

# *Educational Platform for Personal and Community Protection Situations from the Perspective of Soft Targets*

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**Abstract**— In the case of violent attacks, professional help is often unavailable for many minutes before they arrive. Citizens who are at the scene of an attack are the only ones who can react immediately. A prompt and effective response is often a key aspect that determines the number of victims. The security potential of citizens is an important part of the response and resilience of the soft target. Many citizens are aware of and accept this responsibility. They educate voluntarily for the case of a violent attack. However, they acquire this knowledge unsystematically. Our educational platform takes advantage of the multimedia form of education. It contains first-person video sequences in which the user is exposed to a violent security incident. The incident is divided into many points where the user decides what to do next. Based on these decisions, the student will see the consequences of their decisions and recommendations for improvement. User abilities and equipment are defined according to the input questionnaire. The video simulator shows the user the options he would have if he were to live in this situation.

**Keywords**— *terrorism, soft target, citizen, self-defense, education*

## *I. INTRODUCTION*

One of the security phenomena of today is soft targets. Places where a large number of people are concentrated and at the same time unprotected against violent attacks. The question of how to secure these targets has been reopened by the wave of Islamic terrorism that has hit the Western world in recent years in particular. But it is not just about terrorism. These targets are also subject to non-terrorist violent attacks - active shooters, attacks on people with mental disabilities and, last but not least, criminals. These cases happen every day, and many experts are looking for solutions to increase the security of these soft targets. Soft targets have a common denominator - the attacker's goal is to cause casualties. In my research, I focus on the possibilities of how to exploit the security potential of the soft target itself - the people. I believe that people themselves are the best security measure against violent attacks. But their prerequisite is their willingness and motivation to defend themselves, as well as their knowledge and ability to defend themselves. That is why I am working on the way to categorize and educate people in this area

in terms of personal protection. Many people are interested in learning of the self-defense and getting useful information. However, they often do not want to attend expensive courses. Without repetition, however, efficiency declines rapidly. I believe that an interactive multimedia platform can greatly help people to be prepared to protect themselves and their surroundings.

## *II. SOFT TARGETS*

Ob. Cit.: "As "Soft Targets" can be referred to those objects, (open) spaces, or events characterized by the accumulation of a large number of people, the absence or low level of security measures against violent assaults and their omission among critical infrastructure and hard target objects." [1]

By this definition, Soft Targets have three basic assumptions:

- a large concentration of people
- low or no level of the security against violent attacks
- does not belong to the category Critical Infrastructure or Hard Targets [1], [2].

In our research of Soft Targets, we added two more categories – the attractiveness and interest of media.

Terrorists attack at targets that symbolize the values they fight against. In the case of Islamic terrorism, these are symbols of Western civilization - consumerism, different religion or atheism, and more.

Their attacks are demonstrative. Therefore, they choose places with a large number of people and a large media impact. The aim is to spread fear among the citizens of the country and to publicize their actions.

Soft targets, however, do not only face terrorist attacks. Much more common cases are attacks with different motivation. Mental problems, feelings of alienation, chinks, criminal activity. These active shooters, criminals, and crazy attackers are the same threat to soft targets with the same consequences. Like

terrorists, they choose the same types of targets. It seeks to maximize victims in places that are not very protected.

Soft targets include:

- Shopping Centers and Shops
- Schools, Student Accommodation Blocks
- Religious Monuments and Places of Worship
- Cinemas, Theaters, Concert Halls, Museums
- Entertainment Provision Locations - Bars, Clubs, Discos
- Restaurants and Hotels
- Tourist Landmarks and Points-of-Interest
- Sports-halls and Stadiums
- Major Transport Hubs – Train/Bus/Metro Stations
- Hospitals, Polyclinics, Local health providers
- Public Assemblies
- Cultural, Sports or Religious Events, etc. [2][3]

### III. POSSIBILITY OF CITIZEN PARTICIPATION

There is no systematic concept in the Czech Republic that would involve citizens' involvement in the country's security system or exploit their potential to protect people in a violent or terrorist attack.

Strategic state documents mention that citizens are part of the state defense. However, it is not defined how such a citizen's involvement should look in practice.

However, some citizens accept responsibility for their personal safety and the safety of their surroundings. They voluntarily prepare themselves for the case of need to intervene against the violent attacker. Their preparation consists of carrying of defense equipment, first aid equipment, individual knowledge acquisition, training and improvement in key areas. [4,5]

The potential of citizens for contributing to the security of soft targets (which citizens themselves are part of) is very significant.

Statistics show that 35% of defensive situations can be effectively resolved only by the citizen himself (in-house residents, at his place of residence, etc.). 65% of defense situations can be dealt with by state authorities only preventively and strategically. [4,5]

Education in security in the Czech Republic is at a good level. Most educational institutions are mostly focused on a specific part of security. The most common areas of educational programs are technical security and defense of the state. Commercial security is a new educational field. Until the 1989 revolution, this kind of industry was not allowed. However, education in this area is now at a very good level comparable with more developed countries.

However, the gap in education is the self-defense. There are enough courses, seminars and training programs. However, they have diametrically different quality. Due to this difference in quality, there are several major shortcomings:

- There are many myths and superstitions that negatively affect citizens' motivation to defend themselves.
- There are many schools of martial arts, sports and systems. Their quality is very different. It may happen that a citizen chooses, due to a bad example, the wrong approach to the self-defense and defense of their surroundings.
- Quality institutions may not be well known due to their lack of promotion.
- Self-defense is burdened with myths spread by the media through the Internet. This helps spread myths, superstitions, distorted information and untruths.
- There are very few really good self-defense and pro-defense teachers in the Czech Republic.

The best way for a state to help its citizens to their safety in the event of a violent attack is prevention and methodically support their education in this area. The solution of the incident, before police arrive, is an initiative of the citizens. [4,5]

If a citizen is really determined to learn and improve in personal security and self-defense, there are many thematic courses led by experienced instructors. The courses focus on many beneficial topics such as defense without weapons, the use of defense weapons, the use of firearms in self-defense, as well as crisis communication or first aid.

Important is not only the technique of their use but also the correct evaluation of the situation when and how to use these things. It is the appropriate assessment of the situation and the use of defense at the right moment that is one of the key aspects that must be learned and trained.

### IV. ASSESSMENT OF CITIZEN COMPETENCE

If we have to approach methodically and systematically to support and educate citizens in their voluntary participation in personal security, it is necessary to categorize citizens according to their level of knowledge, ability and daily routine of the equipment they carry with them daily (EDC - every day carry). Obviously, different citizens are at different defense capabilities. Only by categorizing them is it possible to approach this topic scientifically and to work on this area on the basis of measurable values.

In my research [5, 6] I work with a list of questions, which in the form of a questionnaire profiled person in terms of their ability to respond effectively in case of the violent attack.

The questions are grouped into three categories that are important in the area of personal protection:

- Knowledge of crisis communication

- Self-defense knowledge
- First aid knowledge

These three areas are the most important in the event of a violent attack and each has their own questionnaire.

Questionnaires were created to determine the level of knowledge and skills of a person in a given category. Although the questions may seem irrelevant, they are created on the basis of experts in the areas of crisis management, psychology, emergency medicine, self-defense systems and close protection.

The questions acquire information about the active involvement of the citizen in the given categories, but also reveal the passive predisposition of the person. An example is a question about watching TV series from the medical environment. This does not replace a person's medical education but increases the person's understanding of basic medical terminology, principles of first aid, etc. It also stores in the subconscious memory numbers on IRS emergency lines that may be forgotten in a highly stressful situation. Last but not least, they show a lot of footage of blood and increase the individual's psychological resistance when looking at such injuries. It is thus a greater chance that there is no stagnation and freezes moment when first aid is required.

First Aid Questions:	Value:
Are you a doctor or a paramedic?	yes = 5
Do you have a medical education?	yes = 5
Did you take a first aid course?	yes = 5
Have you provided first aid in the past?	yes = 4
Do you know the VIEW - REACT - THINK rule?	yes = 4
Do you know how to perform an indirect heart massage?	yes = 4
Have you ever treated larger bleeding?	yes = 3
Do you go through first aid training in your work?	yes = 3
Can you treat a person who has an stabbed object in his body?	yes = 3
Do you carry a first aid kit with you?	yes = 2
Can you apply stabilized position?	yes = 2
Do you have children over 15 years age?	yes = 2
Do you have a driving license?	yes = 1
Are you an organizational type of person?	yes = 1
Do you watch medical films / series?	yes = 1

Fig. 1. Questions – First Aid [5]

Each question has a numerical value. If responder answer positively (yes) on that question, the value of question counts in total sum for that category. Negative answer (no) have value equal zero (are not counting in total sum). Respondents are counting values in each category separately. Sum in each category is pointing to one of three intervals, which symbolize

the respondent's level in each category. The table below determines intervals and levels where respondent belongs due to his answers.

CATEGORY	INTERVAL		
	0 - 17	18 - 33	34 - 45
Crisis Communication	I	II	III
Self-Defense	I	II	III
First Aid	I	II	III

Fig. 2. Intervals [5]

The level of the respondent in each category refers to four types of recommended approach (A, B, C, X) in the chart below where the respondent can choose his own level in each category and type of attacker. The letters “A, B, C, X” refers to the recommended procedure in the manual, which is currently in progress.

DEFENDER		ATTACKER - INDIVIDUAL					
zone	level	hands	blunt weapon	cold weapon	firearm	v	
Crisis Communication	I	C	C	↓	X		
	II	B	B		C		
	III	A	A		B		
Self-Defense	I	B	C	→	X		
	II	→	B		B	C	
	III		A		A	A	B
First Aid	I	A	B	B	C		
	II	A	A	A	B		
	III	A	A	A	A		

Fig. 3. Chart of recommended approach [5]

The manual recommends how to act for each combination of defender level and type of attacker/attackers in three phases of the attack (before, now, after), including preventive action and recommendations for improvement.

CITIZEN		PHASE OF THE ATTACK		
zone	level	BEFORE THE ATTACK	AT THE ATTACK	AFTER THE ATTACK
Crisis Communication	A	Observe suspicious activities in the area (people standing and watching the crowds; obviously nervous people; persons which don't fit their surroundings; person who look armed). Try to look energetic, confident, determined.	Delegate call to police to another person if nearby. Try to de-escalate the situation, if possible. Delay an attacker in his actions by communication or discourage him.	Inform the IRS about the attack. Tell them the number of the wounded. Coordinate securing the area and driveways for the IRS. Inform about possible risks (eg the attacker got into the car and went elsewhere).
	B	Observe suspicious activities in the area (people standing and watching the crowds; obviously nervous people; persons which don't fit their surroundings; person who look armed). Try to look energetic, confident, determined.	Call the police. Inform them about the number of attackers, their equipment and the number of injured. Stay connected with the police and tell them the latest developments. Manage the evacuation of people from the place of attack and warn people around.	Inform the IRS about the attack. Tell them the number of the wounded. Be assisted in securing the area for IRS. Divert passers-by from the attack site.
	C	Observe suspicious activities in the area (people standing and watching the crowds; obviously nervous people; persons which don't fit their surroundings; person who look armed). Try to look energetic, confident, determined.	Run to safety. Call the police from hidden place and tell them what and where it happened. Tell them the number of attackers and the number of wounded. Communicate with the attacker only when it is unavoidable.	Inform the IRS about the attack. If someone authoritative, who organizes assistance in the place of attack asks you, be helpful.
	X	Observe suspicious activities in the area (people standing and watching the crowds; obviously nervous people; persons which don't fit their surroundings; person who look armed). Try to look energetic, confident, determined.	Run to safety. Call the police from hidden place and tell them what and where it happened. Tell them the number of attackers and the number of wounded. Communicate with the attacker only when it is unavoidable.	Inform the IRS about the attack. If someone authoritative, who organizes assistance in the place of attack asks you, be helpful.

Fig. 4. Manual for recommended approach [5]

### V. INTERACTIVE MULTIMEDIA EDUCATION

As part of our research, we found that the textual manual causes a decrease in the concentration of people while studying it. For this reason, we decided to take advantage of the experience of multimedia educational applications.

Our goal is to create an educational platform that enables interactive video learning and engages students more actively.

The student fills an entry questionnaire that configures the level of skills, knowledge, and defense equipment that a student normally wears daily.

After the start, the student goes through various scenarios of situations that lead to a violent attack, the self-defense situation, or an attack on another person.

Each situation is divided into short video sections. The video is paused every time the student must decide how to proceed. While pausing the situation, the student has a short time to think; then he has to choose from the options that are generated based on the input configurator. The outcome of the choice is judged by the degree of his ability. An example is the situation of an active shooter. If a student does not carry a legally held firearm, he cannot use it during self-defense. If he has the bad physical condition and is not educated in any martial arts, sport or system, the result of his defense without a weapon will be less effective than a student who has regularly attended self-defense courses for many years.

The student goes through different types of attacks in different environments and at different stages of the attack. They must thus correctly decide when to act. Sometimes it is about preventive action, sometimes, for example, to mitigate the impact after the attack (first aid, crisis communication, IRS calls).

The videos are shot from the first-person perspective. The student will feel like playing a computer game. The concept of passing through a given situation is similar to the way of so-called gamebooks, where the story is presented to the player and at the point where it is necessary to decide is the time for the player's interaction.

When choosing how to act, it is necessary to consider the whole situation, to pay attention to the surroundings and to

consider your abilities. The student may also make the situation worse (hit the innocent victim, for example).

After going through the situation, the student is shown the impact of his decision, pointing out his mistakes and recommending how he should act next time. The recommended option is then simulated by automatically passing through situations where the student no longer intervenes, only looking at the recommended procedure.

However, there are many situations. Some are very similar but different in detail. The same decisions in similar situations can lead to diametrically different consequences.

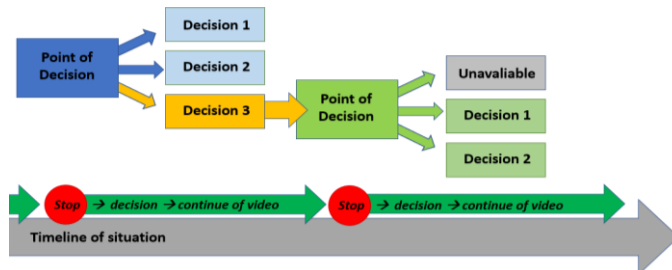


Fig. 5. Scenario decision diagram

### VI. CONCLUSION

Our research is based on the hypothesis that the best security measure is the people themselves, who become soft targets in a specific time and space. Previous research shows the need to educate and equip in the areas of self-defense, first aid and crisis communication. We investigate a methodology that recognizes the level of knowledge in each of these areas. Our research explores how to educate defenders using an interactive video course from a first person perspective, going through scenarios and let students making decisions at critical moments.

### ACKNOWLEDGEMENT

This work was supported by the Internal Grant Agency at TBU in Zlín, project No. IGA/CebiaTech/2020/006 and also by the research project VI20192021163 "Built-up and operation development of security systems at mass events", supported by the Ministry of the Interior of the Czech Republic in the years 2019-2021.

### REFERENCES

- [1] Z. Kalvach, *Definition of Soft Targets*. Prague, 2017.
- [2] D. Lapkova and L. Kotek, "Soft Targets and Possibilities of Their Protection", In: *2017 International Conference on Logistics, Informatics and Service Sciences (LISS)*. Kyoto, Japan: IEEE, 2017, s. 1-5. ISBN 978-1-5386-1047-3.
- [3] D. Lapkova, L. Kotek and L. Kralik. "Soft Targets – Possibilities of their Identification". In: *Annals of DAAAM for 2018*. VIENNA: DAAAM INTERNATIONAL VIENNA, 2018, s. 0-9. ISBN 978-3-902734-21-1. ISSN 2304-1382.
- [4] MALÁŇIK, Zdeněk. Ochrana majetku a osob před kriminalitou v prostředí PKB. In: *Bezpečnostní technologie, systémy a management 2013: Mezinárodní bezpečnostní konference*. Zlín: Univerzita Tomáše Bati ve Zlíně, 2013, s. 6. ISBN 978-80-7454-289-3.
- [5] KOTEK, Lukas, Martin HROMADA and Dora LAPKOVA. Protection of Soft Targets from Terrorism, In: *2019 IEEE 6th Asian Conference on Defense Technology (ACDT)* [online]. Bali, Indonesia: IEEE, 2019, s. - 71-78. ISBN 978-1-7281-1766-9.
- [6] Kotek, Lukáš. Status občana při zajištění osobní a komunitní bezpečnosti. Zlín, 2018. diplomová práce (Ing.). Univerzita Tomáše Bati ve Zlíně. Fakulta aplikované informatiky