

Basic Concepts of Modern Shooting Galleries Design

Sergiy Zlepko, Dmytro Shtofel, Sergiy Kostishyn, Sergiy Tymchyk

Abstract – In this paper the problems of modern shooting galleries developing is represented. The list of obligatory criteria of its design is established.

Keywords – Shooting Gallery, Biotechnical Systems, Fire Training, Vocational Training.

I. INTRODUCTION

Today there is a wide number of problems connected with the organization and proceeding shooting activities using fire-arms for fire training in structures whose work is connected with extreme activities (police, the Armed Forces, security organizations) [1, 2]. Such situation leads to lower quality level of combat readiness of service officers of these services and, consequently, reduces the effectiveness of their professional activity. Unfortunately, the majority of modern shooting galleries cannot maintain a high level of training of personnel [3].

II. DESCRIPTION OF PROBLEM

One of the main causes of improper possession of service firearms is not only technical but also psychological unpreparedness of employees of power structures [4, 5]. One of the major drawbacks of any training is shooter awareness of simulated situations, although modern multimedia technologies, combined with story shooting modes, video and audio special effects allow to build maximum effect of immersion into an extreme situation.

On the other hand, particularly at the early stages, the main purpose of the training process is the acquisition of necessary functional and psycho-physiological skills of firearms possession: it's holding, aiming, understanding feedback, etc. Therefore aspects of diagnostical training process and detect errors at this stage for further sustained successful use of real firearms.

This situation requires finding new more effective methods for organizing and conducting training process and developing new hardware and software systems that would provide technical support to established methods.

This shows the need for simulation of multifunctional complexes – biotechnical simulators, the use of which opens up new possibilities for organization of fire training of beginners and high qualifications shooters.

To ensure effective training process, the design of such complex should focus on the following objectives:

- reducing the cost of training;
- providing high realistic training;
- safety training;
- providing shooter physiological indicators control;
- providing control of the training process dynamics.

Sergiy Zlepko, Dmytro Shtofel, Sergiy Kostishyn, Sergiy Tymchyk – Vinnytsya National Technical University, Khmelnytske Shose, 95, Vinnytsya, 21021, UKRAINE,
E-mail: smzlepko@ukr.net

It can be achieved using the interactive laser shooting galleries in conjunction with hardware to ensure realism and provide psycho-physiological state diagnostics of the shooter and software for data processing.

The main advantages of interactive laser shooting gallery is that they use any preprepared graphics or other videos as targets that allow to form an extremely large number of actual battle scenes. Due to dynamical scenes using appears an opportunity to influence on the development of interactive story considering the effectiveness of fire. This technology provides the use of any firearm type and allows to train the shooters of different specialization.

III. CONCLUSION

Interactive laser shooting galleries and their modified versions allow to train shooters, policemen, soldiers and sportsmen in the following areas:

- initial fire training (training correct rack, breathing, power endurance development and holding hand with weapon, aiming, trigger pulling control, distribution of attention);
- testing, maintaining and improving the skills of sighting static firing;
- maintaining skills of gun holding and sighting while moving of shooter and of target;
- improving the skills of intuitive shooting and shooting for instance in restricted visibility and time;
- testing the applying of firearms in different situations using the dynamic scene modes;
- development of personal control when working with weapons;
- testing coordination while complex shot execution.

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