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HELICOPTER PILOT'S OPERATIONAL TRAINING²³

The helicopter force of the Hungarian Defense Forces had to face some newly arose challenges during the past few years. In connection with its tasks related to NATO obligations, it must fulfill helicopter pilot mentoring in Afghanistan. Upon the predeployment preparatory training the need emerged to amend the home based peacetime training structure. The subject of the amendment is the operational training, which built upon the long achieved experience in Afghanistan. The aim of writing this study is to show the tasks and challenges that has came onto the surface related to home based helicopter pilot's operational training.

HELIKOPTERVEZETŐK MŰVELETI KÉPZÉSE

A Magyar Honvédség helikopteres fegyverneme az elmúlt években új típusú feladatrendszerrel kellett hogy szembesüljön. A NATO kötelezettségekre épülő feladatrendszere kapcsán helikoptervezetői mentorálási feladatokat kellett – és jelenleg is kell – ellátnia Afganisztánban. A műveleti terület feletti mentorálási feladatra történő felkészülés kapcsán felmerült az igény a hazai békeidős képzési rendszer kiegészítésre. A kiegészítés tárgyát az Afganisztánban már megszerzett tapasztalatokra épített helikoptervezetői műveleti képzés képezi. Jelen tanulmány megírásával az a célom, hogy bemutassam azon feladatokat és kihívásokat melyek a hazai helikoptervezetői műveleti képzéssel kapcsolatban felmerültek.

PREFACE

Since the end of the Cold War, the world has been in a state of significant transition marked by increased uncertainty and vulnerability. The strategic environment is much less stable than in the past, and threats to NATO interests are more diverse and less predictable. In this era of complex national security requirements, the military must embrace a wider range of missions that present even greater training challenges [1].

However personnel turbulence, key-leader turnover, high operational tempo, and new war equipments present a demanding set of training challenges, training for combat readiness is NATO's number one priority in peacetime since all the military leaders at all levels are responsible for the successful operations on the battlefield.

At present, to “train the way we fight” principle, commanders and leaders conduct training in a way that ensures mission performance in the contemporary operating environment. The training – as it always has been – is a continuous, lifelong endeavor that produces competent, confident, disciplined, and adaptive soldiers.

Understanding how to conduct tough, realistic training at every level of the combatant

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force, sets the foundation for successful multiechelon, joint, and coalition operations. But resources for training are not unconstrained; they compete with other resource demands. For instance, “Time” is the inelastic resource, which has never been enough. For this reason all leaders must focus training on warfighting skills, and make that training the priority.

Although the threat of enemy activities in our region is not significant, we must realize the present threat of terrorism which poses direct menace against our worths. Helicopter forces are playing mainly a combat support role at war activities. Modern warfare participants, like light infantry forces, closely rely on the capabilities that the helicopter forces can grant. These essentials are like the freedom in movements, high maneuverability during deployments and close air support. To be an efficient support element, helicopter pilots must be highly trained to understand the operational environment, and to cope with the operational tempo.

DESCRIPTION OF THE IDEAL HELICOPTER PILOT’S TRAINING METHOD

Right before I start to describe the ideal helicopter pilot’s training method, I have to underline the importance of the proper candidate preselection. It is essential to explore and evaluate the natural born pilot abilities, if there any. These abilities – like the cadet can keep his equilibrium while managing his or her task in the “multi informational” environment, his balance system can manage harsh flying conditions, he has an appropriate manual dexterity to carry out flying manoeuvres – are to provide proper basement for time-consuming and thrifty training.

After this clarification let’s turn back to the training issues.

Ideally, each of the pilot training – doesn’t matter if it is for a fixed or rotary winged purpose – stands on 3 main pillars. Those are the basic-, the advanced- and the combat or operational training.

The basic training, as a concept, could be further divided into sub trainings like: theoretical training, pre-flight simulator training and a practical training. The aim of the theoretical training is to provide adequate knowledge for pilot cadets to carry out their futurous practical (flight) training. The successful completion of the pre-flight simulator training grants a solid basement for a practical training since the cadets in the simulator must achieve confidence in basic helicopter controlling techniques. As the finishing point of the basic training the cadets accomplish their practical training. This first part of the training can be considered as a kind of a helicopter pilot’s preselection. Only those pass this phase, who can achieve a certain level of proficiency. The result of the basic training is a trained cadet, who has capable to carry out his advanced training.

The advance training phase includes all the training elements which are essentials for the futurous combat training. These are: the Low-level-, NOE⁴-, formation-, NVG⁵-, brown-out⁶-,

⁴ NOE =Nap-of-the-earth. It is a type of very low-altitude flight course used by helicopters to avoid enemy detection and attack in a high-threat environment. During NOE flight, geographical features are used as cover.

⁵ NVG = Night Vision Goggles.

⁶ Brown-out =It is a dangerous phenomena experienced by many helicopter pilots when making landing approaches in dusty environments, whereby sand or dust particles become swept up by the rotor outwash and obscure the pilot’s vision of the terrain.



mountainous-, sling load and basic tactical manoeuvre training. Upon the budgetary reasons, usually these training elements are to be completed on light turbine helicopters. In addition to the flying training, there are some ground based elements which are compulsory to complete.

Each of the cadets must fulfil the requirements of the Survival- (SERE B⁷ land-, water-, winter- and mountainous training), a Combat life saver- and a Land tactical course. Completing the Survival and Combat life saver courses gives practical knowledge for the cadets about what and how to do if their helicopter emergency lands on the hostile operational field. The Land tactical course is to get knowledge for a common understanding between the combatant and the combat service (helicopter) units on the land operations and on the tactical procedures used by the land force. The result of the advance training phase is a well-trained helicopter pilot, who is ready to carry out his combat training. From this point we are not talking about a “cadet”, now he is a “helicopter pilot”.

It must be emphasized, that from the achieved operational training level of view, he is classified into the “under training” category.

The classification refers to its name. “Under training” category means, that the helicopter pilot has just started his operational training on the given helicopter but hasn’t achieved any of the milestone training levels. These milestones – as an example – could be the successful fulfilment of VFR⁸-, IFR⁹- or even an NVG training. But, back to the training process.

After finishing the advance training phase, the helicopter pilot starts his combat training. For the first step he must be retrained to a given combat helicopter. This training is called to be a “Conversion training”. During the theoretical part of the conversion training the helicopter pilot must learn the helicopter itself (the structure and the systems). The practical conversion training facilitates the pilots to learn the controlling specifications of the given helicopter. Not just the helicopters, but simulators are the training aids for it. The actual combat training can start just after the conversion training. The combat training is specified by the helicopter used.

Considering combat helicopters this training includes:

- Close Air Support for the land force and for the escorted transport helicopters;
- Air policing action against low-level and low-speed flying airspace violator;
- Suppression of the enemy’s air defence;
- Air reconnaissance;
- CSAR¹⁰ mission;
- SOF¹¹ operations;

⁷ SERE =Survival Evasion Resistance Escape. SERE B stands for a training level which comprises both a theoretical and practical survival training elements until the capturing and interrogation. Capturing and interrogation belongs to the SERE C level.

⁸ VFR = Visual Flight Rules. VFR is a set of regulations under which a pilot operates an aircraft in weather conditions generally clear enough to allow the pilot to see where the aircraft is going. The pilot must be able to operate the aircraft with visual reference to the ground, and by visually avoiding obstructions and other aircraft.

⁹ IFR = Instrument Flight Rules. IFR means to govern flight under conditions in which flight by outside visual reference is not safe. IFR flight depends upon flying by reference to instruments in the flight deck, and navigation is accomplished by reference to electronic signals.

¹⁰ CSAR = Combat Search and Rescue.

- Urban warfare;
- Participation in anti terrorist actions.

As for the transport helicopters, this training must contain the following elements:

- Air transportation (for combat and logistic purpose);
- Support of the air mobile forces;
- SOF and CSAR operations;
- MEDEVAC¹² and SAR¹³ missions;
- Air reconnaissance;

Category „Light” helicopter pilots must complete the below listed training elements:

- Support of aerial C2;
- Support of electronic warfare (aerial jamming);
- Air transportation (for combat and logistic purpose);
- SOF operations;
- MEDEVAC and SAR missions;
- Air reconnaissance, aerial targeting and fire adjustment.

The above described training method is shown on Figure 01.

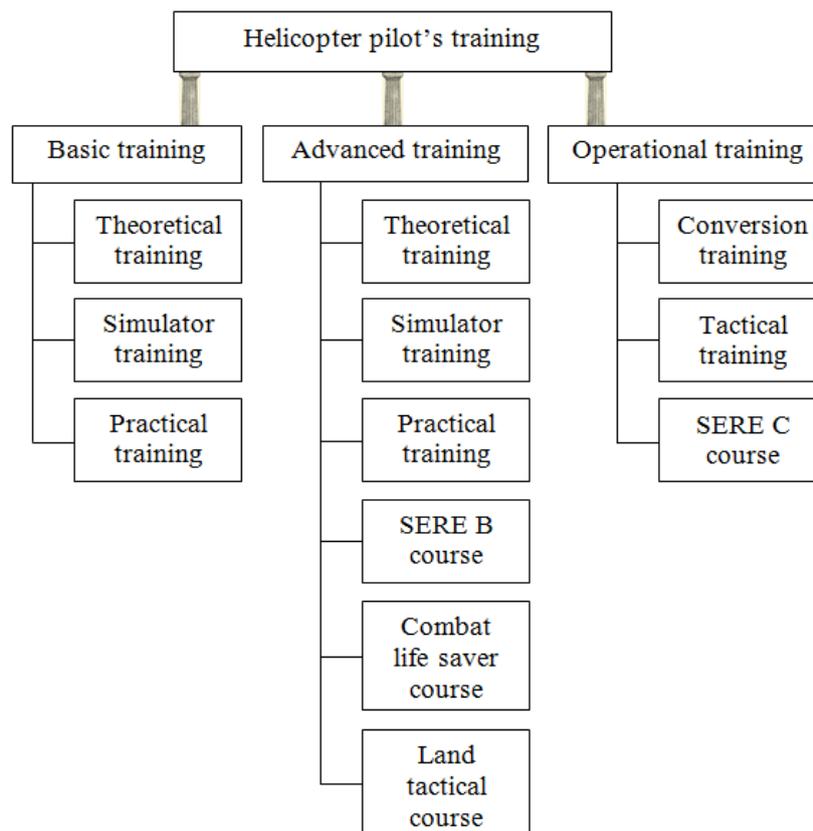


Fig. 1. Helicopter pilot's training structure

¹¹ SOF = Special Operations Forces.

¹² MEDEVAC = Medical Evacuation.

¹³ SAR = Search and Rescue.



COMPETING WITH PRESENT CHALLENGES

From the individual training, until the joint exercises:

The basics for all helicopter pilot training start at the individual level. The AARs¹⁴/AMTs¹⁵ from present missions suggest that pilots graduating from flight schools with no operational experiences are not ready for the challenges of combat [2]. The training programs of the flight schools do not fully prepare pilots for the rigors and operational tempo that erupts during combat. Young pilots do not have the experience to handle the stresses and challenges of combat. Consequently, in order to meet the arising challenges of operational areas the helicopter pilot schools must devise a plan to better prepare their cadets before they join an operational unit. Helicopter pilots must be prepared in communicating, planning, and executing missions. Due to the high operational tempo currently, for instance at the US Army, commanders are not afforded with the training time that is currently needed to prepare pilots for challenges of combat, since once pilots are trained in a specific aircraft, they need to immediately begin mission training for their particular aircraft [2].

The referred tactical training must be tailored to handle the current tactical problems that the pilots can be expected to face. Pilots must be trained on communicating and working with maneuvering land force commanders and forces so for this reason they must commence air-to-ground integration training. Even though this technique takes years for aviators to perfect, it can be taught and trained during the Advance and Combat training phase.

Once weapon systems and engagements are understood, pilots must be trained on combat roles during live fire scenarios.

The newly arose individual training task is to have additional course on digital communications and to handle digital data. As the modern warfare moves toward digital communications, all helicopter pilots must be able to fully receive and transfer digital messages and handle their digital devices. Additionally, they must receive periodic training at their home station to keep their proficiency.

Another crucial task for helicopter pilots, that they must be proficient in the use of NVGs. The recent combat operations proved that helicopter pilots need those advantages that NVGs can guarantee for them. With the improving number of special- and scout operations the usage of NVGs has become even unavoidable.

Until this point we have been dealing with individual flight training, but to reach the real combat capability the training syllabus must step to crew-level flight training.

After an individual pilot is certified in all basic tasks, he must be crewed with another trained pilot in order to create an efficient aircrew. The well-trained aircrews know how to employ their aircraft and their weapon systems even prior to arriving in a combat zone. In order for a helicopter aircrews to be efficient, they must be given enough time to fly and train together. Training

¹⁴ AAR = After Action Review.

¹⁵ AMT = After Mission Report.



together helps the crews develop positive habits, such as transferring the flight controls.

Even though transferring the flight controls is a basic task, it should not be taken for granted while maneuvering under enemy fire. This situation create additional confusion in the cockpit. Providing additional training time to the crews can help reduce the confusion of maneuvering under enemy fire. The more they fly together, the more experince they gain and more effectively they can manage war cases.

Also the aircrew members, which get well used to each other can reduce their amount of internal communication if they train together. Reducing internal communication allows the pilots to monitor more radios simultaneously. Since a cockpit can have up three radios communicating during a battle, there is little room for crews to communicate internally, while maintaining their overall battlefield situational awareness.

The crew-level flight training is usually conducted at the unit level (as it is in Hungary). In combat, soldier's lives are at stake and may depend on quality aviation crewmembers. Crews must know how to maneuver their helicopters in urban combat while supporting the ground commander's mission or need to have a thorough understanding of convoy security, which consist of suppressing or destroying the enemy in order to allow the convoy commander to respond to the threat [3].

Since specific TTPs¹⁶ have been developed and trained at unit level, the helicopter pilots have a clear understanding on this training prior to arriving at their unit's first assignment. The affordable time, spent on this training field is essential. If training time is not afforded to the commander to install the basic combat skills for pilots who do not already possess them, leads to fatal consequences during the missions over hostile territories.

Finishing crew-level training, the so called "Combat Ready" crews must turn to joint trainings. On this field the helicopter TTPs must be framed into tactical situations where various Armes and Services are battling together. The most repeated AAR/AMT comment is "the need for more joint training exercises" [3]. Since the military is normally operating in a joint force and conducting joint combat missions, the need exist for more joint training. Training together creates „know-how" for the aircrews to better support the ground maneuver commander.

Joint trainings are conducted on live exercises, which could be nation-leveled and also a multinational to build up interoperability capabilities. Joint training exercises provide the opportunity for the military services to grow together. Working and growing together prior to arriving in a combat theater sets the foundation for success in combat. Therefore, joint training exercises must be conducted under all types of environmental conditions and at every possible training opportunity. These joint trainings or exercises are always mission-related, while one collective task or a group of related tasks are trained and practiced on the doctrinally-preferred method.

The overall purpose of joint training is to prepare the aircrew to execute missions as part of a joint force, conducting joint military operations across the full spectrum of operations.

¹⁶ TTP = Tactics, Techniques, and Procedures.



The high value benefit of conducting joint training exercises is for the aircrews to learn the capabilities and limitations of the other Services. Since each component of the Arms has different strengths and weaknesses, joint training exercises are an excellent way for the Service members to learn. Joint training uses joint doctrine, TTP, and involves more than one Service component.

However, the planning for conducting a joint training exercise is very complex procedure, it is essential both for aircrews and for supported – mainly – land force related units. Joint training exercises also require enormous budgets due to the high cost associated with land and aviation mutual operations.

Overall, the shift toward a more joint force is welcomed due to the services supporting the other's weaknesses. Finally, communicating together, which includes understanding all capabilities and limitations, creates more desirable lethal effects for the ground maneuver commander.

SUMMARY

As for the summary, we have to understand that the aim of all trainings is to achieve high standards. As for it, trainers integrate realistic conditions such as imperfect intelligence; reduced communications; smoke; noise; ROE¹⁷ anomalies; simulated NBC¹⁸ environments; battlefield debris; loss of key leaders; civilians on the battlefield and varying extremes in weather.

Unit leaders must take every opportunity to move aircrews out of the classroom into the field, fire weapons, practice tactical flying maneuvering as a combined arms team, and incorporate protective measures against enemy actions. These tough, realistic, and physically challenging trainings excite and motivate the aircrews. Moreover, realistic training builds competence and confidence by developing combat skills.

It is identified, that aircrews can be trained better, faster, and to a higher degree of proficiency when they know the task, condition, and standard. Likewise, training is more effective when it is performance-oriented and standards-based [2]. Enforcing standards allows trainers to identify and correct training deficiencies, resulting in a more accurate assessment of combat capabilities. The complexity of the conditions is increased as the aircrew's performance levels increase, while the standard remains constant. The aircrews must execute planned training and trainers must evaluate continuously their performance. Retrain is commenced until the standards are achieved under the most realistic conditions possible.

The throughout battle focus during the whole training process is used to derive peacetime training requirements from assigned missions [1]. The priority of training on unit level is to train to standards built upon wartime missions. This battle focused view guides the planning, preparation, execution, and assessment of each organization's training program to

¹⁷ ROE = Rules of Engagement.

¹⁸ NBC = Nuclear, Biological, and Chemical.



ensure that its members (aircrews) train as they are going to fight.

Knowing the task, assessing the level of proficiency against the standard, and developing a sustaining or improving training plan is the essence of all the trainings in order to reach the prime goal: the operational readiness. Training and education enhances military knowledge, individual potential, initiative, and competence in warfighting skills.

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