Practice makes perfect

By Charles Rizzo

A famous Australian trumpet player was invited to give a pep talk at one of the prestigious private schools in Melbourne Australia. During the question and answer session, the principal of the school, wanting to drive home for his students the importance of studying and practicing, asked the trumpet player how often he practised the trumpet. To the principal's surprise and the students' delight, he responded "Never!! I play the trumpet every day at clubs and get paid for it".

To a certain extent this applies to controllers who keep improving their skills after formal training simply by going to work every day and performing their functions. Many controllers rightly believe that, "practice, practice, and more practice" are keys for continuous improvement and this is where the competency assessor plays a pivotal role.

Controllers improve by experience, by encountering difficult situations and learning how to deal with them or avoid such situations the next time they encounter the same or similar situation. Controllers improve only if they maintain a professional attitude at work and have a genuine desire to learn.

Charles Rizzo

is a team leader Continuation & Development Training at at EUROCONTROL's Upper Area Control Centre in Maastricht. He is an experienced Tower, Approach and Area ATCO with operational experience in Malta, Middle-East and Australia.

However, experience in performing the daily ATC routine alone does not suffice. The type of experience also matters and controllers will improve by experiencing difficulties and learning how to overcome them. Due to the difficulty in taking controllers off operational duty, little formal training is available to controllers after they become qualified, apart from refresher training and Team Resource Management. Controllers continuously learn both how to do things and how not to do things by observing other controllers working.

Many controllers these days may go through lengthy periods without ever having to handle any traffic situation which presents anything out of the ordinary. (Many controllers describe their job as 90% boredom and 10% sheer panic!!). This may reinforce the need for the controller not only to maintain his existing skills, but to upgrade existing knowledge and skills especially in dealing with unusual situations, in degraded systems and in emergencies, so that when something unusual occurs, safety is not impaired.

The ops room environment makes continuous learning more difficult as it is not conducive to improvement. The inherent risks and safety considerations associated with the job make live training in emergency procedures impractical. And let's face it; refresher training and computer-based instruction may be considered with scepticism by the controllers. In our experience many of the controllers have not even attempted the dedicated computer-based refresher training modules!!

Refresher Training generally occurs in a simulator environment which is a calm and safe environment. This type of environment is designed to be conducive to learning, and it allows the controller to practice skills and emergency procedures in an efficient manner.

It is now more common practice to include a degraded systems module as part of the refresher training. The refresher training for the controllers at MUAC includes 2 hours of simulator exercises with degraded systems. Also, three times a week the controllers at MUAC operate with the back-up voice communication systems for training and to check the system

Yet actual work conditions associated with a real in-flight emergency are often quite unlike those found in the simulator environment. In fact, the time pressure, unfamiliarity with the situation, the uncertainty, and confu-

sion that occur under stress conditions due to a real in-flight emergency often create a substantially different work environment to that experienced in a normal training session in the simulator.

Thus, even when an emergency procedure is well practiced and learned in the simulator, when used for the first time in a live high stress environment, severe degradation in controller performance can be caused.

Training, therefore, should allow some degree of pre-exposure to the stress one would encounter in a live environment.

Furthermore, use of the skills acquired in formal training and now practiced in Refresher Training in a stress environment should allow the controller to adapt performance and develop strategies for dealing with this environment. Introducing stressors in emergency training reduces uncertainty and anxiety regarding the handling of emergency situations and increases the confidence of the controller in his ability to perform in this stress environment. Unusual circumstances and emergencies that have been experienced during training, under stress conditions equivalent to the operational environment, will be less distracting when faced in the operational environment for the first time.

Realistically there is a limit to the degree to which characteristics and stress of the training environment are similar to those of the operational environment. Many controllers, when attending refresher training, moan about the fact that the emergency training will never approach or capture the "life-threatening" feel of the real world. The controllers are aware that when they are doing emergency training, as part of their refresher training, that they are in a safe training environment.

However, a well-designed training simulation can be quite involving and can "feel" like the real thing without imposing extreme or unwarranted levels of stress on the controller. Moreover, an unwarranted level of stress, even done in good faith to capture the stress of a real life emergency situation, is not desirable. If stress, in the form of traffic workload, complexity and emergency situation, is too high in training, the controller may receive a negative training experience. We may have experienced situations where simulator training in general and refresher training in particular was used to find the breaking point of the controller.

Research has suggested that stressors introduced at a moderate level, compared to the stress encountered in the operational environment, during training can provide an effective and realistic representation of the operational stress environment.

Preparing controllers to perform under high-stress conditions, in unusual situations, in degraded systems and in emergencies requires the controller to be highly skilled, familiar with the stress environment, and to possess the special knowledge and skills necessary to overcome the deficits imposed by high-stress or high-demand conditions.

Traditionally, the focus of controller training has been on fulfilling regulatory requirements. Effective handling of traffic by the controller in unusual circumstances and emergencies was considered as an inherent by-product of the controller's technical skills training. However, a growing number of recent incidents and accidents in ATC and aviation have indicated that effective handling of emergencies requires more than technical skills (Kirwan et al, 2005).

Consequently, it is clear that the requirement to periodically provide all controllers with training for unusual circumstances and emergencies is not just a regulatory requirement. But is refresher training the best way for controllers to maintain and enhance their skills and improve the air traffic service provided?

After all, perhaps we cannot all play at clubs and get paid for it.