary SBO's which can be observed and evaluated on the flight deck and will be checked during the LOFT or flight check associated with the study unit. Finally, we have secondary SBO's which cannot be adequately checked on the flight deck and some alternative, more academic, means must be used.

With SBO's we are able to precisely test the program to see how well he/she has learned. Each SBO is charted with respect to the course organization. Thus in testing with SBO's we are able to precisely test the program to see how well it teaches and test the pilot to see how well he/she has learned. If we find an SBO that is not being satisfactorily taught, we can easily troubleshoot the program and make modifications to improve teaching effectiveness.

From a trainer's point of view, the route to lasting, beneficial behavioral changes on the flight deck demands the development of a consistent and strong combination of attitudes, skills, and knowledge. Further details of how SBO's are used within our program are described in our hand-out material. Time simply does not permit a detailed discussion here.

As we have said, SBO's are but one tool that must be used to develop a successful cockpit management training program. We should not forget that we must build our programs on solid educational grounds. We must assure that we use sound instructional technology. It is only in this way that we shall develop truly effective programs directed at valuable goals--programs that may be effectively evaluated and efficiently repaired.

Some of the other factors we have found to be important include the following:

1) Time must be allowed for behavioral changes to take place.

2) Pilots must be given private time to *THINK* and for introspection. This is extremely important in this kind of learning, and we have found it to be the most important media used.

3) Our programs must be non-threatening to participating pilots.

4) Inasmuch as most programs of this type do impose upon the free time of the pilot, the material must be presented in convenient form.

5) Our programs must deal with real-world problems and be expressed in the pilot's language. The pilot must not be required to learn terminology of other disciplines in order to manage the flight deck.

6) The program must actively stimulate thought.

7) The program must accept the responsibility to adjust to the organization and the individual, rather than the other way around.

8) To understand our beliefs, we must put them in words. To understand them with precision, we must write them down.

As an illustration of one program's general instructional organization we present a breakdown of the instructional process used in *Cockpit Management - An Interactive Learning Experience*. This will be found following the summary.

SUMMARY

So far the pilots' reception of the program has been excellent. Their suggestions for improvement are actively solicited and incorporated whenever possible. One of its fundamental strengths is the fact that it was developed and is conducted for pilots by pilots. Almost everyone involved with the program is a highly-experienced, practicing airline pilot.

To the maximum extent possible every part addresses the practical needs of a professional pilot. By no means however, is the program in any final or perfect form. Every aspect of the industry is changing and the whole CRM subject is far from maturity on several levels. The program will therefore change to meet the pilot's changing needs, and it will definitely improve as our collective experience with the problems and issues addressed by this workshop increase.

It may be difficult to understand why this young company is willing to commit substantial resources to such an ambitious project that is neither required by the FAA nor based on any tried and proven foundation. Much of its success is clearly attributable to a fundamental business and leadership philosophy throughout the entire organization that is directly aligned with the basic tenets of Cockpit Resource Management theory.

Several of the original advocates of CRM training were recently promoted to key management positions in the organization. Needless to say, more and more of the entire enterprise's activity will proceed in a "resource management" context. It must be remembered also that those creative young professionals that started the painstaking process of building the airline back in 1981 have grown into fearless problem-solving experts who can accomplish almost anything they decide to. Finally, and probably most importantly, many of the individuals involved with this project are motivated by the desire and this rare opportunity to make a significant and lasting contribution to aviation science and the quality of air transportation.

THE INSTRUCTIONAL PROCESS

INSTRUCTIONAL GOAL: To produce lasting beneficial behavioral change based on the SBO's related to cockpit management and upon which the curriculum is based.

INSTRUCTIONAL PROCESS: This is *how* we learn and is indicated in the first column--reading, writing, listening etc.

INSTRUCTIONAL TECHNIQUE: The conceptual methodology of instruction used in the program. This is shown in the next column and includes such techniques as self-study, tutorial, group interaction, expert input and so forth.

INSTRUCTIONAL MEDIA: The means of communicating instructional information. This is indicated in the third column and shows the media selected--text, audio tape, workbook, tutorial, role play--like that.

INSTRUCTIONAL STRATEGY: The instructional plan to be used to attain instructional goals. The fourth column gives an abbreviation for the instructional strategy involved. The code is shown below:

C -- Credibility

E -- Economy

I -- Interaction

R -- Real world material dealing with problems pilots will relate to easily.

C.S. -- Case Study

CON-- Convenience for participating pilot.

IDQ -- Interactive Discussion Question

MLT-- Multiple learning technique--basic course material presented in a variety of media.

TDQ-- Team Discussion Question

RED-- Redundant (Although not used as a code, this strategy exists throughout the program and is designed, through careful timing and sequencing, to gradually flatten the forgetting curve.

The last column shows the type of SBO's. The code is as follows:

A --Attitudinal SBO's
B --Skill SBO's
K --Knowledge-based SBO's

LEARN-TEACH PROCESS	TECHNIQUES USED	MEDIA USED	STRATEGY USED	PRIME SBO's
Reading	Self-Study	TEXT	MLT,R,I,CON,E	ABK
	Tutorial	IDQ Response	MLT,R,C,I,CON	ABK
	Group Inter.	Case Study	MLT,R,C,CON,E	AB
	Expert Input	Suppl. Rdg.	MLT,C,I,CON,E	AK
	Self-Eval. Study	Flash Cards	MLT,I,R,CON,E	K
	Self-Eval.	Self-Quiz	MLT,I,R,CON,E	K
	Person Invent.	Prog. Inter.	I,CON	A
Writing	Prog. Inter.	Workbook	MLT,I,R,CON	K
	Tutorial	IDQ Response	MLT,C,I,CON	AB
Listening	Self-Study	Audio Academic	MLT,R,I,CON	ABK
	Expert Input	Audio Panel	MLT,C,I,CON	ABK
	Prog. Inter.	Audio Situat.	MLT,R,I,CON	AB
	Tutorial	IDQ Response	MLT,C,I,R	ABK
Seeing	Self-Grp. Study	Graphics	MLT,I,R	ABK
	Group Inter.	Video-LOFT	MLT,C,R	B
Doing	Practice	Hands-On	MLT,R,I,C,CON	B
	Pract.-Eval.	LOFT	MLT,R,I,C	B
Thinking	Tutorial	IDQ's	MLT,R,I,C,CON	ABK
	Group Inter.	TDQ's	MLT,R,E,G	ABK
	Group Inter.	C.S.Analysis	MLT,R,G,E	AB
	Group Inter.	Debriefs	MLT,R,CON,E	AB
	Self-Study	Self-Eval.	MLT,R,CON,E	AK
	Self-Study	Flash Cards	MLT,E,R,CON	K
Interaction	Tutorial	IDQ's	MLT,R,I,CON	ABK
	Group Inter.	TDQ's	MLT,R,G,E	ABK
	Group Inter.	Role Play	MLT,R,G,E	AB
	Group Inter.	C.S.Analysis	MLT,R,I,CON,E	AB
	Pract-Eval.	LOFT	MLT,R,G	B