

PROCEEDINGS

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SUSTAINED SECURITY

- Foreword

Uno Silberg, Head of Editorial and International Advisory Board

- Fire Resistance Of Timber Frame Assemblies Insulated By Mineral Wool

Alar Just

- Identification parades in Estonia: The state of the art

Kristjan Kask, Regiina Lebedeva

- The Effectiveness Of Media Campaigns In Changing Individuals' Fire, Water And Traffic Safety Behaviour

Margo Klaos, Annika Talmar

- Right-Wing Extremism and its Possible Impact to the Internal Security of the Republic of Estonia

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- A Framework For Training Internal Security Officers To Manage Joint Response Events In A Virtual Learning Environment

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Submission Contact

<i>Postal address:</i>	<i>Estonian Academy of Security Sciences Kase tn 61, Tallinn, 12012 Estonia</i>
<i>E-mail:</i>	<i>teadusinfo@sisekaitse.ee</i>

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CONTENTS

Foreword	5
<i>Uno Silberg, Head of Editorial and International Advisory Board</i>	
Fire Resistance Of Timber Frame Assemblies Insulated By Mineral Wool	7
<i>Alar Just</i>	
Identification Parades in Estonia: The State of the Art	25
<i>Kristjan Kask, Regiina Lebedeva</i>	
The Effectiveness Of Media Campaigns In Changing Individuals' Fire, Water And Traffic Safety Behaviour	49
<i>Margo Klaos, Annika Talmar</i>	
Right-Wing Extremism and its Possible Impact to the Internal Security of the Republic of Estonia	83
<i>Ero Liivik</i>	
Crises Preparedness of the Health Care System: Case Study Analysis in the Estonian Context	117
<i>Kristi Nero, Shvea Järvet, Jaan Tross</i>	
A Framework For Training Internal Security Officers To Manage Joint Response Events In A Virtual Learning Environment	151
<i>Sten-Fred Pöder, Raul Savimaa, Marek Link</i>	
Previous Issues	181
Editorial Policy and Disclaimer	182



FOREWORD

Uno Silberg

Editor-in-Chief

Here is the third edition of the Proceedings of the Estonian Academy of Security Sciences. The Proceedings is one of the few annual journals in Estonia which publishes security-related research papers.

Today in 2015, the main issue is how to respond to recent developments, such as the migration crisis and problematic situations in neighbouring regions.

Much has changed in the internal security situation compared to six months or a year ago. Europe has been hit by the migration crisis. This is today's new reality regardless of the multiplicity of views. Some see this as a threat to the Member States of the European Union and others see this as a new opportunity to solve the problems of an aging Europe.

The key question is just whether and how the European Union can, in its various authorities cope with the new reality. We are compelled to note with some concern that an increasing number of people are attempting to enter the EU, due to the growing instability in the EU's southern neighbourhood. It is therefore important to stress that the fundamental principles of solidarity and shared responsibility must be actively applied in EU migration and asylum policy.

Today's situation calls for shared resources and cooperation in (internal) security, serving the objective of ensuring that EU citizens feel secure in all places at all times.

Here, we endeavor to contribute to the discussion on internal security matters with the Proceedings, in the name of Sustained Security.



FIRE RESISTANCE OF TIMBER FRAME ASSEMBLIES INSULATED BY MINERAL WOOL

Alar Just

Estonian Academy of Security Sciences, Docent

Keywords: fire design, mineral wool, timber frame assemblies

INTRODUCTION

Timber is a popular building material because of its good strength-to-weight ratio, simplicity of working and the fact that it is a natural material.

Wall and floor structures, made as a timber-frame assembly, consist usually of timber members, insulation between the members and cladding (as shown in Figure 1). The cladding on the fire exposed side provides protection for the timber member. Mineral wool is often used to fill the cavities. It has to satisfy different needs, among others heat and acoustic insulation during its life time. However it may also contribute to the fire resistance of the structure, providing secondary protection. There is an order of importance to the contribution of components to the fire resistance of an assembly. The greatest contribution is provided by the cladding on the fire-exposed side. That is first directly exposed to the fire, both with respect to insulation and to failure (fall-off) of the cladding. In general, it is difficult to compensate for poor fire protection performance of the first layer, by improved fire protection performance of the following layers.

Timber members with small cross-sections are usually used in such constructions.

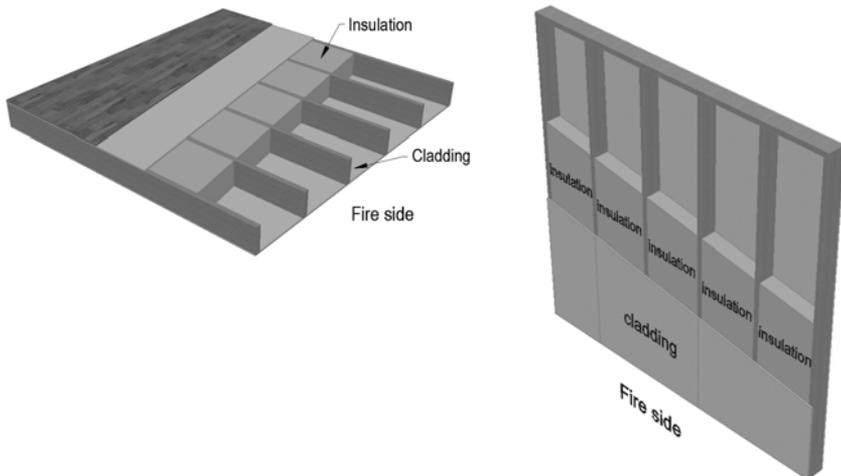


Figure 1. Timber frame assemblies: floor (left) and wall (right).

Mineral wool

Mineral wool is used for cavity insulation in many types of structures. As in other building elements mineral wool has to satisfy different needs. Among others heat and acoustic insulation during its life time, but it may also contribute the fire resistance of the structure.

Mineral wools have been widely used for more than 100 years as thermal insulation, acoustic insulation and fire protection. Mineral wools do not burn, rot or absorb moisture. Large-scale production began in the 1930's. Dimensionally stable products with binders based on synthetic resins with added dust suppressant agents were developed in the 1940's. The curing process by hot air drying hardens the resins and removes volatile substances from the product.

Stone wool (rock wool) is a mineral wool manufactured predominantly from molten naturally occurring igneous rocks (ISO 9229). Densities of stone wool insulation, used in timber frame assemblies, are usually 26 to 50 kg/m³.

Stone wool is regarded as the only fire-resistant mineral wool (EN 1995-1-2 – European design standard for timber structures). It is assumed to protect structures even after the fall-off of protective cladding on the fire-exposed side. The minimum density for the use of the EN 1995-1-2 design model is 26 kg/m³. Figure 2 shows the microstructure of stone wool.

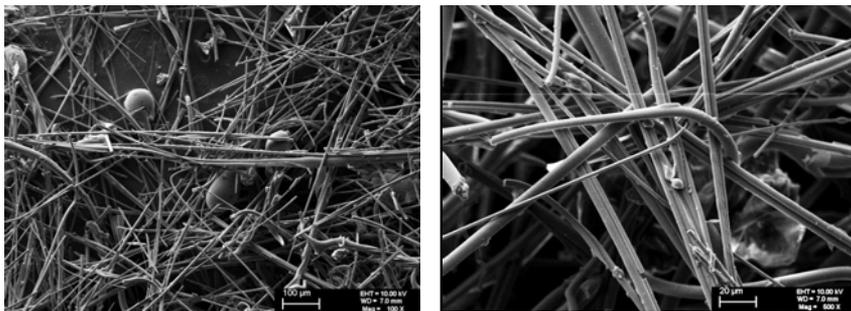


Figure 2. Structure of stone wool at 100µm (left) and 20 µm scale (right).

Glass wool is a thermal and acoustical insulation product where 100% of the glass content is fiberised, making a woolly structure able to decrease

air permeance. Depending on the applications and the property requirements, products with low, medium or high densities can be produced. It can be a loose-fill material blown into attics, or together with an active binder sprayed on the underside of structures, in the form of rolls and panels. That can be used to insulate flat or curved surfaces, such as cavity wall insulation, ceiling tiles, curtain walls and ducting. It is also used to insulate piping and for soundproofing.

Densities of glass wool insulations, used in structures, are usually around 12 to 20 kg/m³. The microstructure of traditional glass wool is shown in Figure 3.

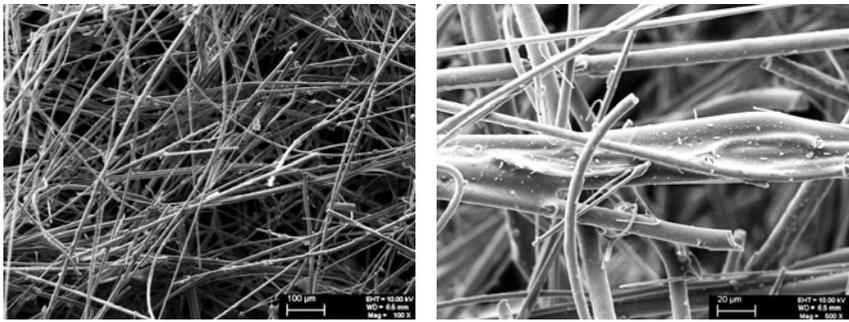


Figure 3. Structure of glass wool at 100µm (left) and 20 µm scale (right).

Glass wool can be heat-resistant, as for example High Temperature Extruded mineral wool (HTE wool). This mineral wool is a new insulation product, which is being increasingly used in marine applications because of its light weight. New HTE wool on the market differs from the basis of classification given in EN 1995-1-2. Rules for glass wool insulated timber frames are not appropriate in the case of HTE wool. Resistance to high temperatures is similar to that of stone wool.

The difference between heat-resistant and traditional glass wool lies in a higher quality of the raw material and a higher temperature of the production process. The use of a proprietary and patented mix of materials further increased the temperature resistance of the glass. The insulation properties of the material at normal temperatures are similar to those of traditional glass wool.

Densities of glass wool insulations, used in structures are usually 14 to 21 kg/m³.

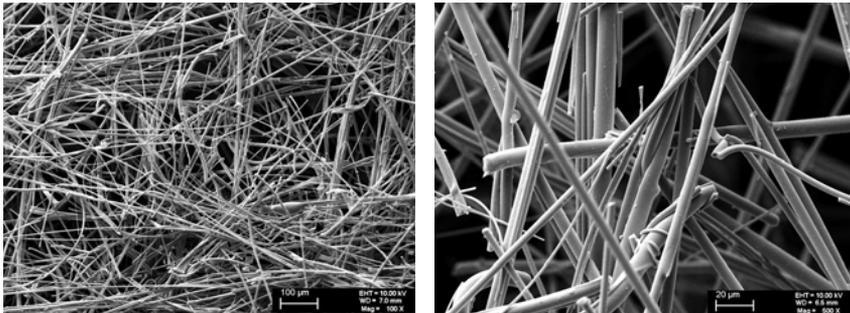


Figure 4. Structure of the heat-resistant glass wool at 100μm (left) and 20 μm scale (right).

When EN 1995-1-2:2004 was drafted, the terms “insulation made of glass fibre” (glass wool) and “insulation made of rock fibre” (stone wool) were introduced without any further definition. A later European standard for thermal insulation products specifies mineral wool, but does not distinguish between glass and stone wool. No classification of mineral wool in terms needed for structural fire design is given. Although it is widely known from fire resistance tests that stone wool performs better than glass wool, when directly exposed to fire. Traditional glass wool will undergo a decomposition process (“melting”) if temperatures over 500-700 °C have been reached.

The design rules in EN 1995-1-2 have no method for determining the post-protection phase of timber-frame assemblies with glass wool insulation in a fire. Since the post protection phase with this insulation is assumed to be very short.

Furthermore EN 1995-1-2 is not a standard for the classification of products. Grouping into “heat-resistant” and “non-heat-resistant” mineral wools is proposed by the author of this paper.

1. DESIGN METHODS OF EN 1995-1-2

Structural fire design of timber frame assemblies is based on the charring model by König et al (2000). Who performed a number of experimental and simulation studies of timber-frame assemblies.

According to the model, the original cross-section is reduced by the charring depth. For protected members, charring is divided into different phases, see Figure 5. No charring occurs during Phase 1, until a temperature of 300 °C is reached behind a protective layer. This is assumed to be the charring temperature of timber. Phase 2, is referred to as the protection phase. Protection is assumed to remain in place until the end of this phase, which is failure time t_f . The charring is relatively slow during this phase. The post-protection phase or phase 3, starts at the failure time of the cladding. The charring is fast due to the lack of the charcoal layer as a thermal barrier. The charring of the timber member may be faster when the cross-section is smaller, due to two-dimensional heat flux within the member. This is considered by means of the cross-section factor k_s . See Equation (2).

Annex C of EN 1995-1-2 describes the design procedure for timber-frame assemblies with insulation. The model should be used for the calculation of fire resistance in lightweight timber structures. It covers the protected phase for glass wool and stone wool and the post-protection phase for stone wool, as long as the insulation stays in place.

In timber frame assemblies the charring depth is taken as:

$$d_{char,n} = \beta_n t \quad (1)$$

Where t express time from the beginning of fire. The resulting cross-section is a notional rectangular cross-section, see Figure 2. Charring rate of initially protected timber members is given as:

$$\beta_n = k_p k_s k_n \beta_0 \quad (2)$$

Where β_0 is a basic one-dimensional charring rate taken as 0,65 mm/min for softwood.

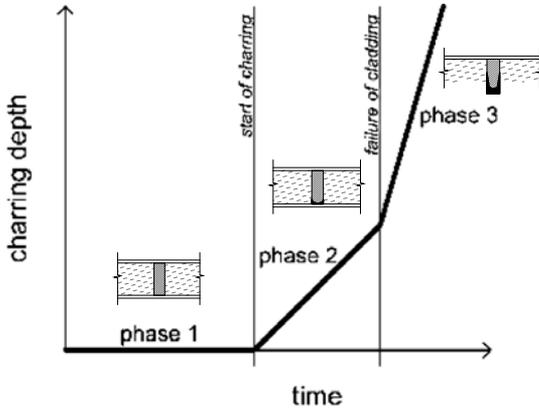
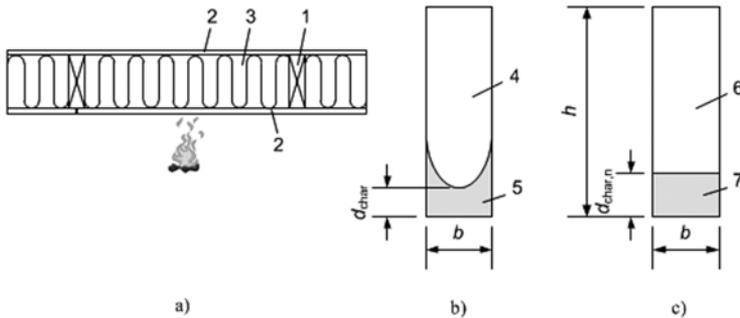


Figure 5. Protection phases for timber member behind cladding.

The protection factor k_p takes into account the protection phase. When the cladding is still in place, factor $k_p = k_2$ is to be applied. When the cladding has fallen off, factor $k_p = k_3$ applies for the post-protection phase. Here the sub-index indicates the phase of charring. The cross-section factor k_s takes into account the width of the cross-section and the factor k_n is to convert the actual cross-section into a notional rectangular cross-section. To calculate the total charring depth, charring depths of different phases may be combined.



Key:

- | | |
|---------------------------------------|---|
| 1 Solid timber member (stud or joist) | 4 Residual cross-section (real shape) |
| 2 Cladding | 5 Char layer (real shape) |
| 3 Insulation | 6 Equivalent residual cross-section |
| | 7 Char layer with notional charring depth |

Figure 6. Charring of timber frame member (stud or joist):
 a. Section through assembly. b. Real residual cross-section and char layer.
 c. Notional charring depth and equivalent residual cross-section.
 (EN 1995-1-2).

Mechanical resistance

There are two options when analysing mechanical resistance according to EN 1995-1-2:

1) The effective cross-section method, using a zero-strength layer (d_o), as given in Clause 4.2.2 of EN 1995-1-2. The cross-section is reduced by the charring depth and the zero-strength layer (usually 7 mm). Strength and stiffness properties are not reduced.

$$k_{mod,fi} = 1,0.$$

2) Reduced strength and stiffness properties according to clause 4.2.3 of EN 1995-1-2.

The cross-section is reduced only by the charring depth. Strength and stiffness are reduced by $k_{mod,fi}$.

$$k_{mod,fi} < 1,0.$$

The recommendation for the future is to only use the effective cross-section method, which is simpler for engineers to use. The effective cross-section method for timber-frame assemblies is given by König (2009).

Design data and methods for proper design in many situations are missing in EN 1995-1-2. Design by tests is often the only option for design, but is expensive, time-consuming and not easy to use for practical design.

2. PROTECTION BY NON-HEAT-RESISTANT MINERAL WOOL

Non-heat-resistant mineral wool products will undergo decomposition when directly exposed to fire i.e. at the post protection phase (phase 3). The protection provided by non-heat-resistant mineral wool to the timber member is similar to heat-resistant mineral wool at the protected phase (phase 2), but after the cladding failure the protection time will be relatively short due to recession.

Traditional glass wool products represent typical non-heat-resistant mineral wool. Recession begins at temperature around 500 °C.

The principle of the design model developed to determine the residual cross-section is shown in Figure 7. During the protected phase, the

charring scenario is similar to the case with heat-resistant mineral wool. Charring at the protected phase is regarded as for heat resistant mineral wool, see Figure 7a. There will be charring from three sides during the post-protection phase, with respect to the delay of charring along the wide sides of the timber member following the recession of mineral wool resulting in the trapezoidal cross-section. See Figure 7b and c.

The model for post-protection behaviour in timber-frame assemblies insulated by glass wool was created on the basis of the results and evaluation of medium-scale tests at SP Wood Technology and full-scale tests at TÜV Estonia (Just 2010).

For most of the traditional glass wool products in Europe a value of $v = 30 \text{ mm/min}$ is proposed as recession speed (Just et al 2012). Due to the charring scenario described above, the resulting residual cross-section is presented as trapezoid. For usual small sizes of timber members at timber frame assemblies, the post-protection phase is relatively short. To avoid complicated calculations for this short time period, further simplifications for the trapezoidal model are proposed by Just et al (2010), where the use of equivalent rectangular cross-sections is proposed where different cross-sections can be determined for different applications (beams and studs).

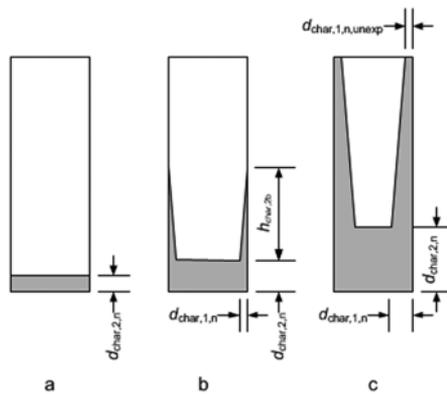


Figure 7. Charring of the timber member when insulated by traditional glass wool.

The method presented above could be also used for other recessible insulations for example cellulose fiber insulation.

3. DISCUSSION

For timber frame assemblies with relatively small cross-sections of timber members, proper protection by cladding is the most important factor in fire. Among claddings, fire rated gypsum plasterboard should be preferred.

Mineral wool in cavities may influence the failure of cladding. When cavities are completely filled with insulation and cladding is placed on the insulation with direct contact, the local temperature rise behind the cladding may lead to earlier failure of the cladding due to heat accumulation. An air space between cladding and mineral wool provides a situation where temperature rise is balanced all over the cladding's unexposed surface. Failure of cladding may occur later due to that effect.

Properties of stone wool products are varying.

Results by Just showed that the design model in EN 1995-1-2 for timber frame assemblies is not always on the safe side. Well known stone wool products available in the market were collected from the producers. Full scale fire tests (Just 2009) were made to investigate the differences. Test results show that different stone wool products give different protection, concerning the start time of charring and the protection coefficient for the notional charring rate.

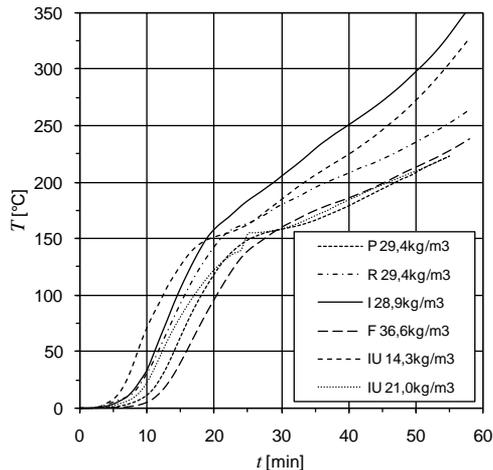


Figure 8. Temperature rise behind different stone wool products of a 145mm thickness exposed to the same standard fire test.

In the open market stone wool from different producers who use different production processes are available. In design models used for EN 1995-1-2 the assumption is taken that the quality of protection by stone wool is related to the density, but recent research showed that density might not be the crucial factor. The models of EN 1995-1-2 are based on a 29,4 kg/m³ dense product available in Scandinavia.

Furthermore density is not used for declaration of the product according to product standard EN 13612. The usage of density to describe the contribution to the protection ability for calculating the separating function (Annex E of EN 1995-1-2) is not in agreement with the product standard for mineral wool (EN 13612).

Research by Just and Schmid (2012) showed that HTE mineral wool, which is also made of glass, has similar properties in fire and design models to assemblies insulated with stone wool.

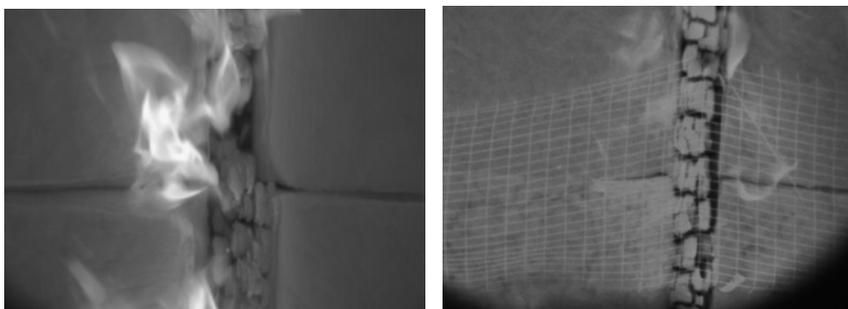


Figure 9. Timber studs between batts of HTE wool (left) and stone wool (right) directly exposed to fire.

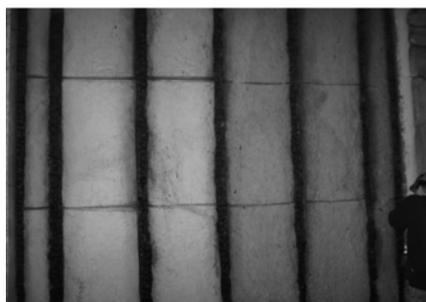


Figure 10. HTE wool (left) and stone wool (right) after the 60 minutes fire test, view form the exposed side.

An important issue concerning mineral wool that must be considered when designing timber frame assemblies, is the fixation of mineral wool batts between studs and joists. Mechanical fixing can be done by fasteners or by gluing. For example, Steelnet is also used for holding the mineral wool in place when the cladding has failed. The efficiency of fixing must be proved. To some extent overdimension may also be a solution to keep insulation batts in place. Test results (Just 2009) show that 145 mm thick heat resistant mineral wool stays in place, in a wall assembly without cladding on the fire exposed side, from the beginning of a 60 minute fire. Thinner mineral wool batts may fall off during fire after the claddings failure. Mechanical fixing of the cavity insulation is even more important for floor structures. If the insulation batts are not fixed, they can fall off during the fire and the protective effect cannot be taken into account.

Proper air tightness is an important issue concerning separating function in fire. When there is an air leakage through the wall the mineral wool insulation can degrade earlier than expected. This also means a loss to the protective properties of the insulation and earlier breakthrough of fire compared to air tight solutions.

Research by Just and Schmid showed the effect clearly. A mineral wool insulated wall was built for a model scale furnace. The wall consisted of a timber frame (studs with cross-section 45x145 mm), cavities filled with mineral wool and gypsum plasterboard, Type F with 20 mm thickness as cladding. For an airtight specimen a fire proof seal was used at the joints between the gypsum and timber. A non-airtight specimen was mounted without the tightening of joints.

The outer frame of the wall had holes with a 100 mm diameter in the bottom and top rails. These holes were closed for first 30 minutes in standard fire and then opened. When opening the holes, an intensive air flow was let in to the wall through the mineral wool. That caused local decompositions of the stone wool. See Figure 12.

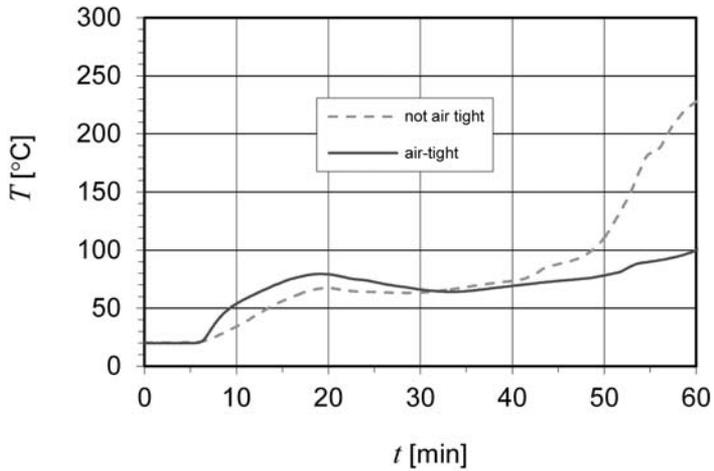


Figure 11. Temperatures measured at the unexposed side of the specimen. Comparison of air-tight and non air-tight construction with the same composition (Just, Schmid 2012).



Figure 12. Local decomposition of the stone wool (left side) caused by vertical air flow through the construction during the fire test.

Proper protection is the most important barrier against fire.

For example a wall with gypsum plasterboard, Type F and traditional glass wool can fulfill the same separating criteria EI60 as the wall with gypsum plasterboard, Type A and stone wool. See thermocamera pictures in Figure 13, made during the research by Just (2009).

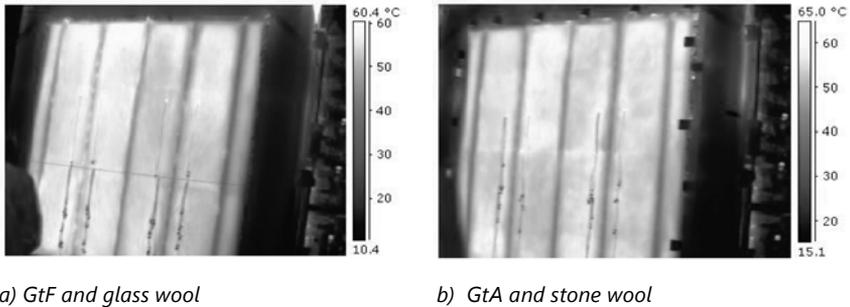


Figure 13. Temperature distribution on the unexposed side in fire test after 60 minutes.

Figure 13 shows that when having fire protection gypsum plasterboard, type F on the exposed side, the insulation can be with pure fire resistance properties like traditional glass wool. When having a normal gypsum plasterboard, type A, the insulation in the cavities must have very good fire resistance properties to get the same effect of total protection. In Figure 13 the cavity insulation is stone wool (density 30 kg/m³).

Further research needs

Models described in previous sections are only valid for assemblies completely filled with mineral wool. Further research work is needed to develop new and extend to existing design methods for partially insulated assemblies.

There is further research work needed to investigate the properties of different stone wool products used for fire protection and the contribution to the load bearing function of timber members and separating function respectively. For some of the products in the European market, the parameters used within design model EN 1995-1-2 may be overestimated as design models may be non-conservative.

Fires with duration of 90 minutes and more need additional investigations to modify the design methods for long fires. According to the design rules in EN 1995-1-2 stone wool and glass wool give the same protection at the protected phase. Design rules are valid for up to 60 minutes in standard fire. For fires longer than 60 minutes there is a risk that glass wool can melt even at the protected phase. The charring rate in long fires is slightly higher for heat resistant mineral wools as well.

Many fire design methods consider density in equations. On the other hand it is not needed for producers to declare the density of their mineral wool products. This can cause some difficulties when using density in practical design, therefore clear rules are also needed.

CONCLUSIONS

Existing design methods in EN 1995-1-2 should be revised and improved for the next revision of EN 1995-1-2. Grouping into heat-resistant mineral wool and non-heat-resistant mineral wool, to divide mineral wool according to protective behaviour in fire is proposed by the author of this paper. Simplified design rules should be revised taking into account different approaches for beams or studs. Research work for different stone wool products is needed.

For better specification of mineral wool, a new classification of mineral wool is needed with respect to its performance in fire. Such classification should permit the inclusion of new types of mineral wool in accordance with EN 13162, such as one that has recently been developed and introduced on the market.

Contacts

Alar Just
Möldre tee 2-9,
10915 Tallinn
+372 503 1171
alar.just@gmail.com

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IDENTIFICATION PARADES IN ESTONIA: THE STATE OF THE ART

Kristjan Kask

Institute of Psychology, Tallinn University

Institute of Public Law, University of Tartu

and

Regiina Lebedeva

Institute of Public Law, University of Tartu

Keywords: lineups, eyewitness identification,
code of criminal proceedings, system variables, estimator variables

ABSTRACT

Eyewitness misidentification is one cause of wrongful convictions. In this paper it is analysed how lineups are conducted in Estonia. 38 files of criminal cases were analysed which involved 91 lineup protocols between 2008 and 2012. In most cases there were three persons in the lineup and all the lineups were conducted simultaneously. Mostly the lineups were presented in photos rather than live. Suspects were more prone to choose the middle position in the lineup, whereas investigators tended to put the suspect mostly in the first position (reading from left to right). The overall correct identification rate was 77%, which is above the previous findings, and increased to 90% when the results of the minors were removed from the analysis. There are discrepancies of what the literature in forensic psychology knows about the effect of different factors on the quality of lineups, and between the current practices of conducting lineups in criminal proceedings. Further studies are needed to map the situation in the field of eyewitness identification in more depth. It is encouraged to make changes to the identification procedure to result in more just trials.

1. INTRODUCTION

Eyewitness misidentification is the single greatest cause of wrongful convictions, playing a role in 72% of convictions overturned through DNA testing (Innocence Project, 2015). There have been a number of studies emphasizing eyewitness identification and the factors influencing them. However, in different legislations the lineups are conducted in a different manner. One of the main aims of the preliminary proceedings according to the Code of Criminal Proceedings (CCP; RT I, 12.07.2014, 8) § 211 lg 1 is gathering evidence. This is important as the court decides the guilt of the accused based on evidence presented to the court by the defendant or prosecutor, examined by the court. The quality and credibility of the evidence gathered in preliminary proceedings is thus very important.

In this paper the issues regarding conducting lineups in Estonia are examined in more depth from the psychology and law perspective. First, Estonian legislation concerning person identification is covered, following a literature overview of the eyewitness identification evidence. Then an analysis of the eyewitness identification process is introduced along with the relevant recommendations to the practice. The aim of the paper is to analyse how lineups are conducted in current practice in criminal proceedings in Estonia.

2. PERSON IDENTIFICATION IN ESTONIAN LEGISLATION

Historically, the person identification in preliminary proceedings according to the Code of Criminal Procedure of Estonian Soviet Socialist Republic was stated in § 137 and 138 (Raudsalu 1965). The interview with the suspect before the identification process was already important in the 1960s, but stated in the law as an obligation in 1986.

According to § 137 section 3 (Raudsalu 1965) the suspect was to be presented to the recogniser among three persons of the same gender and likeness. In the commentaries of the code it was pointed out that the maximum number of persons in a lineup could be six, however, the investigator must for every lineup choose the appropriate size of a lineup. For example, if person is tired, a minor or mentally handicapped then

the size of the lineup should be minimal, i.e. three. Foils should be of the same gender and likeness (height, hair colour, body shape, face, and clothing). Also, if the recogniser recognises the person then it is proposed using which characteristics the person was recognised – it aids to control whether the person is recognised using similar characteristics mentioned in the interview.

The lineup was to be conducted live (i.e. directly), only in special cases on photos (which could be more difficult for the recogniser, Raudsalu 1965). However, it was important to photograph the group of objects or persons and also the suspect separately. Besides the different parties, also an impartial observer of investigative activities in the lineup was present (removed from the legislation in 1997 by Code of Criminal Procedure § 137 lg 9; see RT I 1995, 6, 69). The Code of Criminal Procedure § 137 section 1 said that in special cases the identification could be done using photos, audio or videorecording.

At the moment, person identification in Estonia is guided by two paragraphs in the CCP, § 81 and 82. According to CCP § 81 section 1 the lineup could be presented after interviewing the suspect. Section 2 states that the person should be presented together with two similar persons and can be divided into an overt or covert procedure. In overt procedures the recogniser and the suspect see each other, in covert procedure the suspect will not see the recogniser. The latter is recommendable when the recogniser should be protected from the suspect or the situation of direct confrontation is not advisable to the recogniser. However, the wording of 'together with' implies that simultaneous presentation method should be used although the law does not state it explicitly.

According to CCP § 82 section 1 the protocol of lineup procedures are as follows: by which features the persons are alike, where the suspect was positioned, which place the suspect chose to appear, whether the witness recognises the suspect and how the likeness is pointed out. Also it has to be stated using which features the person was recognised. The photo cannot be distinguishable from the other photos, i.e. reference to clothing of the imprisoned person, also if the photos are not taken in the same place then the necessary identification details of the place should be covered. CCP § 81 section 2 notes that there should be at least two fillers in the lineup. Also, the CCP § 81 section 4 states that if necessary the identification can be conducted using photos only. In sum, as studies in the field of person recognition has increased considerably in the past

decades then regulation in Estonian law has been practically unchanged since 1961.

The principles of person recognition have been introduced in Estonian previously by Bachmann (2003, 2015), from a legal psychology perspective. From a legal point of view, several authors have indicated how the procedure of identification should be conducted and what is important to consider in lineup formation in criminal proceedings (for example, see Öpik, 2011, Lindmäe 1995), but also issues concerning the importance of person identification as a form of evidence (see Kergandberg & Sillaots 2006, Kergandberg & Pikamäe 2012, Kroonberg 2009, Krüger 2006). Next, issues with the eyewitness identification methods are discussed in more depth from the legal psychology perspective.

3. EYEWITNESS IDENTIFICATION METHODS

In the literature person identification methods i.e. lineups are to be divided into two different types: simultaneous and sequential lineups. *In simultaneous lineups*, the perpetrator and the foils (usually five persons, see Wells 1984) are presented together and the eyewitness has to choose whether the perpetrator is in the lineup or not. *In sequential lineups*, the foils and the suspect are presented sequentially. The witness may not know how many persons there are in the lineup and he/she has to give a yes/no answer after each person. There are also two possible methods how these lineups are constructed: *target-present (TP)* and *target-absent (TA) lineups*. In the TP lineup, the perpetrator is present in the lineup, in the TA lineup, the perpetrator is absent from the lineup. In the laboratory studies the investigator usually knows who the perpetrator is, but in practice there are many cases when the police officer who constructs a lineup does not know who the perpetrator is. The purpose of using TP lineups is to assess the ability of eyewitnesses to correctly identify suspects whereas TA lineups assess the extent to which eyewitnesses falsely identify lineup members as suspects (Cutler & Penrod 1995).

Wells (1984) stated that when people see a simultaneous lineup they typically use a “relative” judgment process. They look at the lineup and choose the person who is the most similar to their memory about the suspect. For TP lineup the relative judgment process would lead to an identification of the suspect whereas in TA lineups it leads to a false

identification. Lindsay and Wells (1985) investigated sequential lineups and found that this strategy discourages reliance on a relative judgment strategy and forces the “absolute” judgment process (yes/no mode for each face). The sequential lineups reduced the number of false identifications while having no impact to the correct identifications. An absolute judgment process implies that a witness attempts to construct a match between a specific lineup member and his or her memorial representation (e.g., an image) of the suspect.

Lindsay and Wells (1985) found that adults made significantly fewer false alarms in sequential lineups (18.3%) compared to simultaneous lineups (35.0%) when the target was absent (the correct identification rate was not lower for sequential than for simultaneous lineup when the target was present - 50% vs 58%). Steblay, Dysart, Fulero, and Lindsay (2001) meta-analysis of 23 studies found that for TP lineups there were more correct identifications and fewer incorrect rejections from simultaneous lineups and no significant difference between false identifications from sequential or simultaneous lineups. On the TA lineup sequential presentation increased the number of correct rejections and decreased the number of false identifications. Sequential presentation reduces choosing on the lineups for both simultaneous and sequential lineup presentation.

Lineups are influenced by several types of factors. *Estimator variables* (Narby, Cutler, & Penrod 1996) can be classified into witness factors (e.g., age), target factors (e.g., attractive or not attractive faces) and situational factors (e.g., weapon presence, exposure duration). These factors may be manipulated in the laboratory, but are often uncontrollable in the actual criminal situation and thus their influence on identification accuracy can at best only be estimated post hoc. *System variables* are factors that are directly under the control of the criminal justice system such as the number of foils in the lineup, the selection of the lineup members (Wells 1978).

3.1 ESTIMATOR VARIABLES

3.1.1 *Witness factors*

The ability to recognise faces increases with age (Ellis 1990), more rapidly improving between the age of six and ten than later (Davies 1996). Carey (1992) noted that there is little difference between ten-year-olds and adults. With age children's ability to remember distinctive features of faces improves, which helps them subsequently to discriminate previously seen faces from other faces (Ellis 1990). Concerning lineups, children above six years of age perform as well as adults in the number of correct identifications from TP lineups, but when tested with TA lineups, children's performance is poor (Gross & Hayne 1996, Parker & Ryan 1993). Children's tendency to choose is also higher than adults' (Parker & Ryan 1993), resulting in more foil identification errors in both TP and TA lineups. Pozzulo and Lindsay (1998) concluded that five-year-old children and older do not significantly differ from adults with respect to correct identification, however, there is a tendency for them to make a choice from the lineups in which the suspect is absent.

Several studies have been made focusing on *confidence-accuracy dimension* for TP lineups. Confidence and identification accuracy tends to be closely related. Still, several researches have shown that confidence is not a valid indicator of accuracy, that is, accurate witnesses are as confident as inaccurate ones (Vrij 1998). The reports that are highly reliable and accurate may be judged as not very credible and vice versa. The relationship between eyewitness identification accuracy and confidence is very weak and sometimes even non-existent (Sporer, Penrod, Read & Cutler 1995). However, several studies have shown that there is a strong tendency among jurors to rely heavily on eyewitness confidence when inferring the accuracy in a testimony (cf. Cutler, Penrod & Stuve 1988). Sporer, Penrod, Read and Cutler (1995) found that the confidence-accuracy relationship is stronger for choosers (witnesses who make an identification in a lineup) than for non-choosers (witnesses who reject lineups, that is, who say that the culprit is not present in the lineup). They noted that confidence-accuracy correlation was stronger if the targets were distinctive in appearance and weaker if the targets were less distinctive. Still, confidence is the primary predictor of whether an eyewitness will be believed (Wells 1984).

3.1.2 Target factors

Target factors are characteristics of the person who is to be identified - generally the suspect of a crime. Several studies have shown that faces rated as highly attractive or highly unattractive are better recognised than neutrally rated faces (Sporer 1996). This suggests that facial distinctiveness is related to facial recognition (Shapiro & Penrod 1986). Gender of the target had no effect on face recognition accuracy.

Disguises and facial transformations are also good predictors of identification accuracy. Identifications are less accurate if the culprit was wearing a disguise during the crime or changed his/her facial appearance between the crime and the recognition test (Vrij 1998). Even if no disguise is worn during a criminal act, it is not common for a perpetrator's appearance in the lineup to differ from the perpetrator's appearance at the time of the crime. Some changes can occur naturally, such as physical and facial changes due to aging (Shapiro & Penrod 1986). Facial transformations led to fewer correct identifications and more false identifications.

3.1.3 Situational factors

Direction of a witness attention during the crime is an important determinant of what is recalled or recognised. If the attention to the target is low, then it is hard to recognise the target afterwards (Shapiro & Penrod 1986). Weapon focus effect refers to the visual attention that the eye-witnesses give to a perpetrator's weapon during the course of a crime, thereby paying less attention to the facial characteristics of the perpetrator (MacLin, MacLin & Malpass 2001). As exposure duration increases, face recognition accuracy improves, but the improvements become smaller at long duration (Ellis & Flin 1990).

Duration of a retention period also affects both correct and false identifications (Malpass & Devine 1981). Both recognition accuracy and recall decline over time. Post-event factors such as time delay effects appear to have a smaller impact on false identifications than on correct identifications. Concerning time delay, it has a stronger effect on children's errors in target-absent lineups than target-present lineups (Davies 1996).

3.2 SYSTEM VARIABLES

Following Cutler and Penrod (1995), five major biases may occur in lineup tests concerning system variables which are discussed below more in depth.

3.2.1 Lineup instruction bias

In Malpass and Devine's (1981) study where the witnesses are given biased instructions (for example, the instruction to choose somebody from a lineup, without an option to reject a lineup), it did not influence correct identification in the TP condition but misleading instructions have a huge impact in the TA condition. Some witnesses are more likely to choose someone in the TA lineup, instead of rejecting it. They found that warning that the culprit may or may not be in lineup resulted 78% of witnesses making identifications from a TA lineup, whereas the number of hits remained at a high level. Clark (2005) found that biased instructions led to a large decrease in accuracy in TA lineups, but produces inconsistent results for TP lineups. Re-examination showed that correct identification rates do increase with biased lineup instructions, and the biased witnesses make correct identifications at a rate considerably above chance.

3.2.2 Foil bias

The more persons in the lineup, the less likely the possibility that the suspect will be chosen by chance. One way of validating a lineup is to use mock witnesses, who have never seen the perpetrator and foils before (Wells, Leippe & Ostrom 1979). Foils should match the eyewitness' description of the perpetrator, yet the foils should not be too similar, as well.

One method of choosing the foils is based on the "optimal similarity" argument (Luus & Wells 1991). Without optimal similarity the foils are too dissimilar and the lineup can be biased. Above the optimal similarity on the other hand, the lineup will be like a lineup of clones. Therefore, it has to be in mind, that the suspect must have the features of the true perpetrator. If the suspect is not the perpetrator, then lineup has to contain foils similar to the eyewitness memory.

Another method on choosing foils for the lineup is based on descriptions. In here the foils are selected based on their similarity to the descriptions of the suspect, not the similarity to a suspect. Here the suspect matches the description and the problem is solved how similar should the foils be. Also a witness can more easily recognise the suspect, because when a witness looks at the lineup the members all look similar but the recognition should now be based on the specific features that could not be called in the description. Wells, Rydell and Seelau (1993) found that a match to the description of the perpetrator produced more correct identifications than similarity to the suspect. Higher false identifications occurred in cases of mismatch to the descriptions of the culprit lineups. Therefore, a match to the witness' description of the culprit could be considered the best solution in here. Lindsay, Martin and Weber (1994) found that lineups which contain foils selected by using descriptions produced slightly better results than similarity based lineups. There was a higher rate of false identifications when foils matched the description but differed from the suspect in basic details such as race or gender.

3.2.3 Clothing bias

The perpetrator should not differ from the foils by his/her clothing. It is recommended that all members of the lineup wear similar clothes. As Yarmey, Yarmey and Yarmey (1996) found, it is better for identification accuracy when the people in the lineup are not wearing clothes that are similar to those worn by the perpetrator at the scene of crime.

3.2.4 Investigator bias

Lineups should be conducted by an investigator who is "blind" to the identity of the suspect, in order to avoid unintentionally passing information to an eyewitness through nonverbal behaviour (Koehnken *et al.*, 1996). An investigator's anxiety at the time when the eyewitness is looking at the suspect could lead to the investigator's bias. Receiving confirming or disconfirming feedback about the identification after the identification task increases and decreases confidence both in adults (Wells & Bradfield 1998) and children (Hafstad, Memon & Logie 2002).

3.2.5 Presentation bias

It is common to present the suspect and foils simultaneously, that is, together at the same time. Wells (1984) proposed that it is better to show the lineup members sequentially, that is one at a time. Lindsay, Lea, Nosworthy *et al.* (1991) found that sequential lineups are significantly reducing false identifications from fair lineups as well as from biased lineups with regard to foil similarity or instructions.

2.3 DESCRIPTION-IDENTIFICATION RELATIONSHIP

Face recall is more difficult than face recognition (Shepherd & Ellis 1996). People have considerable experience of recognising (especially familiar) faces but are less experienced at describing faces. It seems intuitive that witnesses who are better at describing a perpetrator should also be better at identifying him/her (Meissner *et al.* 2006). Despite the belief that a strong relationship should exist between face description quality and identification accuracy, research reveals that such a relationship is at best very weak. Numerous studies demonstrate that the ability to describe people does not correlate highly with the ability to recognise people (e.g., Sporer 1996; Wells 1985; Meissner, Brigham & Kelley 2001).

Meissner *et al.* (2006) note that the absence of a relationship between the accuracy of person description and identification may provide an important link in our understanding of these two tasks, namely that cognitive processes concerning person descriptions are very different from those involved in the identification of a face. They suggested that person descriptions may encourage focusing upon features of the face that are not always useful for perceptually individuating a given face from among similar distractors. Farah *et al.* (1998) claim that recognition of faces involves a configural process in which features combine to create a non-verbal perceptual set that is stored and later accessed for pattern recognition. In short, face description could distort the veracity of the memory trace and interfere with subsequent identification.

4. METHOD

4.1 SAMPLE

38 files of criminal cases were analysed, which involved in total 91 lineup protocols between 2008 and 2012. One part of the sample was based on searching appropriate criminal cases on the homepage of the State Gazette from 2010 to 2012 where lineup(s) were used as a part of the investigative activity. Nineteen files with 41 lineups were found from the area of Harju Circuit Court. The second part of the sample was formed from Harju Circuit Court cases which took effect in 2008 (19 cases), wherein a total of 50 lineups were used (excluding the cases where the victim/witness knew the suspect). It should be noted that as in the final court decisions often lineups are mentioned in cases where they were presented mostly as incriminating evidence then it may have an effect on the results of this paper.

4.2 PROCEDURE

From the court files the following data was collected: the type of qualification according to the Penal Code (PC), type of the lineup (live or photos), whether the suspect could choose his/her position (according to the CCP) or whether this decision was made by the investigator, in which position the suspect placed themselves or was placed by the investigator, whether the suspect was identified or not, recogniser confidence in the recognition, the type of recogniser (victim, witness or suspect), the age and gender of the recogniser, the time delay between the crime, the interview and the identification, the features according to which the person was recognised (according to the CCP) and its relationship with the features mentioned about the suspect in the interview in preliminary proceedings.

5. RESULTS

The qualifications according to PC are presented in Table 1. Lineups were mostly used in cases of larceny 30.8%, aggravated breach of public order 24.2% and robbery 14.3%. It has to be noted that only those cases were involved in the analysis where the recogniser was also interviewed in the proceedings.

Table 1. Presence of lineups by Penal Code qualifications

Qualification	Number (percentage)
§ 121 Physical abuse	9 (10%)
§ 183 & 184 Unlawful handling of small (or large, § 184) quantities of narcotic drugs or psychotropic substances	6 (7%)
§ 199 Larceny	28 (31%)
§ 200 Robbery	13 (14%)
§ 201 Embezzlement	5 (5.5%)
§ 202 Acquisition, storage or marketing of property received through commission of offence	5 (5.5%)
§ 263 Aggravated breach of public order	22 (24%)
§ 296 Arranging bribe	3 (3%)

The recognisers (N=73) were divided into three groups: minors below the age of 14 (n=10, all boys), adolescents between the age of 14 to 18 (n=14, 12 boys) and adults (n=49, 30 men). The mean age of minors was 10.8 (SD = 1.2) years, range 9 to 13, the mean age of adolescents was 15.6 (SD = 1.2) years, range 14 to 17 and the mean age of adults was 31 (SD = 13.8) years, range 18 to 64. For 18 persons the information about their age in the protocol was missing. 46.2% of the sample were victims and 47.3% witnesses, in 6.6% the lineup was presented to a suspect. In the lineups the suspects were mainly males (96%, n=87).

In 97% (n=88) of cases there were three persons in the lineup and in three cases (3%) four persons in the lineup. All lineups were presented simultaneously. In 95% (n=86) of cases the lineup was presented on photos and in five cases a live lineup was used.

According to the CCP the suspect has a right to choose his/her position in the lineup and this right was used in ten cases in our analysis. Positions one (reading from left to right) and three were chosen twice and position two (in the middle, five times), and position four once. If the protocol stated that the person could not choose the position or there was no indication of the choosing of the position then the investigator put the suspect mostly in position one (37 times) compared to other positions (position two in 22 times, three in 19 times and four only once). This difference was statistically significant, $\chi^2(3) = 5.97$, $p = .016$, $\eta^2 = .15$.

The overall correct identification rate in the lineup was 77% ($n=70$). When age differences in recognition were analysed the correct identification rate for adults was 90% ($n=44$), adolescents 93% ($n=13$) and minors 30% ($n=3$); the difference between age groups was statistically significant, $\chi^2(2) = 21.63$, $p = .001$, $\eta^2 = .54$.

The confidence ratings of the recognisers were not asked in 20 cases (22% of the total). In Table 2 it is stated the confidence of the witnesses in a four-point scale according to the CCP, mostly it was stated that the witness recognises the person from the lineup. There were no age differences in confidence ratings present.

Table 2. Age differences in confidence ratings

	adult	adolescent	minor
Definitely sure that it is the same person	8	1	1
I recognise the person	27	10	2
Is most similar / I think it is same person	7	3	0
I can be mistaken	2	0	0

Note. Raw numbers are presented in the table.

Now time delay between the crime and procedures is described (see Table 3). The mean time of the identification procedure to take place was 9.56 minutes ($SD = 8.46$), range from one minute to 50 minutes. The mean time between the crime and the interview was 45 days ($SD = 94$, range from 0 to 523 days), between the crime and the lineup 68 days ($SD = 110$, range from 0 to 543 days) and between the interview and the lineup 23 days ($SD = 66$, range from 0 to 542 days). There was no overall difference of time between the crime and the recognition on the accuracy of

recognition (accurate recognition $M = 71$, $SD = 112$ vs inaccurate recognition $M = 59$, $SD = 105$), also no age differences emerged.

Table 3. Age differences in time delay between the crime, interviews and identification

	Adults	Adolescents	Minors
	M (SD)	M (SD)	M (SD)
Time between crime and the interview (in days)	51 (105)	17 (23)	29 (28)
Time between crime and the identification (in days)	80 (126)	33 (61)	42 (39)
Time between interview and the identification (in days)	30 (83)	16 (53)	12 (26)
Accurate recognition	76 (17)	31 (31)	22 (64)
Inaccurate recognition	112 (49)	62 (111)	50 (42)

A way to evaluate credibility is to compare whether the characteristics of suspects mentioned in investigative interviews match characteristics in later eyewitness identifications. In the interviews the recognisers mentioned mostly characteristics such as gender, height and clothing (see Table 4).

Table 4. Characteristics mentioned in the interviews

Features	Adults (n=49)	Adolescents (n=14)	Minors (n=10)
Gender	41 (84%)	12 (86%)	8 (80%)
Height	33 (67%)	9 (64%)	5 (50%)
Age	29 (59%)	8 (57%)	7 (70%)
Body features	27 (55%)	8 (57%)	4 (40%)
Inner characteristics of the face*	11 (22%)	2 (14%)	5 (50%)
Outer characteristics of the face	26 (53%)	8 (57%)	6 (60%)
Clothing	33 (67%)	9 (64%)	8 (80%)
Special features	4 (8%)	1 (7%)	-
Did not mention characteristics	3 (6%)	2 (14%)	-

Note. * – statistically significant difference, $\chi^2(2)=4.40$, $p=.024$, $\eta^2=.245$.

However, when the characteristics influencing the person identification was analysed, then mostly inner or outer features were mentioned by adults and adolescents (see Table 5).

Table 5. Characteristics mentioned in the lineup protocol.

Features	Adults (n=43)	Adolescents (n=14)	Minors (n=3)
Gender	-	-	-
Height	2 (5%)	3 (21%)	-
Age	-	-	-
Body features	-	-	-
Inner characteristics of the face	36 (84%)	11 (78%)	3 (100%)
Outer characteristics of the face	10 (23%)	3 (21%)	2 (67%)
Clothing	6 (14%)	3 (21%)	-
Special features	3 (7%)	2 (14%)	-
Did not mention characteristics	2 (5%)	2 (14%)	-

6. DISCUSSION

The aim of the paper was to analyse more closely how lineups are conducted in practice according to current criminal proceedings. The main results are now discussed in more detail.

All lineups were presented simultaneously. Steblay et al. (2001) have found in their meta-analysis that sequential lineups end up with a lesser proportion of false identifications than in simultaneous lineups, whereas the proportion of correct identifications between simultaneous and sequential lineups is comparable. In sequential lineups the recogniser uses an absolute judgment strategy, where a witness tries to construct a match between the memory representation and the lineup members in the visual field and not to choose the member who is most similar to the representation of the suspect (Lindsay & Wells, 1985). It is not stated in the CCP that simultaneous lineups are preferred, but there are strong indications to it as CCP § 81 section 2 states a person 'shall be presented for identification with at least two similar objects'. Thus, it is worthwhile to discuss when sequential lineups should also be implemented in

practice in Estonia to prevent miscarriages of justice taking place both in adult and child eyewitnesses (Pozzulo & Lindsay 1998).

According to CCP § 81 lg 2 there should be at least two fillers in the lineup. In 97% of cases the lineup consisted of three persons. In recent literature it is recommended that the number of fillers in the lineup should be from five to eight (Wells, Small, Penrod et al. 1998). The reason for that is diminishing the probability that an innocent person would be selected by chance from the lineup. In a three-member lineup the odds to choose someone from the lineup (including the option that the suspect may or may not be in the lineup) is 25% whereas in a nine-member lineup the odds decrease to 10% which is substantially lower. Therefore, increasing the number of fillers both in lineups for children and adults could reduce the possibility of suspect misidentification by chance.

Most of the lineups were presented on photos. A photo lineup is the most prevalent method of identification in the United States (Wells, Memon, Penrod 2006), whereas in the UK at the moment predominantly video-based lineups are conducted (VIPER, Video Identification Parades by Electronic Recording, Memon et al. 2011). Studies have demonstrated that the medium of presentation has no effect on the accuracy in target-present lineups (Valentine, Darling & Memon 2007), but in target-absent lineups the false identification rate can be lower with video than with photo lineups. It is as important as seeing the suspect live or on video as the recogniser sees a dynamic image of him or her, whereas on photos the image is static and reflects less to the situation in real life. As VIPER has proved itself to be cost-effective and relatively quick to produce a lineup (Memon et al. 2011) then similar methods can also be recommended for application in Estonia.

Suspects were more prone to choose the middle position in the lineup whereas investigators tended to put the suspect mostly in the first position (reading from left to right). This could give the recogniser a hint to who the suspect could be and thus lead to a flawed identification procedure. As the investigator could have his/her favourite position in the lineup where to put the suspect, then the option for the suspect to apply to the investigator to choose his/her position is clearly encouraged.

The overall correct identification rate was 77%, which is above the previous findings (Stebly et al. 2001), especially when the results of minors are removed from the analysis (90%). However, it should be noted

that as in court decisions often lineups were mentioned in cases where they were presented as incriminating evidence, then the results of this study may not reflect the situation in the field accurately. More research on this issue is clearly needed.

The ability to identify faces increases with age, although rapid changes take place between the ages of six and ten than later (Davies 1996). According to our results the recognition ability of minors is low, but as there were only three subjects below the age of 14 then no far-reaching conclusions could be made.

The confidence ratings of the recognisers were moderate. The confidence rating is asked from the recogniser to assess his/her credibility, similarly it is asked in the lineup procedure the features which the target was recognised (and later it can be compared with the features mentioned before in the interview). However, it should be reminded that confidence is poorly related to identification accuracy (Vrij 1998; Sporer, Penrod, Read & Cutler 1995), thus it can not be an effective method in estimating a witness' credibility.

It is found that the time delay between the crime and the identification affects both correct and false identifications (Malpass & Devine 1981). The mean time between the crime and the interview was roughly one and a half months, crime and the lineup two months and interview and lineup three weeks. However, as we look at the maximum range then it can be up to nearly one and a half years. In these cases the memory from the original event can be diminished considerably. Accurate recognitions in our study took place in a shorter delay, however, this finding was not statistically significant.

In the interviews characteristics of gender, height, age, body features, outer characteristics of the face (such as length and colour of hair) and clothing were mentioned, however, in the recognition mostly inner (and in a lesser extent other) characteristics of the face were mentioned. Therefore, one can argue that the person characteristics in the recall phase and in the recognition phase did not overlap. From the psychological perspective, it is found that the link between accuracy of a persons description and lineup identification is weak (e.g., Sporer 1996; Wells 1985; Meissner, Brigham & Kelley 2001), however, for the judicial system it may hold the value of credibility.

Our study has several limitations. The inclusion criteria may have an effect on the results of this paper, as only those cases were involved in the analysis where the recogniser was also interviewed in the proceedings and in where the lineups were used in criminal proceedings in the court. It should be worthwhile to also study how lineups are conducted in police units as the proportion of accurate identifications could differ from our results.

In conclusion, to our knowledge this is the first field study of eyewitness identification issues in Estonia, from a legal psychology perspective. There are discrepancies of what the literature in forensic psychology knows about conducting lineups and different factors which have effects on the quality of lineups, and between the current practices in Estonian criminal proceedings at the moment. Further studies are needed to map the situation in eyewitness identification more closely. However, applying changes to the identification procedure would result in just more trials and decrease the amount of possible miscarriages of justice.

Contacts

Kristjan Kask

Institute of Public Law
University of Tartu
Kaarli pst. 3, 10119 Tallinn
Tel: +372 627 1898
Fax: +372 627 1889
kristjan.kask@tlu.ee

Regiina Lebedeva

Tallinn Circuit Court
Criminal Chamber
7, Pärnu Str., 15084 Tallinn
+372 628 2798
regiina.lebedeva@kohus.ee

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THE EFFECTIVENESS OF MEDIA CAMPAIGNS IN CHANGING INDIVIDUALS' FIRE, WATER AND TRAFFIC SAFETY BEHAVIOUR¹

Margo Klaos²

University of Tartu, Institute of Social Studies, PhD student

Annika Talmar

University of Tartu, Faculty of Law, PhD student

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² Corresponding author - address: Tartu, Pohla 9-1; phone 50 35 112; email: margo.klaos@rescue.ee

ABSTRACT

The impact of media campaigns to influence behaviour and reduce injuries has often been criticised. **The aim of this study was to analyse the effectiveness of media campaigns in changing peoples' safety-related behaviour from the recipient's perspective and to identify the factors which determine the effectiveness of media campaigns.** The empirical data for the study was gathered by a telephone survey conducted in Estonia in 2012, with a nationwide sample of 1000 people. We used the exploratory method to evaluate the different factors, in conjunction with the respondents behaviour change in different social groups. The assessment of the behaviour change is based on respondents own evaluations. The *innovation diffusion theory* was used as a frame and other behavioural change theories were used to explain the factors that have an impact on behavioural change.

The study proved the effectiveness of media campaigns in changing individuals' safety behaviour. Approximately half of the respondents confirmed that they had changed their safety behaviour due to campaigns, and every sixth had also suggested these changes to their peers. It was found that early adoption and quick spread can be predicted if people understand the severity of risk, there is a new solution to eliminate the risk, the expected change of behaviour is small and the need for self-efficacy is low. Combining media campaigns with other interventions to create social and normative pressure was found to be the most influential factor to reinforce the behaviour change among later adopters. In order to maximise the adoption of and minimise the resistance to the proposed measures, the level of diffusion of these measures in the society should be taken into account when choosing the intervention activities.

INTRODUCTION

Injuries are the fourth most common cause of death within the EU with almost one quarter of a million fatalities each year. Estonia together with Lithuania and Latvia the highest standardised death rate of fatal injuries in the EU. (Eurosafte 2013). During the last decade the main focus of injury prevention in Estonia has been in reducing fire, water and traffic fatalities. Comparing the 5-year periods of 2003-2007 and 2008-2012 in Estonia the number of fatalities in these accidents has decreased by 40,8% (including 50,1% of fire accidents, 15,8% in water accidents and 44,2% in traffic accidents) (Estonia Statistics). In these years different prevention activities and media campaigns have been implemented actively.

The impact of media campaigns to influence behaviour and reduce injuries has often been criticised. The general view of researchers is that safety education campaigns are capable of generating moderate to strong influence on knowledge and less influence on attitudes, but have no evidence-based impact either on people's behaviour changes nor reducing the number of fatalities and injuries (McLoughlin 1982, 246; Lund 2004, 278-282; Atiyeh 2009, 189; DiGuseppi 2010, 2, 9; Atkin 2013, 13, 15). These kinds of conclusions are usually taken as a negative assessment to the media campaign as the prevention method, but it is not necessarily an adequate judgement. The modest results may be caused either by the failure of the analysed campaigns, inappropriate use of a media campaign as a method or unreasonably high expectations to media campaigns.

The independent impact of media campaigns is often difficult to assess because they are usually implemented together with other measures. That is why the results are often evaluated indirectly or generally. In this paper we will estimate the impact of media campaigns on safety-related behaviour change from the perspective of an affected individual (the subject of prevention).

The aim of this study is to explore the effectiveness of media campaigns in changing peoples' safety-related behaviour from the recipient's own perspectives, and to identify the factors which determine the effectiveness of media campaigns.

The research questions:

1. How effective are the media campaigns in changing peoples' safety behaviour from their own perspective?
2. Which factors affect the effectiveness of media campaigns in the earlier phases of diffusion of innovation?
3. Which factors affect the effectiveness of media campaigns in the later phases of diffusion of innovation?

To reach the aim of the study and answer the research questions we are going to find out what kind of preventive measures different social groups have adopted, according to them as a result of media campaigns and analyse the results in frame of the behavioural change theories. The paper concludes by presenting suggestions for effective use of the findings in planning media campaigns.

1. THEORETICAL BACKGROUND OF THE STUDY

1.1. MEDIA CAMPAIGNS AS A METHOD FOR BEHAVIOURAL CHANGE

Classical strategies for preventing accidents and injuries are: 1) persuasion, 2) legal obligation, and 3) automatic protection (Injury in America ... 1985; Towner 1998, 17). Although automatic protection is the most effective strategy against injuries, it is not a usable solution for all problems. Most of the individual safety tools need an active participation of the person to have an effect (helmets; seat belts etc), and therefore also need some element of behaviour change. (McLoughlin 1982, 247; Gielen 2003, 65; Lund 2004, 315). Requiring behaviour change by law has been reported to be more effective than just persuading, but regulations cannot function without effective communication and everything cannot be regulated (Injury in America 1985, 7; McCallum 1995, 66; Towner 1998, 23).

Bandura (2004, 144) highlights that knowledge of risks and benefits creates a precondition for change and is therefore one of the core determinants. Media campaigns are one of the methods used to spread knowledge and modify human behaviour through persuasion. The definition of a public communication campaign usually includes three important factors: 1) directed at a well-defined audience, 2) within a specified period of time, and 3) to achieve a set goal (Snyder 2007, 32; Atkin 2013, 3).

Rose (1985) describes two different approaches to determine the audience of the campaign, the “high-risk” and the population-based strategy. The “high-risk” strategy seeks to identify individuals susceptible to high-risk and therefore deals with the consequences of the problem. The population strategy seeks to control the determinants of incidence in the population as a whole. It attempts to remove the underlying causes of problems. Safety education programs and media campaigns are aimed to share the knowledge and change the social norms through the individuals. (Rose 1985, 32, 35)

Atiyeh (2009, 189-190) has expressed the view that ideally the effectiveness of a successful prevention campaign should be measured by a decrease in mortality and morbidity rates, but also states that unfortunately the success of the programs is based only on the evaluation of

pre and post scores. Expectations to campaigns must be realistic about the results and the time for achieving them. Behaviour change is not an all-or-nothing phenomenon that occurs immediately or never at all. Individual or even broader social change might occur after many years but longer-term effects are difficult to measure, and the vast majority of campaign evaluations do not do it. (Fishbein 1995, 259)

1.2. THEORETICAL APPROACHES EXPLAINING BEHAVIOUR CHANGE BY CAMPAIGNS

Theories and models help to answer why, what and how people can change in their behaviour, and guide us to select the solutions depending on a specific situation and audience. (Trifiletti 2005, 299; Gielen 2003, 66). To select the most appropriate theory it is important to understand the direct and indirect pathways to change individuals' behaviour. Individual-level theories are intended to affect decision-making processes directly at an individual level by informing, modelling and motivating (Bandura 2004, 150; Wakefield 2010, 1262). Different authors confirm that the Health Belief Model, Protection Motivation Theory, and the Theory of Reasoned Action are evidence-based theories of successful campaigns to change individual behaviour through cognitive or emotional responses. To change the individuals' behaviour indirectly through their peers, interpersonal discussion, community-level social norms or public discussion, it is suggested to use theories that give the external reinforcement to the individuals. Social Learning Theory and Diffusion of Innovations are often used to describe an interpersonal and community level point of view to the mechanism of behaviour change. (Fishbein 1995, 248; Gielen 2003, 68; Aldoory 2005, 260; Trifiletti 2005, 302; Wakefield 2010, 1262)

According to the health belief model the risk perception is an important factor for behavioural change. People are mobilised to adopt a recommended safety action if they feel personally threatened and believe that the proposed action is potentially beneficial to reduce the threat. (Prentice-Dunn 1986, 154, Fishbein 1995, 248; Gielen 2003). The model has been successful in encouraging small scale changes or simple behaviours, but less useful to modify lifelong habits or require long-term changes. (Rosenstock 1988, 179; Aldoory 2005, 261). The protection

motivation theory emphasizes the importance of self-efficacy – role of the individual's perceived capability of successfully performing acts. Protection motivation is the result of the threat and coping appraisal. Using fear appeals and giving individuals tools for increasing self-efficacy through media messages will increase intent to perform preventive acts. (Floyd 2000, 408-409; Aldoory 2005 261-262; Atkin 2013, 5)

The theory of reasoned action suggests that the best single predictor of behaviour is the person's intention to perform it. The first important determinant of intention is the person's attitude toward performing the behaviour, which is based upon the positive and negative consequences of that behaviour. The second important determinant is the person's perception of the social or normative pressure, which presumes the peer support and wide adoption of new behaviour in the community. (Fishbein 1995, 248; Fishbein 2003, 166). The social learning theory describes three different ways of learning and their role in the behaviour change process. Personal performance accomplishments are the most influential sources of efficacy information and therefore it explains why the habitual behaviour is hard to change. The next most potent is vicarious experience that is very dependent on social environment and relations and covers a major part of learning throughout life. Verbal persuasion is described as less powerful than performance accomplishments or vicarious experience. (Rosenstock 1988, 180)

Diffusion of innovations explains how new behaviours are adopted inside communities. It describes the communication concerned with the spread of messages and the process through which an individual passes from first knowledge of an innovation to a decision to adopt or reject the new idea. The theory is based on segmentation of different adopter categories and the innovation communication process among members of the social system on the time scale. (Aldoory 2005, 261-262; Rogers 1995, 5)

Rogers (1983) proposed five adopter categories and describes the important differences between earlier and later adopters of innovations in socioeconomic status, personality variables, and communication behaviour (Figure 1). Innovators are very open to changes, and therefore play an important role in the diffusion process by launching the new idea in the social system. The role of the early adopters is to decrease uncertainty about a new idea by adopting it, and then acting as opinion leaders conveying the idea through their interpersonal networks. The early majority

usually deliberates for some time before completely adopting a new idea. Their active interaction with their peers makes them an important link in the diffusion process. People from the late majority group do not adopt the innovation until most others in their social system have done so and the uncertainty about the new idea is removed. Adoption may be an economic necessity or due to increasing peer and network pressure. The laggards are the most conservative and suspicious of an innovation and may never adopt. Their decisions are often made based on the experiences of previous generations and traditional values. Their resistance to innovation is often the consequence of their economic position and poor social networks. (Rogers 1983, 248-251)



Figure 1. Adopter categorisation on the basis of innovativeness (Rogers 1983, 247).

In the current study we will use the Diffusion of Innovation as a theoretical frame and the other theories to explain the factors of behavioural change. We concluded the list of factors that explain the differences of behaviour change between social groups and predict the success of innovation adoption process into different phases: the importance of sufficient information, adoption of new measures, role of risk-perception and self-efficacy, differences in adopting small-scale changes and changing habitual behaviour, role of social pressure and indirect impacts, and the support of law requirements.

2. METHOD AND BACKGROUND

The current article is based on the study of “Fire, water and road safety prevention” conducted by the Estonian Academy of Security Sciences and commissioned by the Ministry of the Interior in Estonia. The empirical data for the study was gathered by a telephone survey conducted in Estonia in 2012 with a nationwide sample of 1000 people. The regionally stratified random sample was representative of age, gender and ethnicity (Table 1). The sample was designed based on the proportions of these characteristics both nation and countywide.

Table 1. Profile of the sample

		%	Number
TOTAL		100%	1000
Sex	Male	47%	471
	Female	53%	529
Age	15-24 y	12%	120
	25-44 y	39%	388
	45-64 y	35%	350
	65 +	14%	142
Ethnicity	Estonian	69%	690
	Russian	31%	310
Residence	Capital (Tallinn)	31%	306
	City (Tartu, Narva, Pärnu, K-Järve)	18%	179
	Town and township	28%	278
	Borough and village	24%	236

We asked two questions for this study:

1. “Have you deliberately changed your behaviour as a result of some safety communication campaign?” The respondents got to choose multiple choice answers: 1) Yes, I have changed my own behaviour; 2) I have changed my own behaviour, and also suggested this to my friend/peer; 3) I only suggested the behaviour change to my friend/peer; 4) No, I have not done any changes.

2. “What kind of behaviour change specifically did you do or suggest-ed?” Open answer question with an opportunity for respondents to declare one or more specific changes.

We used the exploratory method to evaluate the different factors in conjunction with the respondents behaviour change in different social groups. The assessment to the behaviour change is based on respondents own evaluations. Based on the empirical data we analysed the differences in declared behaviour change by sex, age, and ethnicity of respondents. Values of $p < .05$ were considered statistically significant.

Operationalisation of factors used to assess the impact of media campaigns:

- Legal obligations in Estonia – installing smoke detector since 2009¹, wearing a reflector since 2011², wearing a seatbelt, speed limits, crossing the road in the right places and with green light, chimney sweeping by qualified specialists since 2015³, no drinking and driving, a car driver wearing a reflective vest when stopping in the dark since 2011, wearing a bicycle helmet for those under 16 years of age (Riigi Teataja database).
- Media campaigns in the period of 2007-2013 in Estonia: smoke detectors, smoking-related fire-risk, drinking and swimming, use of seat-belts, bicycle safety and helmets, drinking and driving, speeding, pedestrian safety, and reflectors (Estonian Rescue Board, Estonian Road Administration).
- We considered the preventive measures as new only if “innovators” and “early adopters” had adopted these in the beginning of the analysed period 2007-2013: smoke detectors (16%), bicycle helmets (13%), and fire extinguishers (12%) (Table 2).

¹ Since 2007 obligatory in new premises and since 2009 in all premises.

² Before 2011 obligatory only in external settlements during dark period; since 2011 obligatory everywhere.

³ Since 2010 obligatory in apartments and since 2015 also in detached houses.

- We compared previous pre and post campaign surveys and annual studies from the period 2007-2014 to assess the segmentation of different social groups to the innovation adopter's categories based on the theory of Diffusion of Innovation. We took into account the initial level, final level and the amount of change (Table 2).

Table 2. Changes of safety behaviour from 2006/2007 to 2012/2013; and segmentation of adopter groups (authors table based on surveys published on: www.rescue.ee, www.tai.ee and www.mnt.ee).

Activities	Initial adoption level (%)*	Final adoption level (%)**	Earlier adopters	Later adopters
Fire extinguisher	12,0	29,0	Families with children; Estonian-speakers	Age 65+
Bicycle helmet	13,0	28,0	Men, Estonian-speakers; age 25-49	Age 15-24 and 65+
Smoke detector	16,0	93,0	Families with children; Estonian-speakers	Age 65+; Russian-speakers
Rear seat belt	28,5	81,5	Women; Estonian-speakers; age 50-74	Men; Russian-speakers
Wearing reflector	49,0	66,0	Women; Estonian-speakers; age 35-49	Men; Russian-speakers; age 15-34
Wearing life jacket	64,0	71,0	Women; Estonian-speakers; age 35-74	Men; Russian-speakers; age 25-34
No drinking and driving	88,7	93,3	only high-risk group	
Front seat belt	90,0	98,1	no studies during early adoption	Men; Russian-speakers; age 15-34
No drinking and swimming	90,0	87,3	only high-risk group	Men; Estonian-speakers; age 15-49

* 2006 or 2007 depending on the year of survey

** 2012 or 2013 depending on the year of survey

3. FINDINGS

3.1. EVALUATIONS TO THE IMPACT OF MEDIA CAMPAIGNS

The analysis showed that the population is divided into two groups in assessing the impact of the prevention campaigns on their behaviour (Figure 2). The first group which includes nearly half of the respondents (48%) confirmed that media campaigns have had an impact on their behaviour. These changes include two overlapping activities: 46% of responders declare that they have deliberately changed their own safety behaviour as a result of a safety campaign and 16% have also suggested the changes to their peers. Women and younger people declared more activity in supporting others with a fifth of them suggesting the behaviour change to their friends or peers. The second group slightly over a half of the respondents (52%) did not declare their behaviour change in response to media campaigns. This group is internally heterogeneous, including people who are not receptive to behaviour change, but also people whose safety behaviour does not require any significant change, people who have changed their behaviour as a result of other interventions, and those who still intend to change their behaviour.

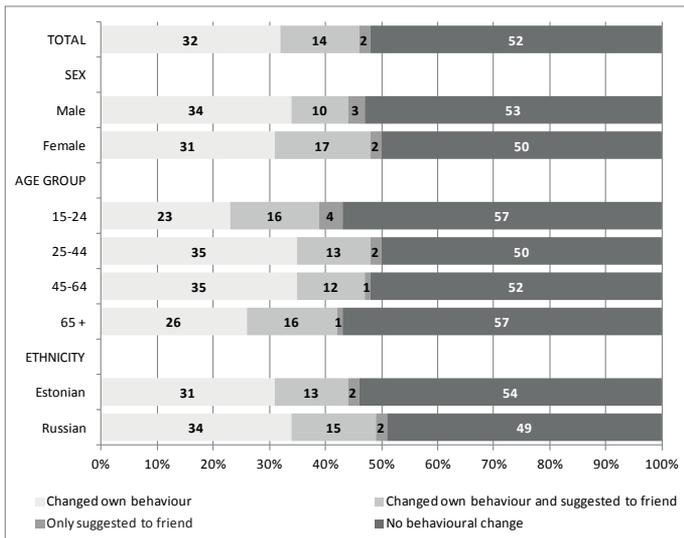


Figure 2. Have you deliberately changed your behaviour in response to a media campaign? (% of the sample)

3.2. DIFFERENCES BETWEEN SOCIAL GROUPS

Figure 2 also shows some general differences when comparing respondents by the socio-demographic indicators. There are no significant contrasts between different groups in changing their behaviour in response to media campaigns. However, Russians (51%) compared to Estonians (46%) and women (50%) compared to men (47%) declared a slightly bigger impact of media campaigns to their behaviour change. The differences between age-groups are more noticeable. The results show that the behaviour change is bigger in the age-group 25-44 years (50%) and 45-64 years (48%) compared to the oldest (65+ years) and youngest (15-24 years) age groups (both 43%).

In order to find out the main factors that explain the impact of media campaigns, we will analyse more precisely how the campaigns have generally supported the adoption on specific safety behaviours and compare how the different social groups have adopted these (Table 3 and Table 4).

Table 3. Gender and ethnicity differences of adopting preventive measures as a result of media campaigns (% from the respondents who have changed their behaviour).

Activities	Male	Female	Estonian	Russian	TOTAL
Smoke detector installation and maintenance	26,7	30,5	30,3	25,4	28,9
Wearing a reflector	10,7**	21,3	17,4	15,2	16,7
Law-abiding and careful in traffic	13,6	16,2	12,7	21,0**	15,1
Wearing a seat belt	15,1	13,6	16,8	8,0**	14,2
Adhere to the speed limit	19,9**	8,8**	11,2**	19,6**	13,6
Crossing roads in the right place and with green lights	1,5**	8,8**	4,7	8,0**	5,7
Chimney sweeping, maintenance of fire places, careful heating	3,4	4,4	5,0	1,5**	4,0
Acquiring a fire extinguisher	6,3	2,2	4,7	2,2	4,0
No drinking and driving	4,4	3,3	3,5	4,4	3,8

Following water safety rules, wearing a life jacket	3,9	3,7	3,2	5,1	3,8
Wearing a reflective vest	2,9	4,0	4,4	1,5**	3,6
Careful with open fire, smoking safely	2,9	3,3	2,9	3,6	3,1
Acquire a bicycle helmet and safety tools	2,9	2,9	4,1**	0,0**	2,9
No drinking and swimming	2,4	1,8	2,1	2,2	2,1

** $p < .05$

3.3. DIFFERENCES BETWEEN ADOPTING PREVENTIVE MEASURES

When evaluating the adoption of specific behaviours or protective equipment in response to campaigns (Table 3) we can see that installation of smoke detectors stands out from the other safety activities as the most adopted behaviour suggestion (28,9% from the respondents who changed their behaviour). The next group of activities with a higher adoption rate (16,7 – 13,6%) include different traffic related safety measures (beginning with the more adopted): wearing a reflector, law-abiding and careful in traffic, wearing a seat belt, and following speed limits. The rest of the prevention measures include different traffic, fire and water safety activities where the change has been already much lower (2,1 – 5,7%).

3.4. GENDER DIFFERENCES

Table 3 shows that gender differences in the impact assessment of the campaigns are limited. Important gender differences have emerged only in improving traffic behaviour. Women have adopted the positive behaviour in using a reflector (21,3% versus 10,7% men) and crossing the road at the right place with the green traffic light (8,8% versus 1,5% men). While women have improved their behaviour rather as pedestrians, men have done it mostly as drivers. For men, a statistically significant difference can be seen in adhering to the speed limit where every fifth man has changed behaviour. With the smaller difference men have also improved seat belt usage, reduced drunk driving, and acquired fire extinguishers more than women.

3.5. ETHNICAL DIFFERENCES

There are a number of statistically significant differences in changes in behaviour by ethnic groups (Table 3). Russian-speaking people have significantly improved their overall traffic related behaviour compared to Estonians – law-abiding and careful in traffic (21,0% versus 12,7%), adhering to the speed limit (19,6% versus 11,2%), and crossing the road at the right place with a green traffic light (8,0% versus 4,7%). At the same time the Russian-speaking people have statistically significantly lesser improved in the usage of seat belts (8,0% versus 16,8%), reflective vests (1,5% versus 4,4%), and bicycle helmets (0% versus 4,1%).

Table 4. Age differences of adopting preventive measures as a result of media campaigns (% from the respondents who have changed their behaviour).

Activities	15-24 y	25-44 y	45-64 y	65 y	TOTAL
Smoke detector installation and maintenance	14,6**	35,5	25,3	30,3	28,9
Wearing a reflector	18,8	16,1	16,3	18,2	16,7
Law-abiding and careful in traffic	20,8	12,9	15,2	16,7	15,1
Wearing a seat belt	25,0**	16,1	12,9	4,6**	14,2
Adhere to the speed limit	10,4	16,7	11,8	12,1	13,6
Crossing roads in the right place and with green lights	4,2	2,7**	8,4**	7,6	5,7
Chimney sweeping, maintenance of fire places, careful heating	0,0**	3,8	5,1	4,6	4,0
Acquiring a fire extinguisher	4,2	4,3	4,5	1,5	4,0
No drinking and driving	2,1	5,4	1,7**	6,1	3,8
Following water safety rules, wearing a life jacket	2,1	4,3	3,9	3,0	3,8
Wearing a reflective vest	2,1	3,2	3,4	6,1	3,6
Careful with open fire, smoking safely	0,0	2,7	5,6**	0,0**	3,1
Acquire a bicycle helmet and safety tools	4,2	2,2	3,9	1,5	2,9
No drinking and swimming	6,3**	3,8**	0,0**	0,0	2,1

** $p < .05$

3.6. AGE DIFFERENCES

Although Figure 2 showed the lower overall self-assessed impact of prevention campaigns on the youngest age group (15-24) compared to the age-groups 25-44 and 45-64, the more detailed results (Table 4) explain that actually they have changed their behaviour statistically significantly less only in two areas of activity – the smoke detector installation or maintenance (14,6% versus 28,9% total average), and chimney sweeping (0% versus 4% total average). The youngest age group significantly differs from the others with the highest estimation (25%) on the impact of seat belt campaigns. In fact as the age increased the impact of seat belt campaigns gradually becomes smaller. The impact of campaigns aimed to reduce swimming while drunk have also changed the behaviour among the age-groups of 15-24 years (6,3%) and 25-44 years (3,8%) but did not cause any changes among the older age-groups. The highest overall change of behaviour among 25-44 old people (as seen is Figure 2) is mainly based (Table 4) on the higher adoption of installing smoke detectors (35,5%) and adhering to speed limits (16,7%), and increasing the use of seat belts on the back seats (5,4%) but does not differ significantly from the others.

The age-group 45-64 differs significantly from others (Table 4) when comparing an almost lack of impact on campaigns to reduce alcohol related risk behaviour – drink-driving (1,7%) or swimming while drunk (0%). On the positive side, the same age-group has changed their behaviour more than others to become more careful with open fires and smoking (5,6%), which is also usually related to drunk behaviour.

Only the oldest age-group (65+) has not had a statistically significant behaviour change in any area compared to the others. Mostly they have changed their behaviour similarly or even a little higher than the others. However, there are several safety activities where they declared smaller behaviour changes as a result of media campaigns than others – use of seat belts (4,6%), carefulness when using open fires or smoking (0%), acquiring a fire extinguisher (1,5%), acquiring a bicycle helmet (1,5%), and no swimming while drunk (0%).

4. DISCUSSION

4.1. EFFECTIVENESS OF MEDIA CAMPAIGNS IN CHANGING PEOPLES' SAFETY BEHAVIOUR

4.1.1. Recipients' evaluation on the impact of media campaigns

Snyder (2007, 33) have presented that the average independent effect size of communication campaigns is about 5 percentage points. The independent role of media campaigns is usually hard to measure because they are mostly combined with other interventions or measures. Very often the success of the campaigns is based only on an evaluation of pre and post scores of knowledge, attitudes or behaviour (Atiyeh 2009, 190, Snyder 2007, 33). We were focused on the respondents' own estimations how much they have changed their behaviour on the impact of campaigns.

In the current study we found out that approximately half (48%) of the respondents confirmed the impact of communication campaigns in changing their safety behaviour. In a big picture it fits with Rogers' (1983, 201) theory of innovation of diffusion – half of the population belongs to the “innovators”, “early adopters”, and “early majority” group and mass media channels are relatively more important than interpersonal channels for these groups'. Therefore their attitudes and behaviour can be more easily changed by media campaigns. These people who did not declare their behaviour change in response to media campaigns (52%) are not necessarily ignorant to campaigns or the ones who refuse to change their behaviour. Their safety behaviour might not need any significant changes or they may have changed their behaviour as a result of other interventions. As Table 2 shows all of the evaluated measures have been adopted at least by the “innovators” and “early adopters” and many measures by the majority of the population before the period of current study. That leads us to the conclusion that the potential for the impact of media campaigns is probably even higher.

When evaluating the differences between the age groups it revealed that the lower behaviour change in some age groups is not caused by their lower willingness to change but by the missing exposure to some risk and activities. Younger people are often not homeowners or drivers, therefore they cannot be expected to change behaviour (installation of smoke detectors, chimney sweeping, following the speed limits, drunk

driving). Similarly, the oldest age group is not often exposed to various activities (cycling, swimming) anymore and has lost the need to change risky behaviour. We can conclude that the presence of risk is different during the cycle of life.

4.1.2. Effectiveness of media campaigns in targeting information

Knowledge-awareness of risks and proposed preventive measures is the most important prerequisite for behaviour change (Lund 2004, 296; Bandura 2004, 144). Although “innovators” and “early adopters” are motivated to search the information by themselves the other groups definitely need more organised, prepared, and targeted messages to be involved.

Our analysis (Table 3) found big differences in behaviour change among the “early and late majority” (adopted by less than 84% of the population) when comparing the areas of organised media campaigns (smoke detectors, reflectors, seat-belt, speeding, and pedestrian safety) with the measures that were covered only by everyday risk communication (chimney sweeping, fire extinguishers, life jackets, reflective vests, and bicycle helmets). Based on the comparison of smoke detectors, fire extinguishers, and bicycle helmets (Table 2 and 3), we can conclude that quick adoption and wide spread use of smoke detectors during earlier adoption phases have been achieved by special media campaigns. The analysis demonstrates that media campaigns are very effective in supporting the diffusion of innovations in the early stages among the people who adopt changes easily, but need media campaigns as creators of knowledge-awareness and initiators to change.

Another dimension of the importance of targeted media campaigns can be highlighted by comparing the differences between ethnical groups. An apparent contradiction revealed in our study when comparing the results of Russian-speaking respondents with the information of the previous surveys. Russian-speaking people as a social group usually remain to the “late majority” and “laggards” groups when it comes to adopting safe behaviours (Table 1), but considers the campaigns more effective on their behaviour than the Estonian-speakers (Table 3). When analysing the results in more detail we can realise that Russian-speakers have assessed the impact of prevention campaigns on their safety behaviour higher mainly in the topics that were not covered by media campaigns

(law-abiding and careful in traffic, road crossings, wearing life jackets) and the information flow has come primarily through the daily risk communication. When comparing the areas where special media campaigns have led to the bigger behaviour changes (smoke detectors, reflectors, and safety belt) the results show the higher impact to the Estonian-speakers (Table 3). These differences have been explained with the smaller reach of media campaigns to Russian-speaking people as appeared in different follow-up studies of various media campaigns (www.rescue.ee). This is an important limiting factor in terms of the spread of innovations.

We found that differences in the diffusion of safety-related behaviour change between ethnic groups can be explained mainly by environmental linguistic, cultural, and community barriers. The information often reaches the Russian-speaking people later and in a reduced content, which postpones the process of adopting safety behaviour and leads to significant ethnic differences. We can conclude with interpretation of Mason's (1984) ascertaining that people can hardly be expected to avoid the risks and adopt new behaviour when they do not know or understand these risks, when they lack the motivation, knowledge, or skills needed to choose a safer behaviour.

4.2. FACTORS AFFECTING THE EFFECTIVENESS OF MEDIA CAMPAIGNS IN THE EARLY PHASES OF DIFFUSION OF INNOVATION

4.2.1. Novelty of measures

According to the theory of Diffusion of Innovations the innovation-decision process is the process through which an individual passes from first knowledge of an innovation to implementation of the new idea, and to confirmation of this decision. The basis of this process is sufficient information. The mass media channels play an important role to create awareness-knowledge by informing an audience of potential adopters. (Rogers 1983, 20; Rogers 1995; Aldoory 2005).

Our analysis showed one successful example of new safety solutions where people have declared the highest adoption score of changing their behaviour on the impact of media campaigns – every 3 respondent of 10 who had changed their behaviour has installed a smoke detector.

The percentage of homes equipped with smoke detectors in the beginning of media campaigns was only 16% (Suitsuanduri... 2007, 9). After the active implementation of media campaigns to inform and persuade people it increased rapidly to 38% by the year 2008 and to 55% by 2009 (Elanikkonna... 2008; Elanikkonna... 2010). In a somewhat longer period of time similar results were achieved with the help of media campaigns in the United States, where the 5% of 1970 grew to 46% by 1980 (Massey 1980, cited in McLoughlin, 1982).

We also analysed the adoption of fire extinguishers and the use of bicycle helmets as new safety solutions. In contrast with the implementation of smoke detectors there were no special media campaigns to promote owning fire extinguisher at home or using bicycle helmets among adults. That explains the respondents' low estimations to the role of communication campaigns in our study. Nevertheless, there has been an increase in adopting both of these safety solutions among the "early majority" – homes equipped with fire extinguisher increased from 12% to 29%, and the amount of people using a bicycle helmet grew from 13% to 28% (Table 2). These findings correspond closely to the ideal of the theory of Diffusion of Innovation – "innovators" found the smoke detectors, fire extinguishers and bicycle helmets by themselves and the "early adopters" looked for the information from various sources without the support of media campaigns.

Our study demonstrates that novelty of measure is a good predictor for quick spread of changes at earlier stages. We confirm that the effectiveness of media campaigns is very high when there is a necessity to create the awareness-knowledge of new safety solutions and work as a consider call to action to change their behaviour.

4.2.2. Risk perception and self-efficacy

Based on the Health Belief Model and Protection Motivation Theory risk perception is an important predictor of motivation to adopt safety behaviour change. Kouabanen (2009, 774) emphasizes that risk perception determines the amount of risk individuals are ready to assume and their attitudes on safety and risk prevention.

The results of our study showed some gender and age-related differences that might be explained with the risk-perception and self-efficacy.

Women are more favourable to adopting new safety behaviour (smoke detectors and wearing a reflector) as a result of media campaigns than men (Table 3). Previous studies (Table 2) also confirm that the dominant social group in the “early majority” in adopting the innovation are mostly women. Different authors have pointed out that gender is strongly related to risk perception, where men tend to underestimate the risks, while women perceived the risks higher (Savage 1993, 2; Slovic 1999, 692; Renn 2008). We find that women’s earlier adoption of safety behaviour in the impact of media campaigns can be explained with their higher level of perceived severity of risks.

Risk perception is also age-related and depends on peoples’ different personal life experiences. Savage (1933, 8) found that older people and men appear to believe that they are less exposed to a risk even when statistically they are actually more exposed. If the people have not had negative experiences with accidents and do not perceive themselves at risk, they do not personalise the safety messages and are less likely to engage in safety behaviour (Cauberghe 2009; Aldoory 2005; Weinstein 1980). Although our results showed that the oldest and youngest age-groups differ from the others in changing their behaviour in general (Figure 2), we do not confirm the age-related differences between risk perception and behaviour change.

Behaviour change theories are emphasizing an important role of self-efficacy affecting the decision of behavioural change. People’s belief about their own ability to cope with new behaviour or the use of safety measure is an important predictor of adopting it (Kouabanen 2009, 767). The results of our study confirm this with the example of fire extinguishers. The age-group 65+ have made considerably less change in equipping their homes with a fire extinguisher (Table 4). These differences are similar when comparing the male and female respondents (Table 3). The use of a fire extinguisher is associated with physical activity in a dangerous environment and these results reflect lower assessment of the self-efficiency among the elderly and females. The study shows that even if the information and risk perception would predict the behaviour change among all groups, the lower self-efficacy and therefore lower belief in one’s own capabilities might become a barrier of behaviour changes in some areas. This conclusion confirms the statement that public campaigns promote changes mainly in people with high perceived self-efficacy (Bandura 2004, 122).

4.2.3. Single task or small-scale changes

According to the Health Belief Model media campaigns are more effective in changing a single task or a small-scale behaviour, and less effective in changing the habitual behaviour or making big changes (Rosenstock 1988, 179; Aldoory 2005, 261). It can be explained that bigger and lasting changes also need attitude changes and to generate intention, but simple decisions are often made based on emotions or a small amount of information.

We examined installation of smoke detectors, cleaning chimneys, purchase of fire extinguishers, and reflective vests as single task safety activities. Although they need some future actions also later during maintenance, once the expected behaviour change is done it is working for safety without regularly repeated activities. From this list only the smoke detectors have had the special media campaigns. Wearing a reflector can also be evaluated as single task and small-scale behaviour. Smoke detectors and reflectors have got the highest scores in our study, where people explained the influence of media campaigns to their safety behaviour. The interpretation of peoples' assessments to their traffic behaviour also explains that even if they do not follow the rules 100% (law-abiding and careful, speed limit, road crossing) they have made at least some small scale changes on the impact of media campaigns. We can confirm that well-conducted campaigns are very effective to generate behaviour change if the single task or a small scale change is expected.

4.3. FACTORS AFFECTING THE EFFECTIVENESS OF MEDIA CAMPAIGNS IN THE LATER PHASES OF DIFFUSION OF INNOVATION

4.3.1. Habitual risk behaviour and high-risk behaviour

Savage (1993, 8) points out that older people and men believe that they are less exposed to a risk and are therefore less fearful. Their dangerous behaviour is very often caused by an underestimation of risk, overestimation of one's own coping efficacy, habits, and alcohol-related inadequacy. It is asserted that behaviour can be most effectively changed through

direct approaches by training skills, but populations at greatest risk are less likely to be exposed to public education programs (Lund 2004, 274; McLoughlin 1982, 245).

One of the hardest areas to change is alcohol-related risk behaviour. Lindholm and Steensberg (2000, 31) have even proposed that besides repeatedly emphasizing the drowning hazard for persons who have been drinking, the only way forward seems to be society's general efforts to deal with the alcohol problem. Although the changes of alcohol-related behaviour are not very visible compared to the adoption of new safety devices, the present study showed that the media campaigns in Estonia have been successful in targeting high-risk groups and reducing their risk behaviour – people aged 15-24 have statistically reduced swimming while drunk and people aged 45-64 have changed their smoking behaviour at home.

Social learning theory (Rosenstock 1988, 180) explains that older people's habitual behaviour is harder to change because it is mainly based on their personal experiences. The older people might have a lower willingness to come along with changes and are more entrenched in habitual behaviours compared to younger people. We did not find evidence to confirm that habit-related risk behaviours (smoking in bed, cycling without helmet, boating without life jacket, exceeding the speed limit, not wearing a seat belt, crossing the road wrongly) are harder to change among the elderly with media campaigns (Table 4). They have declared similar or even higher behaviour change than the average or have less need for change (seat belts, bicycle helmets). Our findings confirm Bandura's (2004, 148) point of view that theories over-predict the resistance of health habits to change. We found that fire-related behaviour (use of open fires and smoking) is the only topic where the older people are more exposed to the risk, but they have not changed their behaviour. The missing change can be partly explained by the fact that fire safety campaigns have not usually been targeted directly at elderly people, but to their children and peers to initiate their support from them.

Reducing the risk behaviour is more difficult than proposing new safety devices and the overall result among the whole population is usually not spectacular, which may mislead the assessment of the effectiveness of the campaign. In evaluating the effectiveness of the campaigns, its impact on the whole population is not so important, but the impact on the risk group is very important. Based on the present study it can be concluded

that well-targeted media campaigns can be effective in influencing conservative segments of the population.

4.3.2. Social pressure and peer support

Tay (2005, 922) reached the very interesting finding that anti-drunk driving enforcement and publicity campaigns had a significant independent effect in reducing crashes, but their interactive effect was anti-complementary. It supports the idea that in reducing alcohol-related risk behaviour with media campaigns, the messages should be focused to create social pressure and peers support, not to threaten with law enforcement. Our study emphasizes the role of peer persuasion and the indirect impact of media campaigns. The analysis showed that every sixth respondent suggested the changes to their peers as a result of media campaigns. The bigger differences can be concluded based on gender and age – women and the youngest age group are more active in supporting their peers with suggestions (Figure 2).

We found the youngest age group were in a very unique position. According to the previous studies the people from the age-group 15-24 mostly belong to the later adopters groups (seat belts, life jackets, reflectors, no drinking and swimming) (Table 2). The Diffusion of Innovations theory considered media campaigns largely ineffective to influence the “late majority” and “conservative” groups directly, but our analysis found the opposite results for the youngest age group. The youngest age group declared the highest change of behaviour compared to the others in most areas where they belonged to the later adopters group (Table 4). We can conclude that their risk behaviour is not yet habitual and can be more easily changed with media campaigns.

The explanation of younger people’s later adoption of safety behaviour is related to the higher importance of social approval from their interpersonal relationships (Bandura 2004, 144).

Although the younger age-group belongs to the “late majority” they do not act totally “in accordance” with this adopters group. In contrast to the description of the “late majority” they have declared more than the other age-groups that they have also suggested safety behaviour changes to their friends. We found that although the age-group 15-24 needs more time to adopt the new safety behaviour, however once they have adopted it they

start to act like the “early majority” group and spread the innovation within society. Therefore they are an important link in the chain of Diffusion of Innovation. Young adults adopt changes during active social learning and they are also good informants concerning the change to peers.

Rogers (1983, 18) has explained that people from the “late majority” group do not adopt the innovation until most others in their social system have done so, and interpersonal channels are more effective than media campaigns to persuade them in changing their risk behaviour. According to the theory of reasoned action (Fishbein 2003, 166) intention to change the behaviour is dependent on the support of important persons and the wide adoption of new behaviour in the community. Therefore the target audience of communication campaigns should not be limited to people from a statistical high-risk group. When we evaluate women’s earlier adoption of safety behaviour and their bigger awareness to prevention campaigns with the conjunction of their increased activity to persuade their peers, we find the women to be the best target group to address the safety messages even if they do not belong to the main risk group. Our finding are supported by Rose’s (1985) population strategy that explains that once a social norm of behaviour has become accepted in the society it also starts to influence people from the high-risk group.

4.3.3. Legal requirements

Several authors have highlighted the effectiveness of media campaigns as a method when they are applied to improve the safety and use of protective equipment in combination with legal remedies (Towner 1998, 23; Bennett 1999; Lund 2004; Tay 2005b;). Our study also confirms the big difference between the impact of campaigns that are just giving recommendations (do not drink and swim, use a bicycle helmet, smoking safety) compared to the ones where people have been persuaded to comply with a legal obligation (installing smoke detectors, wearing a reflector, traffic law enforcement in general, seat belt usage, and following the speed limits) (Table 3).

In our study the peoples’ assessments to the impact of media campaigns in changing their behaviour were highest in the areas where the legal obligations have changed lately, and the new rules have been introduced by media campaigns (smoke detectors and reflectors). In both of these examples we can confirm that the measures were adopted by the “early

majority” under the impact of media campaigns before they became mandatory by law, and legal obligations had an important role in spreading the innovation among the “late majority” adopters group. Lund (2004, 315) explains that it is difficult to introduce a mandatory helmet law before a certain proportion of the population is using bicycle helmets. It is emphasized that laws and regulations cannot function without broad-based public support that can be achieved in the society over time when accompanied by information and education measures (McCallum 1995, 66; Lund 2004, 315).

The success of media campaigns in combination with legal remedies have been highlighted mainly in the area of traffic safety. Elder *et al* (2004, 65) concluded from the results of eight studies that well-conducted media campaigns that are implemented in conjunction with high visibility enforcement are effective in reducing alcohol-impaired driving and alcohol-related crashes. Tay (2005b, 922) found that anti-speeding enforcement and publicity campaigns had significant interactive effect in reducing serious crashes involving young males. Wakefield (2010, 1267) pointed out that the most notable road safety campaigns have promoted seat belt use. Our analysis also showed that in conjunction with legal obligations the media campaigns have been successful in promoting traffic safety (seat-belt use, speed limits, law-abiding in traffic), where there is a need to change the behaviour of the “late majority” and also in changing high-risk behaviour in the “laggards” group (no drinking and driving). The biggest change in reducing drunk driving has been in the age groups 25-44 and 65 +.

Lund (2004, 296) emphasises that new regulation does not always reveal immediate effects and confirms that education and information are the prerequisites for behaviour change. Media campaigns have many roles in promoting legal requirements: creating knowledge-awareness of regulations, generating the social support and pressure for present and future legal norms, and also threatening with the consequences of law-enforcement. We find that legal obligations and the component of law-abidingness are important factors to emphasize when the diffusion of innovation has reached the “late majority” group.

CONCLUSIONS

Although a number of studies demonstrate good results from media campaigns, the common opinion is still suspicious to the idea that evidence-based intervention changes people's behaviour. The aim of this article was to evaluate the effectiveness of media campaigns in changing peoples' safety behaviour from the subjects own perspectives, and to explore the factors which determine the impact of campaigns in the different phases of diffusion of innovation.

The most important finding of our study is that peoples' declared behaviour change proves the effectiveness of media campaigns as an intervention method. We can conclude that campaigns can be successfully used to change the individuals' safety behaviour directly and also indirectly by initiating the social pressure. Approximately half of respondents confirmed that they had changed their personal safety behaviour due to campaigns, and every sixth had also suggested these changes to their peers.

Changes of behaviour or adoption of new safety measures are not happening all at once in a whole society. Peoples' readiness to adopt innovations is different and needs to be taken into account when planning prevention interventions. Differences between social groups allowed us to explore the factors that predict the earlier adoption of innovation or act like barriers that cause later adoption. Our study found that media campaigns are very effective in supporting the diffusion of innovations in the early stages among the people who adopt changes easily, but need media campaigns as creators of knowledge-awareness and initiators to change. We found that early adoption and quick spread can be predicted if people understand the severity of the risk, there is a new solution to eliminate the risk, the expected change of behaviour is small, and the need for self-efficacy is low. If all these conditions are met then a well-conducted and visible information campaign targeted to the whole population can create the knowledge-awareness and behaviour change.

We found that media campaigns as an intervention method also have high potential in changing the behaviour of later adopters if it is designed to meet their needs and specificities. The current study showed that media campaigns have an impact in influencing the conservative segment of the population in reducing their habitual or high-risk behaviour. The

most important but also challenging objective to achieve in later phases is creating the intention to change behaviour. When using only media campaigns the messages should be more convincing than informative ones in the early phase to explain the severity of risk. We found that social and normative pressure are the most influential factors to reinforce the behaviour change among later adopters. Therefore the media campaigns should be more combined with other interventions in the later phases – legal obligations, law enforcement, public social pressure, and social support.

When planning the prevention interventions it is important to find out how widely the proposed behaviour, safety measure, or regulation has been adopted in the society. If the diffusion is in the early phase then widespread media campaigns should be actively used to create knowledge-awareness and lead to voluntary adoption. Although this approach might not motivate conservative and suspicious people to change, it establishes positive social support for the next steps. On the contrary, the stronger appeals and pressure that are more effective and recommended for later adopters, might threaten or disturb the earlier adopters when used in the early phase. To minimise the resistance to the proposed measures we recommend using the suitable interventions and messages depending on the phase of diffusion of innovation in society (i.e. start adopting new safety measures by using media campaigns before it is planned to make these mandatory by law).

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Contacts

Annika Talmar

Permanent Representation of Estonia
to the European Union

JHA Counsellor for Home Affairs

Rue Guimard 11/13, 1040 Brussels, Belgium

+32 222 74 354

annika.talmar@mfa.ee

Margo Klaos

Strategy Unit

Government Office of Estonia

Rahukohtu 3, 15161 Tallinn, Estonia

+372 503 5112

margo.klaos@eesti.ee

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RIGHT-WING EXTREMISM AND ITS POSSIBLE IMPACT TO THE INTERNAL SECURITY OF THE REPUBLIC OF ESTONIA

Ero Liivik

Estonian Academy Of Security Sciences, Lecturer

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1. INTRODUCTION

The escalation of issues connected to the emergence of right-wing extremism is a problem with the pan-European dimension (Melzer and Serafin 2013, p. 5). Right-wing extremism is a reactionary and radical response to multiculturalism and globalisation, when some political forces are reluctant or even not capable to accept the co-existence of the people of different skin colours, religions and cultural backgrounds. This can bring about xenophobia, for example, in 2010 France deported the Roma, as they were considered to be a threat to society. International organisations saw the behaviour of French politicians as irresponsible, but it was also interpreted as a way of gaining popularity among French voters (Frazer 2010; Parker 2012). Silvio Berlusconi, an Italian politician, who has been the centre of interest of the international press, has accused immigrants of destabilising the society. Controversial German politician Thilo Sarrazin (2010) claimed almost in the same manner that immigrants are often a heavy burden to a country's social system, also their religion and cultural background can create a disturbing factor not letting them integrate with the rest of society (so called *cultural conflict*).

Political developments in the European Union indicate that right-wing extremism and radical right-wing parties will work to gain an even wider influence in society. As a member state of the EU, these trends could more or less affect Estonian internal security, e.g. street violence and vandalism, hate crimes, etc, herefore needing to be analysed more thoroughly.

2. THE RESEARCH TASKS AND METHODOLOGY

The aim of the current research is to evaluate whether the emergence of right-wing extremism and radicalism is possible in Estonia, and what would be its possible impact to internal security. Studying right-wing political powers is not unknown in Estonia, there have been some articles published on the topic, for example by Andres Kasekamp (2003), Marika Mikkor (2003), and Daunis Auers with Andres Kasekamp (2013 and 2015). There have also been some student researches, but the topic has not received a significant academic interest in Estonia, and the investigation of the relationship with internal security is almost completely absent.

The research tasks are the following:

- 1) To map the potential right-wing extremist and right radical movements (parties) and to observe their position in the Estonian political sphere.
- 2) To evaluate whether the latter could pose a threat to internal security in Estonia.

Choosing methods is closely connected with the object of research. The current paper proceeds from the paradigm of interpreting social sciences and has set its task to research processes in the course of which social phenomena and meanings are constructed, and the ways of its interpretation (Strömpl *et al.* 2012, pp. 15-47). Qualitative research methods that first and foremost, fit into the aforementioned conceptual background are therefore used. A French sociologist of law Jean Carbonnier (1986) has mentioned that since modern law is usually in the written form and it is produced by composing different documents or sources (legal acts, explanatory notes, protocols, judgements, etc.) then the analysis of different documents is unavoidable for the sociology of law.

Sources for the present work are mainly Internet documents. In the beginning some searches were made on the party websites: <http://www.ekre.ee/>¹ and <http://iseseisvuspartei.ee/>². It is possible to search from party documents and in addition, one can search from among press releases and other public documents. The author also uses different materials published in the media. Among the most important sources are definitely the reports from police organisations dealing with the matter. The main official source available to the author was the Annual Review of the Estonian Internal Security Service (EISS). The author also used comparative international research as the DEREK index and interpreted The European Commission against Racism and Intolerance (ECRI) overviews.

Why have just these two political parties been dealt with in this paper? Daunis Auers and Andres Kasekamp analysed these radical right wing parties, and this paper will follow the same direction. As Auers and Kasekamp emphasized, the Estonian party landscape became more consolidated since 1999, as a result of new legislation requiring parties to

¹ Eesti Konservatiivne Rahvaerakond (in English: Estonian National Conservative Party).

² Eesti Iseseisvuspartei (in English: Estonian Independence Party).

have at least 1,000 members (previously 200). In 2013 there were only ten registered parties in Estonia; three of these ten parties can be categorised as radical right: the Estonian Independence Party, the Estonian National Conservative Party, and the Estonian Freedom Party – Farmer’s Assembly (*Eesti Vabaduspartei – Põllumeeste Kogu*). The latter can be considered practically defunct, because it has not fielded any candidates in a national election for over a decade (Auers and Kasekamp 2015, pp. 143-144). The Estonian Independence Party and Estonian National Conservative Party both took part in the 2011 and 2015 parliamentary elections.

3. IDEOLOGICAL CHARACTERISTICS OF RIGHT-WING EXTREMISM

Studying the ideological factors gives us an overview of the ambitions and potential goals of radical right-wing extremists. Michael Freeden explains ideology as follows (2004, p. 6):

“Ideologies are /_ _ _ / clusters of ideas, beliefs, opinions, values, and attitudes usually held by identifiable groups, that provide directives, even plans, of action for public policy-making in an endeavor to uphold, justify, change or criticize the social and political arrangements of a state or other political community.”

Ideologies have a significant influence to the outcome of radical behavior as certain ruling values and attitudes could activate the political practice. Participants have one way or another to interpret the situation, radicalism did not emerge from nowhere, respectively. Because ideology precedes (and even likely predicts) action, it is also necessary to examine these influences in this paragraph. Aspects discussed here form the core elements of the extreme-right and a scientific approach to measure those elements as an index (DEREX).

3.1. THE CORE ELEMENTS OF THE EXTREME-RIGHT

When discussing modern radical-right groups the following core elements are referred to: xenophobia, nationalism with an emphasis on ethnic identification and exclusion, populism, ambivalence towards democratic values and support for a strict state guaranteeing law and order (Kasekamp 2003, p. 401). German *Bundesamt für Verfassungsschutz* brings out that (Verfassungsschutz 2014) –

One feature common to all right-wing extremists is their authoritarian notion of the state, in which the state and the people, in their view an ethnically homogeneous group merge into a single unit within a supposedly natural order. According to this ideology of Volksgemeinschaft, a National Socialist term for a community based on shared racial characteristics, the state leaders intuitively act in accordance with the supposedly uniform will of the people. Starting from this premise, right-wing extremists believe that a state based on right-wing extremist ideology can do without the essential controls of a liberal democratic system, such as the people's right to exercise state authority through elections or the right to form an opposition and take action.

According to the same source, there are also other elements characteristic to right-wing extremist ideology, these are anti-Semitism, a revisionistic approach to history, in the past years islamophobia has also been added to the previous. Right-wing extremists can be divided into Neo-Nazis and skinheads. Neo-Nazis like to wear symbols of Nazism and honour the memory of Adolf Hitler. At the same time the ideology has three main branches, the following of Odinism, Christian identity and those with other spiritual or religious values. The skinhead subculture originated among working-class youths in London in the 1960s. Shaven heads symbolised the will to self-protect and it also had a practical aim as it helped to avoid a situation in which their enemies could have pulled their hair in street fights. Their objects of attack were immigrants from Pakistan, hippies, homosexuals and the high-class youth studying at Cambridge and at London School of Economics.

In 1972 the Skinhead movement was suppressed by police, but it emerged again in 1981. At that time their leading figure was Ian Stuart. Now the skins used music (white power rock) to spread their ideology, Margaret

Thatcher's policy of national values was also a good ground for their growth (Baysinger 2006). According to a Dutch researcher Cas Mudde (2010), the ideological nucleus of the populist right-wing radicalism is a combination of nativism, authoritarianism and populism. He states that –

*“nativism means an ideology which holds that states should be inhabited exclusively by members of the native group („the nation”) and that non-native elements (persons and ideas) are fundamentally threatening to the nation-state’s homogeneity. Authoritarianism, the belief in a strictly ordered society in which infringements of authority are to be punished severely, is a feature not even exclusive to the core of populist radical right ideology. Authoritarianism is a key aspect of both secular and religious thinking, ranging from (proto-)liberals like Thomas Hobbes to socialists like Vladimir Lenin, from Roman Catholicism to Orthodox Christianity. The third and final feature is populism, here defined as a thin-centred ideology that considers society to be ultimately separated into two homogeneous and antagonistic groups, „the pure people” versus „the corrupt elite”. It argues that politics should be an expression of the *volonte generale*, i.e. the general will of the people. While the populist ideology has much deeper roots in the US than in (western) Europe, key elements are clearly linked to fundamental values of western societies in general.”*

We could conclude that the manifestations of right-wing extremism in society is diverse and the different elements (like nativism, authoritarianism and populism) are often interwoven. The forms and actions of right-wing extremist ideology vary from rebellious street protests to polished parliamentary activity. The latter could be a highly dangerous version of activities, because it gives extremists and radicals the direct mechanism for law creation.

3.2. THE CORE ELEMENTS ACCORDING TO DEREK INDEX

One method researchers have used to explain right-extremist background factors has been the use of different opinion surveys that explain the most popular attitudes in a society. An example to illustrate that is the DEREK index (see Derek 2014). DEREK is an abbreviation of the following words, the Demand for Right-Wing Extremism and it is compiled by the Political Capital Policy Research & Consulting Institute in Hungary. DEREK is a theoretical model that helps to study the societal attitudes and values in more than 30 European and Middle East countries. It helps to define the attitudes of the surveyed European citizens towards different attitudes, that may have an output in the development of right-extremist views. Upon composing the index the data gathered with the European Social Survey (ESS) is taken as a basis. To be more exact, there are 29 questions the answers to which are used for calculating the DEREK index. The analysts of Political Capital define right-extremists from ideological and psychological aspects and have divided the before mentioned questions into four categories:

- 1) Prejudices and welfare chauvinism;
- 2) Extreme right-wing values;
- 3) Antisocial attitudes;
- 4) Fear, discredit and pessimism.

According to researchers having studied right-wing extremism the first three categories are a part of the right-wing extremist ideology. The emotions of the fourth category (fear, discredit and pessimism) increase the relative importance of the attitudes and values of the first three categories. The named four categories help to study right-wing extremist attitudes. Estonia's DEREK index has remained stable since 2005, its highest point was in 2009 (5.8%). In 2011 the index dropped to 4.1% but rose again in 2013 reaching 5%-5.2%. The new rise was caused by the strengthening of right-extremist values (from 11% in 2011 to 13% in 2013) and of antisocial attitudes (from 15% in 2011 to 18% in 2013). According to earlier DEREK surveys the right-extremist values in society have never been as popular as in 2013 (13%). Indicators for prejudices

and welfare chauvinism have been dropping since 2003, from 47% to 39% in 2013. At the same time the society's right-extremist values have become stronger with each survey.

In 2003 the percentage in question was only 8, but by 2013 already 13% of society stated having right-extremist values. Thus although the society's prejudices have decreased, the right-extremist values have increased. The society's morale and emotions (fear, discredit and pessimism) in Estonia have stayed the same throughout the years, 15% in 2003 and 13% in 2013.

When comparing Estonia's relevant numbers for example to our Nordic neighbour country Finland, it appears that the DEREK index for the latter was 1.2 % in 2011 and 0.9% in 2013. A 21% of the Finnish people surveyed had prejudices and welfare chauvinism in 2011 and 16 % respectively in 2013 (almost two times lower than in Estonia). When comparing Estonia with our Baltic neighbors (Latvia and Lithuania), the comparison shows that Estonia's society feels safer and does not have as strong anti-establishment attitudes and right-wing value orientation as Latvia and Lithuania (see Table 1).

Table 1. The Baltic countries comparison (2008-2009)

	ESTONIA	LATVIA	LITHUANIA
Prejudices and welfare chauvinism	46 %	58 %	38 %
Anti-establishment attitudes	20 %	52 %	45 %
Right-wing value orientation	11 %	26 %	14 %
Fear, distrust, pessimism	13 %	25 %	25 %
DEREX	5.8 %	20.8 %	13.3%

Source: DEREK: Estonia, Latvia, Lithuania, available: <http://derexindex.eu/countries>

4. EVIDENCE FROM ESTONIAN POLICE REPORTS

In the Republic of Estonia, the main organisation responsible for law enforcement is the Police and Border Guard Board (PBGB). As a result, among other information, they collect all the required data about the suspicious or illegal activities of Estonian right-wing extremists. One important substructure of PBGB - the Estonian Internal Security Service (EISS) has a long tradition to publish a yearbook. The EISS yearbook often mirrors the information about extremists and is available online. The current chapter was based on these materials and transmits the information officially published by the EISS. The source is valuable, because the yearbook also contains a risk assessment on the extremism in Estonia.

4.1. THE EISS REPORTS 2008–2010

In its report of 2008 EISS announced that (EISS yearbook 2008, pp. 29-31) they have drawn their attention to people and activities that are considered to be both right and left extremist, and which may lead to the emergence of extremism or to violent conflicts. One of the most important tendencies in 2008 was the more frequent cooperation between the like-minded (both right and left-extremist) people from Estonia and abroad and also the clearer shaping of the left-extremist movement. In the past years there have been conflicts and violent clashes between right-wing extremists (skinheads, Neo-Nazis) and left-wing extremists (Anti-Fascists, anarchists, anti-globalists, anti-racists). As an example EISS could bring out the annual right-wing extremist Salem March in Sweden and the European Social Forum held in several countries, which often brings violent protests.

When foreign countries are considered, it can be said that Estonian right-extremists have the closest contacts with their Swedish counterparts. *Via* the connections of both types of Estonian extremists the aforementioned problems can reach Estonia in a few years. In August 2008 the Swedish police arrested a number of animal rights activists from Estonia after the event they had taken part in became violent. In December 2008 six Estonian skinheads, who had wanted to take part in the Salem March in Stockholm, were sent back from the border of Sweden. Since recently left-wing extremist movements have started to emerge and their actions

are also becoming more frequent, it would soon happen that the actions themselves and the conflicts between the two opposing parties may pose a potential threat. In 2008 it was already seen that the older generation skinheads were dissatisfied with the more frequent activities of Estonian anarchists and animal rights activists, which they saw as a threat to Estonian nationalism. Instead of wanting to defend or popularise one's ideas, the left and right-wing extremists aim was to look for conflict between the two sides or they had to provoke each other.

In addition to that the EISS mentioned, Estonian right-wing extremists sometimes organised events that are connected with the popularisation of National Socialism. Although there were only a few dozen Neo-Nazis in Estonia, the participation of people promoting National Socialism and xenophobia commemoratively and historically posed a direct threat to Estonia, since it gave Russian propaganda the pretext to show Estonia as a state that is was supporting Nazism. It can be said that there was a significant change in 2008 when Estonian right-wing extremists started to become more interested in being active in politics. The change in orientation can be explained by looking at the political success of right-wing extremists in several countries in Western Europe, that also inspired their counterparts in Estonia. The National Democratic Party of Germany (Nationaldemokratische Partei Deutschlands, NPD) and the Swedish Resistance Movement (Svenska Motståndsrörelsen, SRM) have been seen as the most important role models. Bigger social attention and support was mainly expected from Estonian Independence Party (Eesti Iseseisvuspartei, EIP), some members of the board were supportive to the right-extremist views and some have been skinheads in their youth. The next announcement about the activities of the EISS is from its report of 2010 (EISS yearbook 2010, p. 7). EISS reported that the activism and support for chauvinism and right-extremism in Estonia is still low.

4.2. THE EISS REPORTS 2011–2013

The attempts of groups of people gathered around single activists to join for the elections of the Riigikogu in 2010 did not succeed and they did not manage to create a right-wing populist party. Since the right-wing-extremist organisations are split and the leading activists all strive for power, it is not likely that a united and active right-wing populist political

group will emerge in the nearest future. Organisations with financial issues have an aim to involve publicly known people in their activities. Due to the fact that leading figures of radical movements opposed each other, they mainly participated as independent candidates in the elections of 2011. Their populist and unreal statements have never received the public's support and as a result their prospects of succeeding in elections are minimal. In its yearbook of 2012 EISS (EISS yearbook 2012, pp. 4-5), the report again approved that extremist ideologies are not widespread in Estonia. In the past years the ways of expressing extremist ideologies have changed. In Europe there is a new far-right generation, the so called Autonomous Nationalists that are becoming more popular and who do not use the recognisable extremist symbols and hide their attitudes from the public. They are willing to use violence in order to achieve their aims. According to law enforcement agencies those are the circuits that may bring about the next far-right terrorism.

The authors of the EISS yearbook 2013 say that in Estonia there have been a couple of websites used for promoting anonymous activisms, but without any success so far. When compared with the rest of the world, it can be said that right-wing extremism is marginal in Estonia, and the circle supporting it is of no more than a hundred people. Authors express opinion that when one is behaving in a way that is ethnically, religiously or racially insulting, it is usually not caused by utter extremism, but by thoughtlessness and gaps in one's education. If one is deliberately acting illegally in public or is doing it in order to receive the public's attention, it cannot always be considered to be extremism as its main characteristics are that it is based on extremist ideology. But even this challenging and aggressive activity has no certain ideological background, for example on the Internet where it may indirectly be a threat to the state's constitutional order. Generally in cases like that it is the copying of an activity that has already been noticed in some other countries. In its yearbook 2013 EISS (EISS yearbook 2013, p. 5) it was mentioned that most of the security agencies in the world deal with the prevention and blocking of extremism and other threats of security related with it.

In its annual reviews of the past 15 years the EISS has described what threat extremism poses to the constitutional order. There were no forms of extremism threatening Estonia's security directly in 2013. EISS states that a bigger threat to our inner security is actually Russian chauvinists and Moscow-backed activists. Here we can summarise the conclusions

based on the reports of the EISS. The police do not consider right-wing extremism to be significant in Estonia as it is a rather marginal phenomenon in which the number of actors and powers is minimal. A bigger threat is Russian extremists that are more active and have a more important role in Estonia.

5. RIGHT-WING RADICAL POLITICAL GROUPS

5.1. SITUATION WITH RADICAL RIGHT-WING PARTIES IN EUROPE

Many radical right-wing parties and politicians have appeared all over the European political arena (Mammone, Godin and Jenkins 2012). For example, Prime Minister Berlusconi who used several measures for blocking immigration spread to Italy (Ridgwell 2010; Fabbrini 2013). *Jobbik*, a right-wing radical party that has gained popularity in Hungary, received 14.8 per cent of votes in the 2009 parliamentary elections, and 16.67 per cent of votes in 2010 (Barlai 2012, p. 233; Karácsony and Róna 2011). This party is also represented at the European Parliament (European Parliament 2014). The Hungarian researchers elucidate that *Jobbik* is exceptional among other European far-right parties, by its decision to denounce every prior Hungarian social consensus. *Jobbik* does not hesitate to question almost all established policies: e.g., that the country should be democratic, that it should belong to the European Union, and that racism and anti-Semitism should be unacceptable. In doing so, it has radicalized even mainstream political discourse, examples include its exploitation of the so-called “Roma issue”. *Jobbik* expresses deep aggressiveness and despite its minor political position, the Hungarian far-right has begun to change the orientation of the entire society (Nagy, Boros and Vasali 2013, p. 232). In the European Parliament elections of 2014 the named institution included a significant number of right-wing politicians (McDonald-Gibson and Lichfield 2014). The results of elections showed that radical right parties are spreading and gathering support, e.g. Front National (FN) in France, Freiheitliche Partei Österreichs (FPÖ) in Austria, Dansk Folkeparti (DF) in Denmark, Lega Nord in Italy, Vlaams Belang in Belgium, etc (Minkenberg 2013, p. 14).

5.2. THE ESTONIAN PARTY SYSTEM: SOME CURRENTS

Compared to the European situation, it has not been seen in a very energetic presence of extremist parties in Estonia. The current situation in Estonia needs some explanation here.

The Constitution of Estonia enacts a proportional political system while researcher Tõnis Saarts has indicated that Estonia is among the countries with widely spread majoritarian rather than a consensual politics and decision-making style (Saarts 2008). Very plainly put, the majoritarian style stands for a winner-takes-all logic or the “road roller” strategy. It is not as much the matter of parties in power not negotiating with the opposition in an attempt to find greater public approval of the politics designed, as the general style of policy-making characterised by communicating from the position of power and getting wrangled. Seeking consensus is considered a sign of weakness. Conflicts and confrontations are not to be avoided. In addition, in terms of the Estonian political system one has to consider that the internal organisation of Estonian parties reflects features characteristic of a cartel party (Saarts & Lumi 2012, pp. 186-244). Therefore, it is difficult for small parties to get going, and they choose public confrontation with large parties (differentiation). It also means a clear discrepancy from the ruling opinion and sometimes the desire to find new supporters among the people with extreme views. It has to be noted here that the position of the Estonian National Conservative Party is different: as it is much larger and the party’s political success depends on a broader support than “gaming on” only the Estonian radicals. Although, their program has a clear emphasis as meant specifically to the last category of electors. Therefore the author has put more stress on them (e.g. 5.2.2. “Populist elements in EKRE’s program”). The case of the Estonian Independence Party, the right-wing internet groupuscules and the Hitler-orientated activism are different. The latter two are overtly extreme and the Estonian Independence Party is politically marginal, as their program is strongly contrasting from the common parties in Estonia.

5.2.1. *Estonian National Conservative Party*

In his article Andres Kasekamp (2003) brought out the political powers he considered as parties with a strong national ideology. Those were the following: the Estonian National Independence Party (Eesti Rahvusliku Sõltumatuse Partei, ERSP), a movement called Estonian Citizen (Eesti Kodanik), the Central League of Estonian Nationalists (Eesti Rahvuslaste Keskliit, ERK), the Estonian Independence Party (Eesti Iseseisvuspartei, EIP) and the Republican Party (Vabariiklik Partei). Kasekamp also mentions small groupuscules that are basically nothing more than party programmes published on the Internet. Now, when more than ten years have passed from his article, Estonia's political scene has changed and many of the aforementioned powers have disappeared, joined with other parties or have been liquidated. It is the Estonian Independence Party that is still functioning. There is also a new power that has arisen, the Estonian National Conservative Party (EKRE).

EKRE was founded in 2012 when Estonia's National Movement (Eesti Rahvuslik Liikumine) did not have representation in the Riigikogu, and the People's Union of Estonia (Rahvaliid), which had formerly been in the parliament were united (Rudi 2012). The People's Union of Estonia was a party with a long history as it had been in both the Riigikogu and in the government (Auers and Kasekamp 2013, p. 239). The leader of the People's Union of Estonia was the former president of Estonia, Arnold Rüütel, who still is one of the leading figures of the new party. In the parliamentary election of 2015, EKRE secured 8.1 % of the votes (46 772) and entered the parliament with 7 seats (Kund 2015; Voting in Estonia 2015). Now EKRE has about 7.700 members, mostly remnants from the People's Union of Estonia – Estonia's National Movement actually had an extremely low number of members. We could conclude that EKRE is the legal successor of the People's Union of Estonia, but with a changed name and armed with a radical-right ideology.

5.2.2. *Populist elements in EKRE's program*

In its programme, the party stresses that Estonia is in crisis and in order to escape from it one has to vote for EKRE's candidates. The following example illustrates the anti-elitist and populist ideas in the programme (EKRE's programme 2014) –

„All people who are honest and think understand that without significant changes the Estonia of today is not sustainable. It does not guarantee welfare to our people, the needs of developing the economy, culture and the preserving of Estonian nationalism in Estonia and all over the world. The situation we have today has been caused by the non-democratic way of centralising the governing of the country, the monopolisation of the media, self-praising demagoguery, a corrupt cartel policy, financial decline and the continuous stalling of the economics belonging to the Estonian capital, changing Estonia into a country with cheap labour, taking out the profits of foreign companies tax-free, limiting the local municipalities' profits and stalling local life.

A sovereign state has been changed into a vassal state representing the interests of the European Union, foreign capital and the stagnant career officials and functionaries, here no layer of society feels good neither workers, entrepreneurs, intelligence, countrymen, city people, children, the young or the elderly. The leaders of the parties in power and their governments have caused limitless damage to the state of Estonia, to its economy, its people, and its nation. The political parties that have lead Estonia into crisis are not capable of bringing us out from the crisis. The governing of the state has to be changed momentarily, since otherwise the processes causing damage become irreversible. We encourage everybody to think along and join us in order to reach Estonia's highest political aim. That is the preservation of Estonian nationalism, realistic assurance of the development of the state, its people and the increase of welfare. Only the people of Estonia can change it all!”

A more thorough analysis of the programme shows the strong nationalist impetus and includes populist, even contradicting left and right-wing ideologies, e.g. the founding of a national commercial bank and radical tax reductions at the same time. Although, there are some principles missing that are common to far-right powers, these are islamophobia and anti-Semitism, but EKRE wants the limiting of immigration to Estonia and expresses Russophobia. It has to be said that one of the leaders of the party has drawn attention to him with the help of some xenophobic

statements published in the media.¹ The political programme of EKRE also emphasises the moment of militarism. According to the party, the European Union is moving towards federalism and should not have any more power centralised to Brussels (Euroscepticism). Shortly after the election, a scandal erupted because of the pro-fascist statements made by Jaak Madison, the leader of EKRE's youth organisation and a new MP, who sees in Nazism and Fascism "many positive things." (Hot News, 2015).

Swedish researcher Péteris Timofejevs Henriksson expressed an opinion after the election, that the emergence of EKRE was "a slight surprise". Henriksson compared EKRE to some extent with its Latvian counterpart National Alliance (*Nacionālā apvienība „Visu Latvijai!” – „Tēvzemei un Brīvībai/LNNK”*), which has managed despite its nationalist rhetoric, seats in the government. Therefore it will be interesting to see, how long a process of political normalisation of EKRE will take. In case of the National Alliance, it took less than a year (Henriksson 2015). EKRE masterfully took advantage of dissatisfaction with the government and won supporters by populist promises, but populism has not been a very useful tool for politics in Estonia. A research report called "Populism in the Baltic States" (by the Tallinn University Institute of Political Science and Governance and Open Estonia Foundation 2012) explained, that populists have not been very successful in the Baltic States (Estonia, Latvia, Lithuania all included) and overall, it may be claimed that populism is not challenging the liberal *status quo* in the Baltic States (Jakobson, M.-L. *et al.* 2012, p. 124). EKRE's further political fate depends on whether they stay as hardline populists or have access to government and begin to normalise.

5.3. THE ESTONIAN INDEPENDENCE PARTY

In addition to EKRE there is also the Estonian Independence Party (Eesti Iseseisvuspartei, EIP), which is still active in Estonia. After analysing the programme, this party can also be considered to be a populist party with a radical nationalist touch. The party is small, as it has

¹ E.g. "If you're black, go back" and "I want Estonia to be a white country" were some of the comments made by Martin Helme, a board member of EKRE (News.err.ee 2013).

only a little more than 2.000 members. In 2008 the EISS pointed out that right-wing extremists are trying to get public attention *via* the EIP, many members of the board of whom support far-right views, as some of them were skinheads in their youth (see Rand 2009). EIP shares the same anti-elitist and Eurosceptic attitudes as EKRE. These principles are stated in their charter (EIPs charter 2002) –

- 1) Estonia is not a free country, instead it is a neo-colonised country. The discordances of our country, which are mistaken as developmental disorders are actually classical characteristics of a neo-colonised country;
- 2) In the course of neo-colonisation banking is taken over, via a hostile loan policy, national production is stalled, in order to balance the situation national production has to be supported;
- 3) With joining the European Union Estonia's people lose everything that is worth buying, especially land. The territory will be taken over, which will be irreversible because a small nation is incapable of buying back their homeland if it has already been sold.

In its programme (EIPs programme 2009) EIP also stresses that Estonia must exit the European Union and regain independence once again. As Auer's and Kasekamp conclude, EIP's ideology is largely based on it's leader – Vello Leito's anti-globalist and conspiracyting writings that the Estonian politicians engaged in European integration are "traitors", having violated the constitution (Auers and Kasekamp 2015, p. 143). In the parliamentary election of 2015, EIP secured 0.21 % of the votes (1047) and did not enter the parliament (Voting in Estonia 2015).

5.4. RIGHT-WING INTERNET GROUPUSCULES AND THE HITLER-ORIENTATED ACTIVISM

Researchers Mari-Liis Madisson and Andreas Ventsel have shown that there are very active right-wing online communities (groupuscules), acting as “ideology workshops” for the Estonian political scene -

The self-descriptions of right-wing groupuscules are largely built around the code text of a conspiracy theory, which allows the representation of one's ideological opponents as extremely ill-intentioned or ignorant, and themselves, by contrast, as moral and heroic. The code text that narrates the decline of the liberal-democratic world constellates narratives of a conspiratorial world system, in which the cause of every event can be explained by the „evil“ intent of the conspirators. Groupuscules do not limit themselves to passive complaining about the decadence of the prevailing world order; often ideas are expressed of radically reforming this decadent world order, which should in turn lead to the rebirth of nation-states. The specificity of the code text leads participants in the extreme right to perceive causal connections between events that have occurred in different places at different times, and which seem totally unconnectable in the eyes of outsiders. Those phenomena that do not fit the code text, and which could make way for other explanations for sociocultural realities are virtually invisible in the self-descriptions of groupuscules, and are relegated to the periphery as unimportant. (Madisson and Ventsel 2015, pp. 26-27).

The movement of the skinheads has been seen as “underground” and very marginal in Estonia (see Mikkor 2003). From time to time, besides organised political parties there have been other right-radical initiatives. For example Risto Teinonen has from 2006 tried to find a Hitler-orientated union (Jüriso and Kahu 2008).

He has recruited members at meetings where Hitler's ideology is introduced and promoted. But the Office to the Prosecutor General announced that criminal proceedings against Risto Teinonen were brought to a close, since there had been nothing in the legislation that would enable him to

be accused of anything. The law forbids organising a union whose activities are directed towards Estonia's independence and sovereignty, but Teinonen's activities are not like that. The prosecutor also cannot accuse him of instigating hostilities, since according to the law one instigates hostilities when there is a threat to someone's life, health or property. As Teinonen has not directly been threatening anybody, he got away from this accusation. According to the media there have been government officials, including men from the armed forces, celebrating the anniversaries of the Third Reich with Risto Teinonen. There were a few dozen people connected with the Nazi events held in Tartu, Tallinn and Pärnu County in 2006 and 2007 (Aasaru 2010; Vahter 2010). At the end of 2008 the EISS closed the two-year criminal investigation with no one being brought to justice. Due to fights between its members and due to national pressure Tartu's Nazi groupuscule has fallen apart, which had been the aim of those in power. Nowadays Teinonen propagates his extremist worldview on a website called "natsiweb" ("Website of Estonian nazis") (<http://www.natsiweb.info/index.php?page=1>) (Natsiweb 2015).

6. PROHIBITIONS OF INCITEMENT IN LEGISLATION

The laws determine the border, which political action is considered extremist in society, and what penalties are authorised by parliament for violation of the prohibitions. In this sense, no political activity has been considered as the actual promotion of citizen activism. In the following, we are going to have to look at some extremism related legal solutions valid in the Estonian Penal Code, and the analysis and proposals in the ECRI reports, concerning the current situation in Estonia.

6.1. ESTONIAN PENAL CODE AND THE ECRI REPORTS

§ 12 of the Estonian Constitution states that incitement to ethnic, racial, religious or political hatred, violence or discrimination is prohibited and punishable by law. The named principles are more clearly defined in Penal Code – § 151, which forbids activities which publicly incite hatred or violence, also when the aforementioned arise from nationality, race, skin colour, etc. Also § 152 forbids discrimination based on nationality, race, skin colour, etc.

The European Commission against Racism and Intolerance (ECRI) has composed several overviews of how the named principles are followed in Estonia. In its reports the ECRI has not found significant deficiencies (ECRI 2010). In 2007 a group of researchers composed a research report “Grudge against races and foreigners in Estonia” (in Estonian: “Rassi- ja võõravimm Eestis”), which included a thorough overview of three studies carried out in 2007. A study about internet comments, printed media and the population, which looked at racial hatred and national problems in Estonia from different points of view (Study 2007). The results of the study also pointed out the following attitudes:

- 1) 22% of the people living in Estonia had in the past year seen cases of unequal treatment based on a person’s race, nationality or religion;
- 2) 36% of the population (23% of the speakers of Estonian and 65% of the speakers of Russian) think that unequal treatment of

immigrants is a problem in Estonia. 34% of the population think that immigrants take jobs from the locals, and 46% agree with the statement that immigrants increase the crime rate;

- 3) The group of people the population of Estonia wants to work with the least are drug addicts (81%), people with a criminal record (64%) and HIV carriers (52%). Only 2.8% of people do not want to work with people of other nationalities;
- 4) Estonians with a lower educational level consider threats caused by immigrants higher than those with higher educational level. Russian speakers with secondary or with secondary specialised education consider threats caused by immigration lower;
- 5) Objects of hate speech based on race or nationality in comments published on the Internet in Estonian are more frequently Russians. Racist comments towards other nationalities are more frequently addressed to Americans, Jews and Finns. The number of comments illustrating racial hatred has not significantly risen in the past years;
- 6) Signs of symbolist (hidden) racism are more frequent than signs of real (visible) racism, which means that it is publicly shown that social groups are equal, but unconscious prejudices and hidden discrimination is still there. It was not proved that racial problems have increased in the past years in Estonia;
- 7) The number of articles including the topic of race has increased in the media. Media representation of race and racism increases after conflict situations (April riots, World Trade Center attacks),
- 8) Nation based discrimination is most frequently expressed by a general negative attitude.

In conclusion it can be said that at least based on this ECRI study the right-wing extremist ideology is not rooted in society. In general, Estonian society is “alien friendly” and there is only a little incitement to hatred.

6.2. DRAFT LEGISLATION AGAINST INCITEMENT TO HATRED

At the moment the Ministry of Justice is trying to draft legislation against incitement to hatred. According to the framework decision from 2008, Estonia, as a member of the European Union, is obliged to make incitement to hatred punishable. In order to do so, the Ministry of Justice composes a draft legislation, which the wording is at the moment being discussed. The discussions will continue until a wording satisfying those involved has been found and the questions arisen have been answered.

The framework decision enables a state to some extent choose how a punishable deed should be defined. If those norms are not adapted a state could face sanctions. At the moment the wording for incitement to hatred is related with causing real threat, which is why metaphorically there should in addition to a threat an axe be raised. But in this case it is already late, intervention is impossible, the axe will fall and a crime will be committed. The aim of the draft legislation is to create an opportunity for in time intervention and to prevent serious consequences. The draft legislation does not limit the freedom of speech. Before all the doubts of all of those involved are eliminated the draft legislation will not be approved and it will not be taken to the next level. The draft legislation (Ministry of Justice, 2014) also does not limit discussions about historical events. Nevertheless it does limit the denying, justifying or understating of certain crimes against humanity and war crimes, if those activities involve calls for violence against certain groups of people.

6.3. CONCLUDING REMARKS

Legal positivism tends to define law as a formally closed normative system, based on itself; it is a phenomenon defined by the will of the legislator, which by its origin and characteristics, connected with the state as a sovereign subject of legal power (Raska 2004, p. 79). In legal positivism political discretion gains greater meaning, originating from the principle that law is nothing but lawfully limited power; law has become an instrument used in politics to lead the society in the direction most suitable (Varrak 2009, p. 16). Consequently, it is very important, according to which values the law has created. Being a member of the EU not

only brings along rights, but also obligations. At present, the Estonian Penal Code contains provisions, which provide penalties for extremist activities. The Ministry of Justice is trying to draft legislation against incitement to hatred, framework decisions on combating racism states that there is an obligation to punish one for inciting hatred and for denying or justifying certain crimes - if they are of the nature of incitement to hatred. The wording is unfortunately imprecise and needs some more adjustment. On the other hand, this wording does not need to restrict the freedom of expression. The main issue here is to find a suitable compromise between the different liberal beliefs.

7. THE CORE VALUES OF THE ESTONIAN POLITICAL CULTURE

The forming of extreme right political powers in Estonia has been dull and ineffective. At this point, we shall discuss why it has been so? Are there any general attitudes or values that start or stop the aforementioned developments? Researchers have studied the core values of the Estonian political culture (Kalev et al. 2008). The core values are characteristics of the Estonian cultural sphere, without knowing of which it is difficult to understand the local political culture. The following core values can be brought out:

- 1) Materialism and instrumentalism;
- 2) Secularity;
- 3) Individualism;
- 4) Short distance from power;
- 5) National worldview;
- 6) Masculinity;
- 7) The weakness of state tradition and antistatism;
- 8) Weak civic culture;
- 9) Weak communal values;
- 10) Orientation to changes;
- 11) Non-violent protest culture and anti-militarism.

Some values of those can be highlighted as reasons why extreme right ideology does not root in Estonia. For example, authors write about a non-violent protest culture and anti-militarism, violence is generally a taboo in Estonian political culture. Definitely it is an important characteristic to explain why national tensions did not turn into violence in the beginning of the 1990s. A non-violent protest culture moves Estonia closer to Scandinavia and more distant from Russia and Southern Europe. There is also weak militarism common to small states accompanying non-violent protest culture. Estonia cannot boast about long

historical military traditions or about successful conquests in the past. Still there is a certain point of conflict in the political culture. Do not forget that the popular freedom fighters movement in the beginning of the 1930s had a strong military ethos.

In the Estonia of today we can also see how the Battle of the Tannenberg Line and the War of Independence are as described heroic. In certain circles of the political elite it is an honour for one to be a member of the Estonian Defence League and to be seen in a uniform when attending certain events, this refers to contradictions between elite groups. Although in international terms, the Estonian population as a whole is very peaceful, it is definitely not utterly pacifistic. On the other hand, our worldview is national and sceptic towards strong centralised power. Apparently it is impossible to understand the Estonian political culture if we do not consider the strong emphasis there is on national ideology. The latter is visible in everyday political rhetoric, in the programmes of political parties with a strong national touch and in political aims. The national ideology in Estonia can rather be characterised by the so-called modern national approach, which sees the nation as an egalitarian and inclusive basis for identity (the countrymen vs. oppressors) and thus it is seen as an important cornerstone when building democracy.

What is also common to the Estonian political culture is the fact that usually identity is created *via* negative opposition, not *via* highlighting positive achievements directed towards the future or the past. Sometimes strong emphasis on nationalism results in intolerance towards the foreign and the different. Estonians have experienced real independent nationhood for less than 40 years all together. Central power has been in the hands of foreigners, that is why the institutions of central power are not seen as our *own*. Expectations for the institutions of central power are thus not very high. The weakness of the state tradition is reflected in the antistatic attitudes Estonians have, they are afraid of a strong state.

What characterises Estonia is the belief according to which a state is something “special and superior”. One has to be faithful to one’s *nation* not to one’s *state*. Hence, it is no surprise that the neo-liberalist slogans about a “thin state” became very popular in Estonia of the 1990s.

8. CONCLUSIONS

This research topic commenced, because right-wing radicalism and extremism has emerged in some European countries, the same can also take place in Estonia. Through the media, reflections on the electoral successes of European extreme right-wing parties, could arrive in Estonia and motivate the local politicians to copy the tactics and slogans. Possibly having a detrimental impact on Estonian internal security.

The author uses a variety of sources: international comparative data, documents of Estonian political parties, information from police reports, as well as report on Estonian legal policy. The aim is to make as expanded a picture about the subject as possible, to see all details in context.

The current paper is dedicated to examining whether there are right-wing extremist and radical right organisations in Estonia (Ch. 5), and analysed what factors may affect the functioning of these forces, from the aspect of internal security in Estonia. The first factor under observation here is the DEREK index (the Demand for Right-Wing Extremism). DEREK is a theoretical model that helps to study the societal attitudes and values in more than 30 European and Middle East countries (Subch. 3.2). The DEREK index showed that Estonia is much more vulnerable compared to Finland, but in comparison with other Baltic countries, the support for right-wing extremism and the radical right is lower in Estonia. However, the index is on a slight rise lately. This section was followed by an analysis of police reports to identify the current situation with right-wing extremism in Estonia (Ch. 4). The Estonian Internal Security Service admits in its annual reports that the most significant threat to Estonian internal security is coming from Russian abettors and from realistic threatening activities. In the context of information war, the Russian side has tried to make use of the few people with extreme-right symbols who have been shown on propagandistic channels, with the aim to show Estonia as a "Nazi state". The Estonian Internal Security Service has seen this plan through and thus informed the Estonian public about that. The police will not see a real threat in right-wing extremists. Actually, it has to be mentioned with strong approval, that the police have found it necessary to deal with this phenomenon over the years, as well as to inform the public of the results.

Special chapter (Ch. 6) was devoted to the analysis of the legal regulation situation in Estonia and to the reports of the European Commission

against Racism and Intolerance (ECRI). In general, the situation is satisfactory, the valid legislation includes norms stating punishments for extreme-right crimes, but there are moments that should be improved, such as regulation regarding hate speech.

The author is of an opinion that in order to find answers to the question why right-wing extremism has not emerged deeply in Estonia, one has to look into the cultural factors that influence the spread of ideologies in society (Ch. 7). The present work could be developed further by doing some detailed analysis, in which the cultural factors inhibiting right-wing extremism and their influence in society are looked at.

Analysis showed that we have only one right radical political party in Estonia, which has representation in parliament. The other political parties are almost nonexistent. Lately right-wing extremist groupuscules have emerged, which disseminate conspiracy theories and nationalist ideas on the internet (Subch. 5.4). Apparently, their impact is marginal and virtual, with no effect on real politics.

As explained previously, the Estonian political system does not hold in high esteem the consensual politics and decision-making (the winner-takes-all logic prevails). It means that the political opposition needs to trust mainly on undisguised conflicts and confrontations (differentiation prevails). The Estonian National Conservative Party have been successful in mobilising the people with radical views: their program contains a very strong populist impetus.

In the near future, we could witness the impact of the political renaissance of EKRE, because it has a large number of party members with active parliamentary representation and state budget based funding. After the 2015 elections, several new policy initiatives have been available to them (Ch. 5). Although, the nature of this party shouldn't be interpreted as overtly dangerous based on their program only, it is important to evaluate their undertakings and behavior while in power.

It should also be taken into account that future developments in Europe may bring out totally new circumstances, such as the escalation of war in the Middle East and the increasing migration of refugees, which in turn can affect negatively the wave of xenophobia and right-wing extremist, hand in hand. Although the situation with right-wing extremist and the radical right in Estonia is not remarkably bad, more studies are necessary in the future to observe the phenomenon.

Contacts

Ero Liivik

Estonian Academy Of Security Sciences

61, Kase tn, 12012 Tallinn

+372 696 5463

ero.liivik@sisekaitse.ee

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CRISES PREPAREDNESS OF THE HEALTH CARE SYSTEM:

CASE STUDY ANALYSIS
IN THE ESTONIAN CONTEXT

Kristi Nero, MA

*Estonian Academy of Security Science, Master of Arts
in Social Sciences, main field Internal Security*

Shvea Järvet, MA

Estonian Academy of Security Science, Supervisor

Jaan Tross, MA

*Estonian Academy of Security Science,
The Rescue College, Crises Management*

Keywords: Case Study, Qualitative Research, Crises Management, Crises Preparedness, Health Care System, Estonia, Emergency Management, 21st – Century Crises, Mass Casualty Emergency

ABSTRACT

Research and statistics confirm that modern crises are ever more complex, extensive and with more severe consequences. In this article a health emergency is defined in accordance with the government regulation “Health care organisation in emergencies”, according to which this is a situation caused by an event or a chain of events that endanger human life and health, and has caused or may cause a life-threatening illness, injury or poisoning to a large number of people. A mass-casualty incident is an event when ordinary functioning of the health care system is not enough to assist victims and it is necessary to take additional measures. The purpose of the article is to provide an overview on the organisation of health emergency management in Estonia and on the preparedness to guarantee medical assistance to mass-casualty incidents. Scientific studies and statistics suggest that modern crises are becoming more complex, more extensive and involve consequences that are more serious. The research introduced in this article tried to find an answer to the question of how the health care system in Estonia is prepared for mass casualty emergencies. An analysis of theoretical approaches and data collected by empirical study brought the authors to the conclusions, which refer to serious shortcomings in the emergency preparedness of the Estonian health care system and therefore there is a risk that additional lives may be lost during a major accident.

INTRODUCTION

Despite the rapid development of technology and science, the world has not become a safer place to live in recent decades. On the contrary, according to the databases that assess the impact of disasters and crises, such as The International Disaster Database, year by year there is an increase both in human and material losses caused by disasters (The International Disaster Database, 2014). Modern crises have also become much more severe as well as more frequent and complex (Smet, et al., 2012). Besides natural disasters, anthropogenic emergencies such as technological disasters and terrorism are an even a greater threat. An airplane falling down in a residential area, an armed attack on a shopping centre, a biological attack or a rail accident involving hazardous materials – these are just a few examples of potential dangers.

Modern society expects that public health be protected from the consequences of crises and disasters (Burkle, 2006). A set of strategies targeted to prevent emergencies and prepare for them, as well as to handle disasters and alleviate their consequences, is called crisis management (Emergency Act, 2015). The national crisis management system is based on the so-called golden trio, formed by rescue, police and health institutions. The success of emergency management, including saving the lives and health of as many victims as possible, depends on the efficiency of each institution alongside the coordination of inter-sectoral cooperation and the operation of the crisis management system as a whole. In the face of large-scale disasters, the quality of crisis leadership becomes a key issue.

In this article a health emergency is defined in accordance with the regulation of the Government of the Republic “Health care organisation in emergencies”, according to which this is a situation caused by an event or a chain of events that endanger human life and health, and has caused or may cause a life-threatening illness, injury or poisoning to a large number of people (Health care organisation in emergencies, 2014). Thus, one can say that each crisis in which a large number of people get injured is a health emergency, whether it is a natural disaster, terrorist attack or a major traffic accident.

A mass-casualty incident is an event when the ordinary functioning of the health care system is not enough to assist victims, and it is necessary to take additional measures. Some expert interviews revealed that, for

example, in Estonia the ordinary may mean ten people in need within one area, while in some other regions dozens of people can be assisted in the limits of normal capacity.

The previous crisis management exercises have pointed out several problems in the organisation of medical assistance at major disasters (Ministry of Internal Affairs, 2011; *Police and Border Guard Board*, 2012; Rescue Board, 2014). Thus, this article searches for the answers to the research problem about the crises preparedness of the Estonian health care system. With a view to settling the research problem, two research questions were set, to which the answer was sought through an analysis of theoretical literature and the case study:

1. How has Estonia organised and regulated preparation for mass-casualty incidents and the management of their settling at the national level?
2. What are the main obstacles in the crisis management of the health care system?

The purpose of the research article is to provide an overview on the organisation of health emergency management in Estonia and on today's preparedness to guarantee medical assistance to mass casualties.

This article is based on the results of a case study conducted in the internal security field within a Master's study at the Estonian Academy of Security Sciences in 2015. Within the Master's thesis "Emergency Preparedness of the Estonian Health Care System" (author Kristi Nero, supervisors Shvea Järvet and Jaan Tross), a document analysis on the legal regulation of health emergencies and in-depth expert interviews were carried out (Nero, 2015). The sample was composed by experts on the principle of a purposive sample, and the results of interviews were analysed by the qualitative content analysis method with NVivo for Mac software.

1. THEORETICAL BASES

1.1. MODERN CRISES AND CRISES MANAGEMENT PARADIGM

In the crisis management theory, a paradigmatic shift has occurred in recent decades. What has changed are both the nature of crises and the most important concepts of key factors in emergency management.

Contemporary authors agree that crises facing mankind today and in the future, differ from crises in previous centuries in relation to both the nature and occurrence frequency (Boin & Lagadec, 2000; Boin, Kofman-Bos & Overdijk, 2004; Alexander, 2005; United Nations 2005; Quarantelli, Lagadec & Boin, 2007; Boin, 2009; Lagadec, 2009; Rosenthal, 2009; Ansell, Boin & Keller, 2010; Salmon, Stanton, Jenkins & Walker, 2011; Palttala, Boano, Lund & Vos, 2012 ; Smet, *et al.*, 2012; Pidot, 2013). When dealing with a novel crisis concept, scientists offer a variety of terms to emphasize changes in the nature of crises. Smet *et al.* (2012) use terms such as “modern crises”, “21st century crises” and “mega crises”. The latter is also preferred by Lagadec (2009) and Rosenthal (2009), who insist that the mega crisis does not mean “the same, but in larger amounts”, but it is something entirely different, “a totally new ball game”. Boin (2009) refers to modern crises as transboundary ones, comparing them with *terra incognita* and sets a task to social scientists to “create maps and tools that allow crisis managers to navigate in unfamiliar waters“. The symbol of *terra incognita* is also used by Lagadec (2009). A new concept in dealing with crises is brought out by ‘t Hart and Boin (2001), whose basis is the subjectivity of crisis and who rely on Thomas’s theorem: a crisis occurs when participants perceive the situation as a crisis (‘t Hart and Boin, 2001, pp. 28–46 quoted in Boin, *et al.*, 2004, pp. 378–393).

Global crises of the 21st century often have a devastating effect on a modern society’s infrastructure, such as information systems, electricity, heating, water supplies and other vital services, the operational disruptions of which result in turn in the aggravation and spread of the crisis. This process is described by Boin and Lagadec (2000) as well as by Boin, ‘t Hart, Stern and Sundelius (2005, pp. 2–7) as the snowball dynamics inherent to modern crises. Rosenthal (2009), Lagadec (2009) and Smet *et al.* (2012) compare the development of such a crisis as the cascade-effect. At the same time, crises may extend at a tremendous speed and

in unexpected directions. Lagadec (2009) summarises the features of the 21st-century crisis, characterising a mega crisis as an all-embracing black hole that absorbs all response capabilities, and recognising that the borderless world opens a way for borderless crises, as various systems and technologies are interconnected (Lagadec, 2009).

Despite changes in the nature of modern crises, they are also characterised by fundamental features of classic crises. In 1989, Rosenthal, Charles and 't Hart formulated the definition of a crisis known mostly by Rosenthal's name, which converges viewpoints of a number of schools and researchers. According to this, crises is a serious threat to society's basic structures or core values and standards, during which with little time and in a very uncertain situation, it is imperative to make critical decisions (Rosenthal, 't Hart & Charles, 1989 quoted in Tross, 2012; Boin & Lagadec, 2000, Boin, *et al.*, 2005, p. 2). The modern theory of crisis management must therefore take into account both the traditional approach to a crisis and traits characterising new crises. The traits of 21st-century crises with their determinants are grouped together in Table 1.

Table 1. Traits of 21st-century crisis and factors affecting them.

(compiled by the authors of the article according to Boin & Lagadec, 2000; Boin, et al., 2004; Boin, et al., 2005, pp. 2–7; United Nations, 2005; Boin, 2009; Lagadec, 2009; Rosenthal, 2009; Ansell, et al., 2010; Smet, et al., 2012; Tross, 2012; Dar, et al., 2014; The International Database, 2014).

Factors affecting 21st-century crises	Traits of 21st-century crises
<ul style="list-style-type: none"> • Globalization; • Fast development of technology; • Increasing role of mass communication; • Social stratification; • Dispersion of state power; • Degradation of environment; • Unplanned urbanization; • Development of high-risk areas; • Underdeveloped areas; • Climate change; • Geological threats; • Fight for limited resources; • Epidemics; • Migration; • Increased business and leisure tourism 	<ul style="list-style-type: none"> • Devastating effects – lots of victims and large affected areas; • Increasing frequency; • Complexity; • Transboundary nature (concerning geography, politics, sectors, time); • Destructive effect on infrastructures; • Damage of infrastructures accompanied by cascade-effect; • Unpredictable directions; • Fast development; • Unidentification of beginning and end; • Long-term duration; • Complicated after-effects; • High costs; • Unexpectedness; • Subjectivity; • Preservation of traditional traits of crises

Defining a crisis has no important role in the practice of emergency management. However, the definition and concept of the term is significant in the development of the philosophy of crisis management. Use of the new terminology reflects the need to analyse the entire field through the prism of the changed environment and to adapt accordingly the strategic goals and development directions of crisis management.

Lagadec (2009) describes the present situation illustratively as giving up hope that the sea remains calm and it is sufficient to prepare for a few storms and to learn to sail on the windy, stormy and unmapped ocean. In the emergency management theory, this means the replacement of the concept of vulnerability, grown out of the concept of a crisis as a danger that has been dominated so far, by the concept of resilience.

Resilience was first defined by the Hyogo Framework for Action 2005–2015 as the ability of a system, community or society exposed to hazards to resist, absorb, accommodate to and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions. Resilience is determined by the degree to which the social system is capable of organising itself in order to increase its ability to learn from previous crises and improve measures to cope with a future crisis (United Nations, 2005). Hémond and Robert (2012) define resilience by the Hyogo Framework as an ability to maintain or restore an acceptable quality of functioning in spite of defeats and failures, and they emphasize that preparation for crises should no longer be seen as an ability to respond to occurred events, but an ability to predict a variety of ways to cope with events while maintaining resilience in the community. Manyena (2012) points out a potential limitation to the concept of resilience: literally resilience means elasticity, the ability to “bounce back”, but when talking about the elasticity, the restoration of the former situation may also mean the restoration of previous threats. Therefore, the aim should rather be to “bounce forward”, to reorganise structures and institutions (Manyena, 2012).

Developments in the concept of crisis management outlined in theoretical sources, and the most important aspects in modern crisis management are grouped in Table 2.

Table 2. Developments in the concept of crisis management

(compiled by the authors of the article according to Boin & Lagadec, 2000; Drabek & McEntire, 2003; Perry & Lindell, 2003; Boin, 2004; Boin, et al., 2005; United Nations, 2005; Boin & 't Hart, 2007; Quarantelli, et al., 2007; Lagadec, 2009; Rosenthal, 2009; Ansell, et al., 2010; Kapucu, et al., 2010; Hémond & Robert, 2012; Manyena, 2012; Palttala, et al., 2012; Pidot, 2013)

Concept of crisis management	Characteristic features
STATE OF PREPAREDNESS – ability to react efficiently in an occurring crisis	<ul style="list-style-type: none"> • Preparedness for emergencies and their management is the task of acting institutions; • Crisis management is separate from general issues in society; • Theory of crisis management is not strongly linked with other social sciences; • So-called crises myths are popular, such as people’s irrational behaviour and panic in emergencies.
STATE OF RESILIENCE – ability to predict ways to cope with a crisis, preserving the acceptable functioning of society	<ul style="list-style-type: none"> • Society at large is included in preparation for crises and their management; • Besides responding to crisis their predicting and preventing is also relevant; • To increase resilience it is important to thoroughly know the system and its traits, it means crisis management is closely linked with social sciences and processes in society; • Preparation for crisis is seen as a constant process, the aim of which is to adapt and develop according to received experience and knowledge; • Communication is more relevant in winning the trust of the general public and when involving people in crisis management; • Part of psychology, semiotics, communication and behavioral studies in crisis management increases; • Role of leaders of public authority increases; • Need for international cooperation increases; • The aim is practical science-based crisis management.

1.2. THE MOST IMPORTANT DETERMINANTS IN EMERGENCY PREPAREDNESS AND EMERGENCY MANAGEMENT

1.2.1. Role of the public authority in crisis management

The transboundary nature of modern crises, increase in complexity and frequent severe consequences for a large number of victims bring about the need to involve highly placed people in crisis management in both a national and international context. Boin and Lagadec (2000) claim that the biggest challenge in a crisis situation is the ability of strategic leaders to make decisions, set goals, prioritise tasks and manage communication in a highly ambiguous situation. Boin *et al.* (2005, p. 13), and Kapucu, Arslan and Dmoroz (2010) see the role of public sector leadership in wider terms: in a crisis situation people look to their leaders – politicians, the country's top executives, municipal leaders and others, anticipating that they may prevent the threat or at least reduce its effects. It is expected that the authorities lead society out of the crisis, explain what happened and assure that something like this will never happen again (Boin *et al.*, 2005, p. 13; Kapucu, *et al.*, 2010). Lagadec (2009) believes that communities need leaders who are able to shape the future and empower people, not mere administrators who are trained to handle standard situations using crisis manuals.

Thus, besides the organisational aspect of emergency management, acting as a community leader is also considered vital. Expectations for public sector leaders are high. On the basis of post-accident studies and media analyses, 't Hart and Sundelius (2013) conclude that the public places the responsibility for a crisis situation, first of all, on state officials: they failed to use preventive measures, timely warning was not given, there was no preparedness for mass evacuation, etc. Moreover, 't Hart and Sundelius (2013) paraphrase Hutter (2011): in the European Union, there are no natural disasters any more: any extreme weather or geological event is defined as a failure in preparedness or a regulatory failure. Such criticism emphasizes the need to intensively address communication and the development of relations with the media and public within crisis management.

Pursuant to the important role of high-level public authorities, it is necessary to involve more senior officials and political leaders in emergency

preparation (Boin & Lagadec, 2000; 't Hart & Sundelius, 2013). Boin and Lagadec (2000) think it is necessary to change the attitude of senior management levels in crisis preparation and eliminate the idea that their participation in training exercises is unnecessary. Crisis simulations allow leaders think about decision-making processes in situations where there is no clarity and previous experience, it encourages open discussions about possible situations and developments, helps to understand the importance of internal and public-oriented communication in a long uncertain period, and prepares to coordinate the cooperation of stakeholders (Boin & Lagadec, 2000). The need for playing out crisis situations at the top level is particularly important in countries where large-scale accidents occur less frequently, and therefore it is necessary to strengthen motivation to deal with preparedness for crises, so that it does not merely become a routine performance of filling in necessary documentation. The aim of well-prepared strategic trainings that involve top officials is not to go through the procedures but affect the players' thinking.

Perry and Lindell (2003), Drabek and McEntire (2003) and Boin *et al.* (2005) have stressed that in crisis preparation it is necessary to take into account the modern knowledge on the behaviour of impacted organisations and people. Besides responsible organisations, ministers, heads of agencies and other senior officials managing emergency situations at the national level also find themselves in a completely new environment. A large amount of information, the media pressure, rapidly escalating events and the need to make important decisions in these circumstances cause severe stress.

In coping with all that, experience plays an important role (Boin, *et al.*, 2005). As real emergencies are rare, officials and senior executives are not involved daily in solving issues connected with the area, and therefore strategic exercises also play an important role in their psychological preparation for a possible crisis.

1.2.2. Crisis management in the health care system

Most emergencies directly or indirectly affect the greatest value – human life and health, which is why the health care system plays an important role in crisis management and health care providers are part of the so-called golden trio together with rescue and police forces. Internal processes in public health connected with medical assistance to victims are

a subject of study in catastrophe medicine and therefore not addressed in this article. Crisis management activities in the health care system as a whole, including preparation for mass casualty emergencies and their management with other stakeholders, are part of the overall crisis management system. Thus, to ensure preparedness of the health care system for emergencies, it is necessary to develop it in accordance with crisis management theories.

Authors who have studied health care system's emergency preparedness have highlighted as the main bottlenecks the development of research and strategy documents (Laor, Wolmera, Friedman, Spirmat & Knobler, 2005; United Nations, 2005 World Health Assembly, in 2011, Dar, *et al.*, 2014), the more effective participation in the overall crisis management system (Bradt, Abraham & Franks, 2003; Laor *et al.*, 2005; Carne, Kennedy & Gray, 2011), the need to increase cooperation inside the health care system and with other actors handling emergencies (Bradt, *et al.*, 2003; Logue, 2006 ; Hu *et al.*, 2009; Corcoran, Niven & Reese, 2011), and capacity building in emergency management (Burkle, 2006; Logue, 2006; Lurie, Wasserman and Nelson, 2006).

Today there is a gap between health care and other areas dealing with crisis management, as the crisis management strategies of the health care system focus only on emergency management (Laor *et al.*, 2005; Dar, *et al.*, 2014). The need to develop a proactive role of organising health care to increase resiliency in society (Dar, *et al.*, 2014) and the need to move from the hospital-centred emergency management concept to the healthcare-centred concept, from curing measures to preventive and preparatory measures, are not recognised (Laor *et al.*, 2005). The overall key in building the capacity of crisis management is, therefore, the approximation of health institutions', their partners and the improvement of mutual understanding. Health-related topics should be effectively integrated in higher-level crisis management policies and strategies at both the national and international level (Dar, *et al.*, 2014). Internationally agreed priorities in health care crisis management are highlighted in the Hyogo Framework for Action 2005–2015: integrating health care strategies in local and national crisis management policy; health risk monitoring, assessment and early warning, building of multilevel resilience through education and communication, reducing basic risks harmful to health and the health care system, effective responses in the face of emergencies and crisis management at all levels (United Nations, 2005;

Dar, *et al.*, 2014). The World Health Assembly has also emphasized the importance of including crisis management as an integral part of health care policies, and the need for cooperation between stakeholders (World Health Assembly, 2011).

A health care sector's preparedness to cope with crises is part of the self-image of modern society. According to Burkle (2006), civil society expects people's health to be protected from the consequences of crises and disasters. The public demands more strongly than before that the health protection measures in managing emergencies be fair and transparent. The state's capability to handle emergencies of various scales is considered an indicator of the health care system capacity (Burkle, 2006). The national health care system should be active at the top level in the case of any emergency, in order to prevent potential health problems, and, when required, begin coordinated actions as soon as possible. It is critical to identify key persons in the health care system, who are responsible for the coordination of necessary health sector activities, including communication with the public. Health care officials should act as health care crisis managers, who should have an important role both before an emergency occurs and its management (Logue, 2006), and whose good preparation and strong leadership qualities are key factors in managing emergencies successfully (Lurie *et al.*, 2006). In Estonia, the law firm Sorainen has studied the role of public authorities in the case of emergencies. It has conducted a legal analysis on the crisis management sector, which claims that emergency management is one of the core tasks of public authority, pursuant to the Estonian Constitution, and its transfer to the private sector is not permitted (The law firm Sorainen AS, 2013).

Lurie *et al.* (2006) point out an obstacle in health officials' leadership role in crisis management – they are involved daily in curating several health care sectors, which by nature is a slow process, and differs from leadership capacity assuming rapid decision making and actions in the face of an emergency. They have no experience in assisting mass casualties, this complicates cooperation between them and physicians. Catastrophe medicine practitioners regard health officials as less competent in emergency preparedness, “latecomers”, which in turn hampers the performance of health care leaders as leaders of the sector in crisis management (Lurie, *et al.*, 2006).

As in the case of emergencies in general, researchers consider collaboration between institutions involved in coping with a health care crisis, and the quality of management to be very important (Bradt, *et al.*, 2003; Logue, 2006; Laor *et al.*, 2005; Hu *et al.*, 2009). The importance of management skills in health care emergencies is increasing (Bradt, *et al.*, 2003). The manager's task is to create a cooperation network, while at the same time it is necessary to ensure close communication and interaction between stakeholders, so that an increase in the overall resilience in society is achieved (Laor *et al.*, 2005). From the viewpoint of the health care system's preparedness, the complexity of the system itself and its composition of various public or private institutions, is an additional challenge. Ansell *et al.* (2010) describe health care as a "system of systems", the term used in complex technologies. The complexity of the health care system complicates the task of health officials and national strategy compilers to build a crisis management structure and capacity.

The Estonian health care system is made up of various private health care providers and its structure is decentralised. The rescue and police sectors have internal rules of procedure, the right to command and control lines, but there is no organisation in Estonia that could bring together day-to-day health care providers. However, a leading authority coordinating activities of health care providers, such as hospitals and emergency crews, is necessary in emergencies, and it is also necessary to ensure such leading authority's or group's right to command private health institutions. According to the analysis of the law firm Sorainen, such a right to command is guaranteed in Estonia today. (The law firm Sorainen AS, 2013)

An aggravating circumstance in cooperation in health care is the previously described gap between the overall crisis management and the crisis management in health care. Hunter, Yang, Crawley, Biesiadecki & Aragón (2013) analysed 120 real emergencies managed with the participation of national health institutions, and pointed out one major problem: health care institutions have little experience in solving critical problems compared to other responding institutions. Health care institutions also had a different role to play in responding to emergencies, for example, they acted as leading bodies during outbreaks of infectious diseases, while in the face of severe weather or natural disaster events they functioned as supporting bodies (Hunter, *et al.*, 2013).

One of the most important tasks in health care crisis management is to ensure and divide resources, which has been researched by Bradt *et al.* (2003); Laor *et al.* (2005); Burkle (2006); Hu *et al.* (2009); Ansell *et al.* (2010); Hodge, Hanfling & Powell (2013) and Dar *et al.* (2014). It is necessary to ensure sufficient resources to coordinate successfully even during an extended emergency (Bradt, *et al.*, 2003). Two aspects due to peculiarities of the health care system make the distribution of resources difficult. As the health care system includes a number of private hospitals and ambulance crew owners, to have an overview of all resources and to distribute them rationally, it is necessary to create an institution or leading group coordinating the activities of health care providers. Bradt *et al.* (2003) point out the need to apply additional information technology facilities, the so-called decision support systems that would support decision-making processes in emergency management. Such programs would allow to pool data about victims, vacant beds, transport equipment and triage, thus enhancing the use of resources (Bradt, *et al.*, 2003). Corcoran *et al.* (2011) emphasize the importance of the information exchange between institutions in health care emergencies, the GIS geographic information system, highlighted by Bradt *et al.* (2003), and Thomas, Ertugay and Kemec (2007), being one possibility to enhance it. The GIS allows participants to use a common digital map and gather geospatial data, making it an important tool both in daily work and during major accidents. The introduction of the Geographic Information System by the Estonian Emergency Response Centre won the Logistics Award of the Year 2014 (Estonian Emergency Response Centre, 2014).

Several authors (Bradt, *et al.*, 2003; Ansell, *et al.*, 2010; Corcoran *et al.*, 2011; Hodge, *et al.*, 2013) draw attention to the ethical aspects of health care resource distribution – the question of their fair distribution. Particularly acute is the issue in distributing life-saving equipment, such as oxygen masks, intensive care beds or vaccines. Assistance to patients should be based only on the prognosis of the illness. This means that fair treatment does not concern all victims, but particularly victims with similar injuries, so that they receive the same degree of treatment. Discussions, however, result from the question of whether the first crisis responders, such as rescue workers and emergency staff, injured at the scene, should receive assistance first. On the one hand, such an advantage would help the staff return quickly to their duties, on the other hand, however, it would be a source of confidence and

additional motivation for workers exposed to the risk of infection or any other threat. In some countries, faster assistance and necessary facilities are ensured for the use of children (Hodge, *et al.*, 2013). As far as the authors know, in Estonia this kind of debate has never been initiated. According to the general principles in distributing resources, the order of the provision of health care services depends on medical needs on the principle that patients with similar medical needs receive care under the same conditions (Access to Health Services and Health Requirements for the Maintenance of the Order, 2010).

The health sector differs from other responding units in a number of ways in the global crisis management system. Of these, the most important is the decentralisation of the health care system and the fact that it consists of various health care providers that operate on different bases, which is a challenge for large-scale events management involving several hospitals and ambulance crew owners, and for the distribution of the required resources. Unlike the activities of other responsive institutions' that concentrate at the scene, to which police activities may be added to protect public order on evacuation sites, health care related activities are divided into three major areas, located in different sites. Pursuant to that, de Boer and van Remmen (2005) identify three major phases and activity regions in a health care emergency. At the scene, it is necessary to carry out a triage of victims, to determine the degree of need for medical care. The second phase consists of transporting victims to hospitals, while in the third phase, which is the longest, the treating of victims takes place (de Boer & van Remmen, 2005). VanVactor (2012) emphasizes the importance of strategic planning in the transportation of victims and the preparedness of coordination in emergency management capabilities. The described specifications, which differ from the nature and activities of other key institutions involved in crisis management, foster the separation of the health care sector from the overall crisis management system. Therefore, it is necessary to have a conscious, nationally led and strategically focused convergence and cooperation between the health care system and other internal security agencies.

Despite the specificities in health care crisis management, it is also possible to bring out some fundamental similarities with other areas in emergency management. These include, among others, international cooperation (Bradt, *et al.*, 2003; Burkle, 2006, Dar, *et al.*, 2014), highlighting the

necessity of uniform standards (Bradt, *et al.*, 2003) and an emphasis on the quality of communication (Logue, 2006; Hu, *et al.*, 2009; Ansell *et al.*, 2010).

2. METHODOLOGY

Given the results emerging from theoretical approaches, a qualitative case study (Yin, 2003, pp. 6–9) was carried out, in order to find the best solution to the research issue and to answer the two research questions. Document analysis (Flick, 2009, pp. 255–259; Yin, 2003, pp. 6–9) and expert interviews (Flick, 2009, pp. 165–169) were chosen to be appropriate data collection methods for the research strategy. In the framework of document analysis, regulations, legislation, emergency plans, internal manuals, strategy documents of ministries, assessment reports of crisis management trainings, etc. related to the research questions were analysed. All documents were analysed by qualitative content analysis. In addition to the document analysis in-depth interviews were conducted. On the basis of the purposive sample method (Teddlie, Yu, 2007, p. 80) 14 sectoral experts were chosen.

When creating the sample, representatives of coordinating ministries, leading agencies in health care emergencies, collaboration partners from police and rescue institutions, and health care providers were included. A balanced representation of associated institutions was targeted. As the research in question is qualitative research, the aim was to interview experts with long-term work experience in their field (average 21 years) and management experience (12 experts work in senior positions). All interviewees were sent a written request to participate in the research by explaining research questions, research aim and aspects related to research ethics to them. The interviews were conducted orally during the period 9th of March to 2nd of April 2015. All interviews were recorded with the consent of the interviewees, transcribed verbatim, and using qualitative content analysis with the help of NVivo software codes and categories were created. In accordance with the research questions the texts of the interviews were coded under three categories: current situation and problems; strategic level, responsibility and the role of public sector managers; improving preparedness of the health care system. Overall 22 codes were formed. The results will be presented by the research questions.

3. RESULTS

The first research question was: How has Estonia organised and regulated preparation for mass-casualty incidents and the management of their resolving on a national level?

To answer the question, the conducted document analysis dealt with strategy documents relating to crisis management, respective legal acts and internal acts of the Health Board. In addition, aspects of health care related assessment reports on crisis management trainings were analysed.

The document analysis showed that the legal regulation of health care emergencies is partially outdated and contradictory, and there is no internal documented system on emergency management. The roles of different health care institutions in crisis management activities are not clearly regulated. The leading authority managing health care emergencies, the management structure and its operation principles are unidentified.

Pursuant to the current legislation it is necessary to create a new position with the command authority to coordinate the activities of private health care providers in the event of health emergency – Medical Manager’s position. The person or institution, who will be appointed as Medical Manager, is not priorly known. The procedure to inform the Minister of Social Affairs of the need to appoint the Medical Manager is undocumented, time-consuming and untested, and consists of a series of telephone calls, and is schematically illustrated in Figure 2.

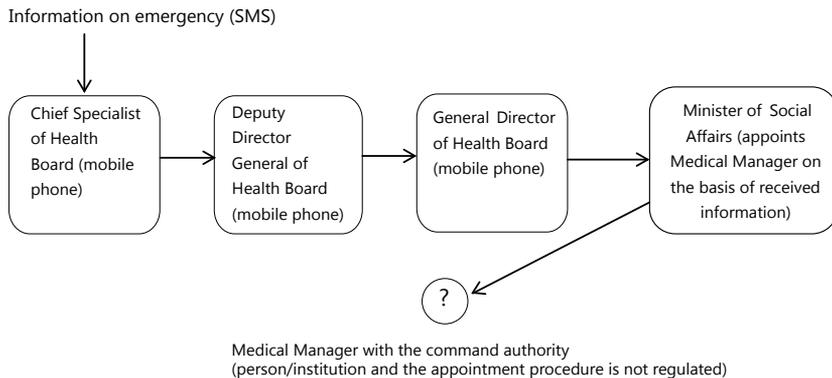


Figure 1. The procedure of appointing the leading authority and Medical Manager with the command authority under the current regulation (Nero, 2015).

Interviews with experts also highlighted problems in connection with health care emergency management structures and regulations. In accordance with the results of the document analysis it was revealed that today there is no clear agreement on how health emergency management activities start at regional and national levels, who the emergency manager is and what their rights are, what the role of the different health authorities is in managing the situation, what chains of command occur and on what basis.

The health care emergency management issue is indistinct in several respects. First, experts have different awareness of who has the command authority to coordinate the activities of private health institutions. According to the legal analysis conducted by the law firm Sorainen AS, the Medical Manager appointed by the Minister of Social Affairs has the command authority (The law firm Sorainen AS, 2013). At the regional level, the health care system is represented by the Head of the Regional Office of the Health Board, however, without the command authority.

In a mass-casualty situation it is crucial to manage the required resources, it means to send out ambulance crews and distribute victims to hospitals, to ensure assistance both at the scene and in other areas, to take casualties to the hospitals, where the necessary preparations are made to help them. More than half of the interviewees expressed their concerns in this area. The research revealed an absence of unambiguous resource managing and distribution system that is equally known to all institutions connected with emergency management. Experts' opinions on what institution would deal with dispatching additional ambulance crews to the scene of an emergency and who would coordinate the distribution of casualties among hospitals were contradictory, and several experts said that they did not know who manages medical resources during a major accident.

Table 3. Experts’ opinions on the resources manager

(compiled by the author).

Estonian Emergency Response Centre’s standpoint	Standpoint of Ministry of Social Affairs	Health Board’s standpoint
<ul style="list-style-type: none"> • It is the responsibility of Health Board to send ambulance crews to mass casualty events; • The order of dispatches must determine the number of responding crews according to the amount of casualties, and set a minimal number of crews for the service region; • Estonian Emergency Response Centre cannot decide on limiting accessibility to the service. 	<ul style="list-style-type: none"> • If it is necessary to coordinate the work of ambulance crews beyond borders of day-to-day activities, then it is the role of Health Board. 	<ul style="list-style-type: none"> • Resources should be managed by the Estonian Emergency Response Centre.

Expert interviews and assessment reports on training exercises revealed a dangerous shortage in the system of informing hospitals about the threat of a mass-casualty incident. Thus, some “casualties” “died” in the sea rescue exercise Big Boat 2012, because the hospital was not informed of their arrival timely. Communication is also important with regard to the possible need to inform the public on limiting ambulance dispatches or other decisions affecting the access to health care necessary to help casualties in a major accident. The question of who is responsible for possible consequences due to limited access to medical care is another area not yet clearly regulated.

Role of expert	Quote
Health care service provider / hospital	“The fact that the emergency was in process and there were potentially 90 casualties, for example, the fact that such a situation had already been announced and that some action was going on, and a bunch of ambulances were already at the airport – we learned these things through the Delfi news platform.”

According to the results of the case study, the system of planning in the field of preparedness for health care emergencies does not meet the experts’ expectations, half of the experts highlighted the need to compare and unify sustainability plans and create a state-level comprehensive plan. Several experts claimed that today the assessment of such plans is formal and substantive analysis is not carried out. Some experts pointed out the inadequacy of planning only within one institution,

where they found it necessary to have a national health care plan, which, inter alia, would define threats, bring together information on health care resources and regions, and include instructions on how to operate in various situations.

Concerning crisis management exercises, the research highlighted the need for better-systematised trainings for preparedness in emergencies. The experts expect the planning of exercises to be carried out based on risk analyses, by which identified training needs should be a basis for the cyclical development of the training plan and for regular testing in the form of exercises. The interviewees pointed out several shortcomings in trainings carried out so far; shortage of crisis drills, including a shortage of training for top-level managers, irregularity, too detailed pre-planning and the consequent low realism, such as the number of casualties and other factors when there is no information in real crisis situations, are known in advance. A small number of “casualties” during training exercises, too many formalities and inadequate substantive testing were also regarded as problems.

The second research question was: What are the main obstacles in crisis management of the health care system?

In expert interviews, a question about the role and responsibilities at the national level and public authorities in the preparedness of the health care system for emergencies involving mass casualties was sharply raised. The research showed that the gaps in crisis management of the health care system are related to the coordination and regulation of the sector at a national level.

There is a conflict in interpreting the role of the Health Board by the experts (see Table 4). While collaboration partners and health care providers saw the Health Board as a leading institution, a preparation coordinator and organiser in crisis management. The Health Board positions itself as an information provider to the Ministry of Social Affairs, and formulates its role as performance of the duties determined by the regulation “Health Care Organisation in Emergencies” and the corresponding emergency management plans.

Table 4. Role of Health Board in crises management of health care system (compiled by authors).

Cooperation partners and health care providers about Health Board's role	Health Board about its role
<ul style="list-style-type: none"> • Leading institution in managing health care emergencies; • Coordinator and organiser of preparedness for health care emergencies (some experts complement the role – in cooperation with the Ministry of Social Affairs). 	<ul style="list-style-type: none"> • Information provider in rescue event's regional headquarters; • In case of health care emergency, inform the Ministry of Social Affairs on the need to identify the medical manager; • While preparing for an emergency, gives tasks to health care providers; • Fulfills tasks given by the decree "Health Care Management in Emergencies" and by plans concerning emergency management during mass poisoning and epidemy.

The research also revealed that according to the expert opinion, the Ministry of Social Affairs and Health Board have not sufficiently acknowledged the need for crisis management and their role in its development. Several experts also pointed out a lack of will in dealing with the area and in taking responsibility.

Role of expert	Quote
Strategic level / Ministry of Internal Affairs	"We think the Health Board could and should be much more active and spend more hours to ensure Estonia's security in issues, which are in their sphere of responsibility."

The document analysis pointed out that the strategic documents in the area of governance in the Ministry of Social Affairs responsible for crisis management in the health care system do not set respective goals, only highlighting a few measures of preparedness in emergency situations (Ministry of Social Affairs, 2015a; Ministry of Social Affairs, 2015b). In the Health Board the formation of structures necessary to manage emergencies, their composition, operating principles, exchange of information and other measures are not regulated by documents. By the only decree dealing with crisis management, the Rescue Board appoints the Head of the Regional Office of the Health Board in the regional headquarters formed on the basis of the Regulation of the Estonian Republic No 5 "Cooperation Procedure for State and Local Government Institutions and People Participating in Rescue Events" (Cooperation Procedure for

State and Local Government Institutions and People Participating in Rescue Events, 2012), whose role is to delegate information in the headquarters, but who has no command authority to coordinate actions in health care institutions.

Another main obstacle in crisis management of the health care system turned out to be a lack of resources. The interviewees mentioned the resources necessary to manage health care emergencies and emergency preparedness in three aspects; funding of activities, technical resources and human resources. Analysis of the interviews revealed two aspects of the problems related to financing – funding of activities aimed at ensuring preparedness for emergency situations, and reimbursement of real costs in connection with receiving mass casualties, including reimbursement of expenses connected with increased hospital capacity due to a disaster threat. An expert from the Ministry of Social Affairs claimed that the Ministry of Social Affairs and Health Insurance Fund have an agreement concerning such compensations, and a clause on the reimbursement of expenses because of an emergency or its threat has been included in the standard agreement of the Health Insurance Fund. Several experts, however, expressed the opinion that today the reimbursement of such costs is not regulated.

In relation to the human resources required to manage health care emergencies, the case study pointed out an insufficient number of professionals due to the smallness of the country, and problems concerning cross-usage of medical personnel in the Estonian health care system. More than half of the experts pointed out the lack of people in the medical system in general and at leading levels that manage emergencies. Several experts working as health care providers saw a danger in the fact that the actual shortage of resources is not reflected in daily activities, because the same people work in different ambulance crews and for instance, as rescuers.

Furthermore, technical resources are limited in health care – ambulance crews, beds, operating rooms, pharmaceutical products, accessories and others facilities. The peculiarity of health care stocks is that it is financially a very expensive system, which among other things requires continuous updating. Some experts also raised a problem concerning different approaches to health care stocks by the Ministry of Internal Affairs and Ministry of Social Affairs.

The experts identified good opportunities to build an emergency response capacity in the form of preparedness involving additional resources. In addition to the need to regulate the mobilisation of family physicians in times of crisis, and to prepare for volunteers' and medical students' involvement, a number of experts pointed out the possibility to better organise international assistance, rapidly seek additional medical supplies based on pre-agreements and information on resources, send patients for treatment to other countries or recruit specialists to Estonia. In doing so, it is necessary to ensure a national capability to receive the necessary assistance.

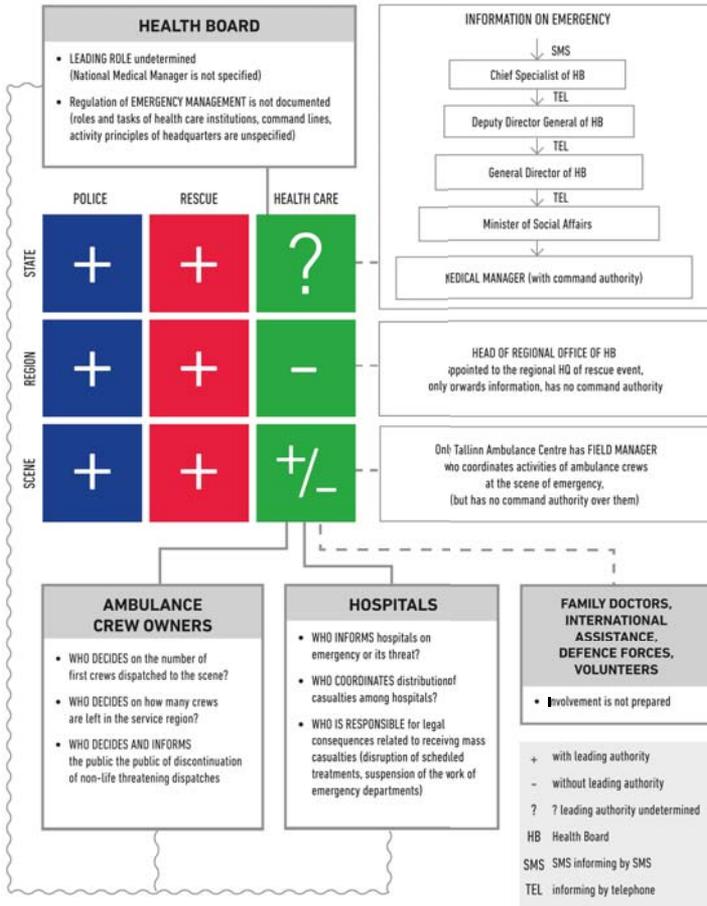


Figure 2. Organisation of management of mass-casualty emergencies in the health care system and concurrent problems according to level of management of the event and the relevant institution (compiled by the authors).

The results of the research on how a mass casualty emergency is managed in the health care system and what problems arise in that context, are pooled in Figure 2.

DISCUSSION

The research concluded that the preparedness of Estonia’s health care system to organise medical assistance at mass-casualty major disasters was evaluated positively by only a few experts. Mostly positive was the evaluation given to the independent preparedness of ambulance crew keepers and hospitals, whereas the capability to coordinate the actions of health care institutions involved in the management of an emergency was pointed out as a weakness. Approximately half of the experts admitted that real experience with mass-casualty emergencies is missing today. Nearly half of the interviewees expressed a clear view that Estonia is not ready to organise medical assistance in emergencies today.

Role of expert	Quote
Health care provider /hospital	“I think there is no such preparedness in Estonia. Even the exercises we have had so far have shown that we have an excellent rescue structure, an excellent police structure, excellent /.../ ambulance crews, excellent hospitals, but we are not ready for the coordination of all these different structures.”

The experts’ negative evaluation on the preparedness of the health care system for mass-casualty emergencies and the shortcomings in the organisation of health care emergencies, conflict with the public’s expectation that public health will be protected against the effects of crises and disasters, described in theoretical sources (Burkle, 2006). As expected, the experts pointed out a lack of financial and human resources, but the interviews revealed as the main problems the issues related to emergency management structures and regulation, and little acknowledgement and appraisal of crisis management in the health care system at the national level, were highlighted as even greater obstacles than the lack of resources.

Based on the conclusions of the research, one may say that the internal preparedness for emergencies has not been wholly worked out in

the health care system. Organisation of the management of health care emergencies (management structure, its composition, operating principles, chains of command, management of medical resources, roles of various parties in the health care system, issues associated with legal distinctness of an emergency, informing hospitals of a mass-casualty disaster, headquarters of a health emergency, their technical resources and procedural rules) is not clearly specified or regulated, which significantly hampers the provision of medical assistance and may lead to extra human lives being lost.

In essence, there is no health sector leader to manage emergencies at the regional level. The person appointed to the headquarters of the Rescue Board is Head of the Regional Office of the Health Board with no command authority to coordinate actions in health care institutions. To create command authority, it is necessary to conduct the appointment of a medical manager, which basically means launching emergency management at the national level and thus conflicts with the subsidiarity principle of the national crisis regulation system. According to the latter, the conduct of crisis regulation actions is held at the lowest possible level (Maurer, Ross, Räm & Saar, 2014). The procedure of informing the Minister of Social Affairs of a need to appoint a Medical Manager is based on an oral agreement and is a time-consuming and untested in practice. The situation is aggravated by the fact that today it is not known to the experts beforehand or documented, who/which institution will be identified as a Medical Manager by the Minister of Social Affairs. In a real emergency, the above-mentioned situation means that the health care system has no leader up to the identification of a Medical Manager.

The complexity of the health care system hampers the task to establish the management system necessary for emergency management. One of the main research problems of the health care crisis regulation theory is the establishment of the organisational structure including various health care institutions. On the other hand, one of the key factors of efficient emergency management is the existence of an accurate previous regulation on which an institution has a leading role and how it performs it.

The research ascertained the expectation of the majority of experts that the Health Board should be the coordinator of the actions of health care institutions in emergencies and in the preparations for them, this was however opposed by an opinion of a Health Board expert that there is

no such coordinating institution in Estonia today. Such a disagreement together with the issue of the public sectors role and responsibility in health care crisis regulations was sharply highlighted in the expert interviews concluded within the research. The theory points out that the role of the top levels of public authority in crisis regulation has increasingly grown (Lagadec, 2009; 't Hart & Sundelius, 2013). Strategic leaders are viewed in a wider role than before – society expects that leaders direct them out of a crisis and clarify the occurred event, are able to shape the future and empower people (Boin, *et al.*, 2005, p.13; Kapucu, *et al.*, 2010). According to the health care crisis regulation theory, the national health care system should be active at the top level in the case of any emergency, in order to begin coordinated actions as soon as possible, when required. The identification of a health system's responsible key persons is of critical importance. The managers of such health care emergencies should be health care officials who are assigned an important role both before the occurrence of an emergency, upon managing the emergency and after the management (Logue, 2006).

The research has revealed concerning differences between how the Health Board, health care institutions and cooperation partners (Rescue Board, Estonian Emergency Response Centre, Police and Border Guard Board) interpret their roles in managing health emergencies and preparations for them. The fact that several experts described the activities of the Health Board and the Ministry of Social Affairs with such expressions as 'a lack of will' and 'unwillingness to take responsibility' should be given serious consideration. According to expert opinions, the Ministry of Social Affairs and the Health Board acknowledge too little the necessity of health care crisis management.

Based on research conclusions, the authors point out a need to design a comprehensive organisation of preparation for and management of emergencies and clearly define the roles of parties in health care crisis regulations. Consequently, the authors make the following proposals to ...

Ministry of Interior Affairs:

- To analyse opportunities for a more efficient integration of the health care sector into a decentralised crisis regulation system.
- To consider a need to develop supervisory methods to evaluate and improve the quality of crisis regulation activities (of a health care system).

Ministry of Social Affairs:

- To prioritise the crisis regulation field and set corresponding objectives in strategic documents.
- To specify the roles of the Ministry of Social Affairs and the Health Board in health care crisis regulations.

The master's thesis underlying the article has also highlighted complementary proposals for measures to enhance mass-casualty emergency preparedness, in the developing of which it is advised to involve the representatives of the Estonian Emergency Response Centre, Police and Border Guard Board, Rescue Board and health care service providers (Nero, 2015).

CONCLUSION

Research and statistics confirm that modern crises are ever more complex, extensive and with more severe consequences. The number of people that can be saved in the case of a disaster or terrorist attack directly depends on a health care system's emergency preparedness and its capability to achieve the situation where medical assistance reaches each casualty. The research discussed in this article searched for an answer to the question on how prepared Estonia's health care system is for mass-casualty emergencies.

As a result of an analysis of the data collected, studying theoretical approaches and an empirical study, the research arrived at the conclusions, which indicate serious deficiencies in the emergency preparedness of Estonia's health care system and the resultant risk to the loss of extra lives in a disaster.

Fortunately, Estonia has no practical experience in the organisation of medical care in mass-casualty emergencies. Experts dealing with the management of health care emergencies have given a pessimistic evaluation of such preparedness, an analysis of performed crisis regulation exercises and the regulatory documents of the sector also highlight several problems.

According to the results of the research, the most important problem in the management of mass-casualty emergencies in Estonia's health care

sector is the indistinctness of management structures and regulations. The parties in the health care system lack a uniform understanding of how the management of an emergency will launch at the regional and national level, who the emergency manager will be in the health care system and which rights they will have in managing the actions of health care providers and which chains of command will occur.

Valid regulations fail to clearly define the coordination and coordinator of health care institutions. The legal acts regulating the sector conflict with each other and the regional-level health sector leader has no command authority over private health care providers. The procedure necessary for creating a command authority is based on an oral agreement, is time-consuming and untested, which practically means that in the case of a mass-casualty emergency, the health care system may have no emergency manager for a long period of time.

The parties in the health care system have conflicting positions on directing the resources necessary for management of a mass-casualty emergency (dispatching ambulance crews and distributing casualties between hospitals). It has not been clearly defined and health care institutions are not uniquely aware of who will coordinate the named actions in an emergency and how – where and how many ambulance crews will be directed, how many crews will stay in their usual service area, to which hospital the casualties will be sent, how hospitals will be informed of a need to increase their intake capability, etc.

Fixation of a health emergency and an emergency risk, and their legal consequences have not been regulated. It is necessary to define the responsibility arising from reorganisations in the activity of hospitals for receiving mass casualties and servicing ambulance crew dispatches and financing improvement of preparedness.

Expert interviews pointed out the field's little acknowledgement, prioritisation and a lack of an integrated view, initiative or willingness at the national level as the main obstacle in the development of the field. Strategic documents of the Ministry of Social Affairs, responsible for the field, set no objectives targeted at the preparation for and enhancement of the management of health care emergencies.

The research revealed as a serious disagreement the fact that cooperation partners (Rescue Board, Estonian Emergency Response Centre, Police and Border Guard Board) and health care providers (hospitals,

ambulance crew keepers) regard the Health Board as a leading institution, a preparation coordinator and an organiser in health care emergency management. Whereas the Health Board itself does not define its role this way and positions itself as an information provider for the Ministry of Social Affairs for launching a health care emergency. The opinion expressed by several experts on the unwillingness at the national level to deal with health care system crisis management and to take responsibility in the field is regrettable and distressing.

Experts also highlighted limited resources, both financial and human, including the scarcity of people competent in the field in particular. In addition, it was pointed out that opportunities to involve external aid, family physicians and volunteers in the management of an emergency and cooperation with the Defence Forces have not been organised or regulated.

The outcomes of the research show that to increase the crisis regulation capability of a health care system it is necessary to form a unified integrated structure for preparation and management of health care emergencies and define the roles and responsibilities of the parties in it.

The conducted research will provide an important and innovative input into the development of the fields of internal security and crisis regulation. It is the first time the health care system has been treated from the aspect of crisis regulation in Estonia and the results of the research underline the need to prioritise this field at the national level in the future more than ever before. Successive studies need to identify the most suitable practices for Estonia for health care emergency management.

Contacts

Kristi Nero

61, Kase tn, 12012 Tallinn
+372 5566 5864
nero.kristi@gmail.com

Shvea Järvet

61, Kase tn, 12012 Tallinn
+372 5650 5142
shvea.jarvet@gmail.com

Jaan Tross

61, Kase tn, 12012 Tallinn
+372 696 5459
jaan.tross@sisekaitse.ee

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A FRAMEWORK FOR TRAINING INTERNAL SECURITY OFFICERS TO MANAGE JOINT RESPONSE EVENTS IN A VIRTUAL LEARNING ENVIRONMENT

Sten-Fred Pöder, MA

*Estonian Academy of Security Sciences
Master's Studies Graduate of Internal Security*

Raul Savimaa, PhD

*Police and Border Guard Board
Police Expert Analyst*

Marek Link, MA

*Estonian Academy of Security Sciences
Vice-Rector of Development*

Keywords: virtual learning environment, internal security training, joint response event, multi-agency training, crisis management training

ABSTRACT

Implementation of a virtual learning environment (VLE) for conducting a joint response event is analysed in the current article. The joint response event is seen here as an event in the responsibility area of the police or rescue service, who when conducting the event should apply crisis management techniques. A joint response event may have a negative influence in the society, thus it is important to conduct the event quickly and professionally. Based on the theory and survey, a novel holistic framework for training course design processes is introduced in the article. VLE approaches facilitate the implementing of innovative and flexible teaching methods that can be used for a training management process of a joint response event. The article also suggests future steps for the better implementation of VLE in the training process.

INTRODUCTION

Rapid development of information technology has changed and improved the methodological solutions used in training sessions. Since the early years of e-learning in the 1970s computer-based study solutions have evolved from passive methods to active methods providing a more efficient and involving learning experience. Virtual learning environments support a flexible and student-centred approach, taking both the student and the teacher into an artificial situation environment, where the context and learning objectives are better perceived through empirical study in a virtual environment. Theoretical sources treat the learning environment composed of various tasks and strategy exercises, computer-based programs and virtual reality in different ways. The present article uses the abbreviation VLE for virtual learning environment. VLE is used as an actual and obligatory part of the learning processes in different areas. For instance pilots need to practise and undergo evaluation first in VLE and only then they have the opportunity to pilot an aircraft in real life. In earlier research papers VLE has been described to have infinite possibilities in learning processes (Rackaway & Goertzen, 2008; Schmorrow, 2009).

In the 21st century VLE has been more and more integrated and adapted into safety-critical training and management systems, where mistakes in decision-making in real work situations may endanger life or property. Also, development of VLE tools has created better possibilities to set up training processes for the authorities of internal security, as it has become more and more suitable to implement for supporting time-critical decision-making in complex situations.

Implementation of VLE is important to Estonian internal security as well. The Development Plan of the Administrative area of the Estonian Ministry of the Interior for the years 2013-2017 states, that in cooperation we enhance safety and create conditions for a stable environment in all of Estonia (Estonian Ministry of the Interior, 2013). Both authorities under the Ministry of the Interior and other agencies involved in internal security must cooperate to better achieve the goal and act in unity. The most significant challenge for internal security is crisis management, which entails events which have resulted in situations and solutions which require the involvement of several agencies and the efficiency of their actions depend on cooperation between them (Jenvald & Morin,

2004). The term *crisis* has been defined in multiple ways, but it denotes unexpected situations demanding a fast and skilful response (Rosenthal, Charles & Hart, 1989 p. 4) and it is difficult to solve them (Rosenthal, Boin & Comfort, 2001; Stern & Sundelius, 2002). Crisis management means confronting such unwanted events and solving them (Tross, 2008, p. 6). The time-critical nature of the event must also be considered as well as the fact that the cooperation activities chosen for solving the crisis with the desired outcome need to be time sensitive. That means that the outcome of an activity does not depend only on its correctness but also its timeliness.

The present article also explores such crisis events that require multi-agency cooperation. That is why such situations are referred to in the article as joint response events. The authors signify events managed by the Police and Border Guard Board (hereinafter PBGB) or Rescue Service (hereinafter RS). Involving other agencies in the process – in practice the most involved authority is the medical emergency unit under the Health Board. As a joint response event is a subtype of crisis event, basic crisis management procedures are implemented.

Management training for the officers of the Ministry of the Interior for the joint response event is directly linked to the capacity to save lives, which is one of the main aims of safety policy (Estonian Ministry of the Interior, 2014). In order for the police and rescue officers to achieve the competence necessary for the solving of a joint response event, it is vital to have an efficient learning process so that the shortcomings of the training, which could arise from insufficient scientific treatment of the topic, could be minimized. Due to the lack of financial and human resources and with rapidly developing technology, it is important to explore innovative study methods.

The training of officers of Estonian internal security has been entrusted to the Estonian Academy of Security Sciences (hereinafter EASS) and one of its structural units – the Centre for Innovative Applied Learning Technologies (hereinafter CIALT) has the capacity to conduct training classes on joint response events in VLE. Based on the needs of the authorities of internal security and their cooperation partners, using mainly XVR and ISEE software, developed by Dutch company E-Semble. Judging from the existing capabilities, the article focuses on the possibilities and specific features of these types of software. Highlighting the conclusions of the Master's thesis written at the EASS in 2014 and

the conducted qualitative studies, the aim of which was to elaborate a didactic framework for the training of management levels in case of a joint response event in a virtually simulated learning environment, considering the needs and special features of the agencies of Estonian internal security. Today VLE used at the EASS and in other countries facilitates the transition of theoretical knowledge of internal security officers to their practical activities. So far there has been no known scientific research based on the didactic approach for applying VLE in the training process for joint response events. According to the knowledge of the authors, there are no suitable solutions available internationally either, making the didactic approach introduced in the current article together with the proposals for application unique.

1. APPLICATION OF ELECTRONICALLY SIMULATED LEARNING ENVIRONMENTS TO TRAINING COURSES OF INTERNAL SECURITY

This paragraph analyses the concept of learning experience supported by virtual reality learning environments, focusing on concrete areas of resource demanding events and crisis management tasks of mid-level officers of internal security. Although VLEs have been in use for more than 10 years, we can still encounter misperception about its usage in tactical command. One of the reasons might be that it is seen as a technology-driven approach leaving the essence of learning in the background, or scepticism if the investment to “a new” way of teaching is worth the effort of changing the old familiar methods. Recent studies, however, demonstrate something different, making serious gaming the most effective learning method. Support by different interactive electronic learning environments, which combine different methods, respects the individual personal characteristics, learning styles, brings learning in to context and last but not least makes learning an interesting, valuable and fun experience.

1.1 CAPABILITIES EMERGING FROM IMPLEMENTATION OF VLE

Since 1999 a major shift from teacher-oriented classroom teaching to a competency-oriented and outcome-based student-centred approach has been applied in most of the European higher education institutions, thanks to the Bologna Initiative and declaration signed by European Education ministers in Bologna, Italy in 1999. However, the largest emphasis of this educational directive is invested into assessment, what matters is the competence a student/participant can demonstrate at the end of their studies - the learning outcome (LO). The biggest criticism towards this approach is that it leaves out everything that is acquired besides the defined outcome and does not place any emphasis on how competencies should be learned. The question “How” is directly linked to our cultural heritage. The understanding of learning and teaching goes back to ancient Greek thought, when Plato argued that one of the criteria for a perfect city was the reason, the other being the education of desire. We still see it a lot in different learning institutions and universities, where theory is often taught to the exclusion of practice. In many ways the intentions of the Higher Education reform in Europe and the heritage of cultural background in the understanding of learning and teaching contradict one other, mostly allowing only secondary experience, which according to Peter Jarvis, is information mediated to one person via another, leaving the learner passive. He/she could receive knowledge but it is insufficient to build up a strong experience and change of behaviour of the person (Jarvis, 2006, p. 134). When looking at the challenges, work effort and environment of the police, we witness that a success of the work effort depends on the competencies of the person, as they are involved cognitively, emotively and practically. This indicates that the educational preparation cannot rely on secondary experience only. Knowledge itself does not equip a person with ability to perform. Looking at an adult learner as such we can clearly indicate that the success of learning, that is acquiring knowledge, skills and values are only effective when they are related to practical experience (Knowles, 1990, p. 51), which allows us to elaborate that for any law enforcement officer to achieve the ability to succeed in their daily tasks, a whole set of competencies should be acquired effectively.

For many years there has been a challenge how to create a learning environment that supports the primary experience. A feeling of being present gives a chance of immersion, which could be described according to Char Davies. - A Canadian artist who used virtual reality in his masterpieces as awareness of physical self, transformed by being surrounded in an artificial environment; “A feeling of being present can be used for describing partial or complete suspension of disbelief, enabling action or reaction to stimulations encountered in a virtual or artistic environment” (Dyson, 2009). Transforming this idea to learning context, it means that if a learner is placed in a virtual artificial situation, a type of perception is created surrounding the user with virtual reality (VR) elements such as images, videos, sounds or other stimuli.

According to Chuang and Chen’s research (2009), computer-based video games are applied to improve cognitive ability better than other methods. The result from their study provided experimental evidence to support that the use of VLE explored the idea of learning (Chuang & Chen, 2009). Chuang and Chen’s experiment was based on children, but the result of the research can be easily transferred to the adults learning process of comprehension, problem-solving or critical-thinking skills. According to this evidence, it is vital to implement more VLE training sessions to the study programmes of internal security officers.

The perception is created by surrounding the user of the VR system with elements like interactive gameplay, images, sounds or other stimuli that provide an engrossing total environment. Since the beginning of fast development of virtual reality there have been four main categories or purpose of virtual reality training exercises. According to Ernest W. Adams, who was one of the pioneers in game design, there are 3 different levels of virtual immersion:

Tactical immersion

Tactical immersion is experienced when performing tactile operations that involve skill. Players feel “in the zone” while perfecting actions that result in success.

Strategic immersion

Strategic immersion is more cerebral, and is associated with mental challenge. Chess players experience strategic immersion when choosing a correct solution among a broad array of possibilities.

Narrative immersion

Narrative immersion occurs when players become invested in a story, and is similar to what is experienced while reading a book or watching a movie. (Adams, 2003)

Staffan Björk and Jussi Holopainen, in *Patterns In Game Design* divide immersion into similar categories, but call them **sensory-motoric immersion**, **cognitive immersion** and **emotional immersion**, respectively. In addition to these, they add a new category:

Spatial immersion

Spatial immersion occurs when a player feels that the simulated world is perceptually convincing. The player feels that he or she is really “there” and that a simulated world looks and feels “real”. (Björk & Staffan, 2004)

Those theoretical aspects elaborate the feeling of being present that can be simulated with modern technological means, but then again the feeling of being present is not the ultimate goal of virtual reality training sessions. It should aid learning or create conditions where all the necessary competencies can be achieved faster and on a deeper level. That is according to J. Biggs’s theory:

- Learning that seeks to understand and connect the concepts;
- Relates ideas to previous knowledge and experience;
- Explores links between evidence and conclusions;
- Critiques arguments and examines rationale.

(Biggs, 2003, p. 225)

All four elements are relevant to tasks and duties of police field managers who are one of the target groups of the training sessions described in this article. Emergency situation management requires prompt analysis and coordinated responses in order to achieve the most effective containment of a situation, thus avoiding casualties, serious injuries, and damaged public and private property.

Our research and development work is targeting the professional enhancement of emergency situation management personnel through

virtual reality exercises, which will increase the chance of assessing and training their executive functions. These responses to police, rescue and emergency situations are largely dependent upon the cognitive abilities of the individuals involved, including all major cognitive domains: attention, memory, visual-spatial skills and executive functions. The latter contain functions such as decision-making, problem solving, sequencing and planning. All these properties are critical management skills and contribute significantly to the quality of the responses in emergency situations.

1.2 FUNCTIONAL DESIGN OF VLE TRAINING COURSES IN INTERNAL SECURITY

The modern European higher education system, since the Bologna process in 1999 aims for an outcome-based approach to learning, integrating formal and informal educational systems to one competency leveling system normally referred to as Qualification Frameworks. Out of the many taxonomies ever created about human learning, the most used taxonomy in European Higher Education area is Bloom's taxonomy (1957), used as a cornerstone for competency grids. It determines the progress of high order thinking process development and links it with certain competencies of any profession (Krathwol, 2002 p. 212-218). (Figure 1)

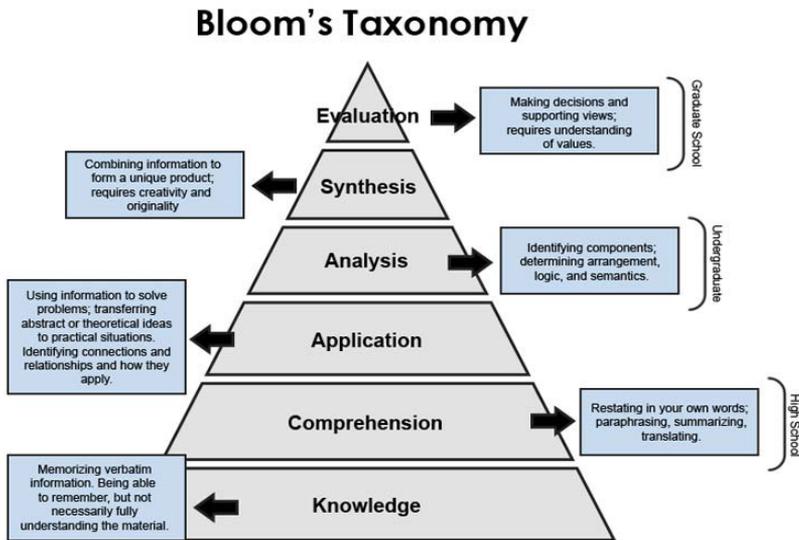


Figure 1. Bloom's taxonomy- modified by David R. Krathwol, 2002.

A similar theory is presented by David Kolb, a theory of experiential learning (Kolb & Kolb 2009; Figure 2). To reach practical competencies, it is necessary for the learner to follow certain steps. Visualisation - understanding the situation. Followed by planning - when a Learner is planning his/her own activities and practice - application of the activities. Going through the process, a learner is able to self-evaluate and reflect to make amendments. Following that cycle a learner will eventually gain the desired level of competencies. This model can be applied at the individual or group level (Kolb & Kolb, 2009).

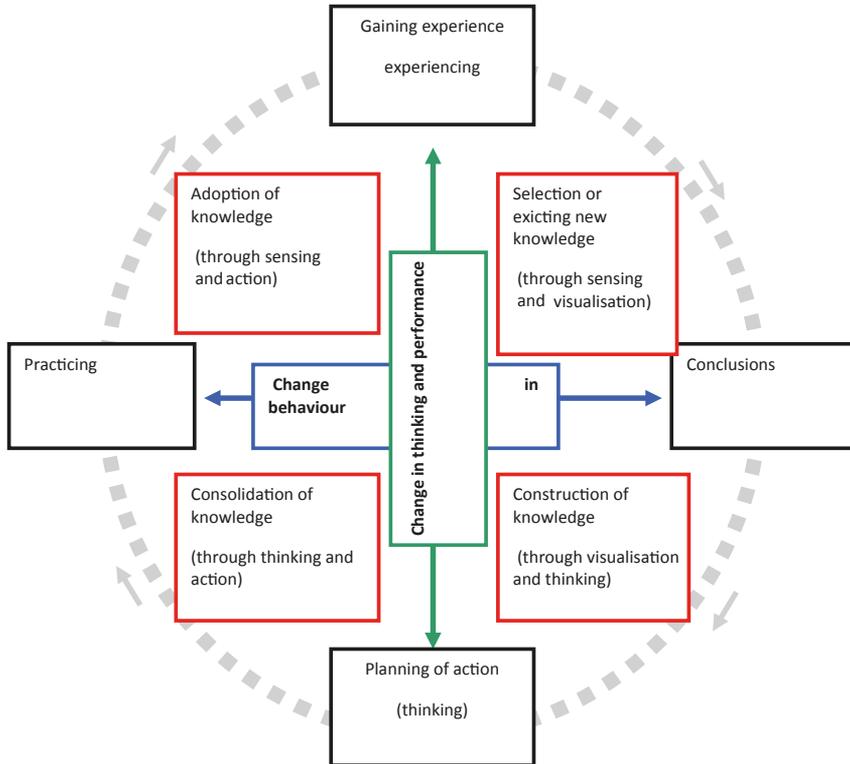


Figure 2. Functional model of learning, Kolb and Kolb (2009).
Compiled by authors.

The major advantage of Kolb’s model compared to Bloom’s taxonomy is that it allows more flexibility for competency build up and does not always follow a certain linear path like it is presented in Bloom’s model. It allows more freedom and space and respects the individuality of a learner and uses the advantages of VLEs, which use many different methods such as visualisation, demonstration, group work, search and discover, simulation, active reflection, etc. At the same time learners use different ways to process and analyse information, for example they can assess the situation before the whole planning phase is completed and also that the assessment or creation of the solution does not always have to wait until high order thinking skills have reached their peak.

For successful implementation of the model using a VLE, a holistic and systematic approach is needed. The approach should take into account not only individual but also organisational, and professional needs. So, in addition to supporting personal development of students, the framework should emphasize that the training in VLE should also match expectations and the obtaining of qualifications for performing activities in the crisis management domain. As a result, it is necessary to take into account three categories when designing the VLE exercise for conducting a joint response event:

- Aim of the training – it should be determined which skills are planned to be obtained by students during the training and what is the specific focus of the current training activities;
- Personal characteristics of trainees – each student possesses individual characteristics and ability to obtain necessary skills. The training process should be personalised, if possible, in order to facilitate obtaining the competencies by those students who attend the training;
- Correct and trustworthy representation of the joint response event – the scenario should be understandable and perceptible by the students as well as logically correct, both in terms of sequential as well as the temporal criteria of events.

The first two categories were thoroughly described previously in the current article. The third category is analysed hereunder. Correct and trustworthy representation of the joint response event is important for successful training in order to create a realistic feeling for students about their presence inside the event. The veracity of the simulation environment not only improves perception of training, but also affects attainment of managerial skills for conducting the event. In that case not only the visual design and procedural logic of the sequence are important, but also temporal behaviour of events and the possible emerging result of interactions of multiple processes and participating actors should be considered. The VLE training should emphasize that the process of conducting a joint response event should not merely be seen as response of one student to the events that happen in sequential order in a single timeline. The training provides more results in real life if the students understand that a joint response event is actually a set of emerging interactions of multiple environmental, technical and human actors. Also,

internal security authorities as responders to the joint response event are independent actors who act in a coordinated manner, but still perform their activities in variations.

Considering the multi-actor nature of a joint response event, the training scenarios should be considered as multi-thread processes that are triggered by different actors. This can lead to a natural conclusion to build up the training scenario as a multi-agent system (Ferber, 1999), but in simple cases such complex approaches can be avoided if the designer imitates the emergent behaviour by careful design of a singular and sequential process line that would approximate the complex reality.

The preliminary draft of the suggested framework for training of conducting a joint response event should outline the following aspects:

- Training needs - express a clear understanding what kind of competencies are needed to perform certain actions and in what conditions;
- Levelling of the competencies – present a holistic sequential process, levelling the different stages of competencies and learners outcome performance, sectorial qualification framework (SQF);
- Describe the process of transaction of the qualifications to learning outcomes (LO);
- Creation of training programs (formal and informal programs);
- Establishing Learning and Assessment Strategy;
- Creation of VLE based training scenarios;
- Testing the scenarios;
- Applying - conducting training sessions;
- Assessment of the methods, amending when needed;

In conclusion it can be stated that the application of electronically simulated virtual learning environment training courses in internal security does not only depend on the VLE itself and therefore a more systematic approach is needed, i.e. a strategic management of learning that integrates necessary job competencies with tactical delivery of competencies during the training. The following research maps out the expectations of the key role players and focuses on the analyses and syntheses of one possible holistic implementation design.

2. NEEDS FOR THE APPLICATION OF VIRTUAL SIMULATED LEARNING ENVIRONMENTS IN ESTONIAN INTERNAL SECURITY

2.1 METHODOLOGY OF RESEARCH

The results of empirical research presented in the article are based on the Master's thesis by Sten-Fred Pöder (2014). In the research, documents describing courses conducted in EASS were analysed. The documents reviewed were curricula, syllabi and calendar plans of the Police and Border Guard College (hereinafter PBGC), Rescue College (hereinafter RC) and the Institute of Internal Security. Syllabi were examined in order to ascertain the integration of different subjects related to joint response events and the possibilities of application of VLE. The analysis of syllabi also reflects the current situation and what methods are used to train officers of internal security. Nevertheless, it may not give an objective overview of the actual situation. Thus, clear conclusions cannot be made as to the level of achieving the goals set in the documents (Flick, 2009, p. 260).

The analysis of documents cannot provide satisfactory answers in order to obtain the comprehensive awareness of the existing training process in EASS. Therefore, expert interviews were additionally conducted. Qualitative data collection method – semi-structured interviews were used. Interview methods are a suitable tool in areas which have not been thoroughly researched before, the results of the research cannot be predicted and due to the selection of experts with different backgrounds, a lot of varying answers and viewpoints can be expected. Also, the interview methods enable the interviewee to elaborate their answers and pose additional questions, which is vital judging from the hypothesis set in the Master's thesis (Flick, 2009, p. 166-167).

12 experts and 1 focus group were involved in research and data of the experts has been displayed in Table 1. Out of 17 interviewed experts 2 requested anonymity. That is why the author did not reveal the names of the involved experts and he analyses and distinguishes the experts' viewpoints by referring to their agency or position. The responses of the experts involved in the focus group interview have been presented in

a generalised manner by referring to the focus group. The interviews were conducted from January to April 2014. It was important to involve expert interviewees from different authorities of internal security, contributing and being responsible for the training of officers of internal security. At the same time it is vital to consider the knowledge and experience of experts in the methodology of solving joint response events, including the possibilities of the application of VLE in the learning process. Experts from RS and RC have experience in using the VLE of the EASS and they are aware of the current possibilities and methods, which is why they were interviewed separately for a more diverse and objective outcome.

Table 1. Data on interviews conducted with experts and the focus group. Compiled by S-F Pöder.

Abbreviation	Expert's job / position
Chief at PBGB	Top executive of PBGB regional structural unit, vice chair of regional crisis committee
Head of PBGB sub-unit 1	Head of PBGB sub-unit
Head of PBGB sub-unit	Head of PBGB sub-unit
PBGC focus group	Working group of PBGC Chair of Public Order
Head of RB sub-unit	Head of RB sub-unit
RB instructor 1	Head of RBP II level of command; RC vocational teacher
RB instructor 2	Head of RBP II level of command; RC vocational teacher
Head of medical agency	Head of Medical agency
Representative of medical agency	Representative of Medical agency
Instructor at Defence Academy	instructor at Defence Academy Simulation Centre
British expert	Leading Officer at Oxfordshire Rescue Service, UK
German expert	Assistant Professor at Delft University of Technology, Netherlands, consultant with German police
Dutch expert	Consultant with Capgemini consulting firm, doctoral student at Delft University of Technology, Netherlands

2.2 THE RESULTS OF RESEARCH

On the basis of the results of expert interviews it can be concluded that today **there are too few instructors of VLE and persons providing technical support at the EASS**. Also, the present instructors are all from RS and therefore for example, the PBGB are not able to organise training classes necessary to their work areas. This is one of the reasons why the VLE of EASS has not been used equally actively by all the authorities of internal security. When using VLE, specific features of different work fields need to be taken into account. Expert interviews with experts who are closely related to VLE and XVR revealed that for example, modelling of rescue events is easier in VLE because it is a dynamic logically unfolding event, whereas police events are more related to danger and people, but it is difficult to imitate human behaviour in XVR. Experts stress that insufficient application of VLE may not merely be the result of the lack of possibilities. Lecturers and instructors play a substantial role in its application and if they do not wish or know how to complement traditional teaching methods, they do not exploit all the modern ways for improving the learning process. However, the theoretical part includes a statement that in order to ensure sustainable learning process in internal security, it is important to implement more modern and efficient teaching methods. That also means that there is a need to link the newest methods to the old ones, not totally replace them. Each application of VLE needs to be treated separately and by way of generalisation it is not possible to evaluate its cost-effectiveness. **VLE cost-benefit analysis**, which would include the benefit factor gained from the learning process by the student, **has not been conducted at EASS**. Relying on the theoretical part of the Master's thesis and conducted research, the following table has been compiled about the advantages and critical factors of the application of VLE (Table 2).

Table 2. Results of the comparative analysis of the advantages and critical factors of the application of VLE in the training process of joint response events. Compiled by S-F Pöder.

<p style="text-align: center;">The advantages of the application of VLE</p>	<p style="text-align: center;">The critical factors of the application of VLE</p>
<ul style="list-style-type: none"> • More personal approach towards the student • Compared with real life exercise: <ul style="list-style-type: none"> - in a short time more leadership experience - special equipment will not be used - conducting the exercise will not disturb third persons • Better form of acting out: <ul style="list-style-type: none"> - compared to real life exercise it is possible to imitate dangerous factors without causing real threat to people or the environment - compared to table-top exercise, the event does not have to be imagined and everyone will have the same understanding of the situation • In case of a wrong executive decision: <ul style="list-style-type: none"> - compared with real life exercise, there are no dangerous consequences and the exercise can be easily stopped or restarted - compared to table-top exercises, it is possible to imitate consequences • The planning of training classes is flexible and maintains the quality: <ul style="list-style-type: none"> - in a short amount of time it is possible to immediately apply modelled exercises with all entailed factors - in a longer planning period of training classes obstacles existing in real life do not have to be considered 	<ul style="list-style-type: none"> • Students may not adapt to VLE, which decreases the achievement of better learning results • Natural factors will not be sensed, e.g. low temperature • Preparation of exercises is time-consuming • Economic costs of development of VLE in terms of hardware and software and instructors' training • There may be malfunction of hardware or software • The impact of VLE on later job performance has not been thoroughly studied • Lecturers' unwillingness to complement traditional teaching methods with modern ones • Specific features of VLE used at EASS: <ul style="list-style-type: none"> - lack of control over the following of orders - located at one place in Estonia, making it difficult to be used in all training classes all over Estonia - limited training capacity: <ul style="list-style-type: none"> - up to 12 students can be trained within one working day - limited staffing of instructors and the lack of instructors outside the field of rescue

The results of the analysis of expert interviews, including experts from EASS and the Defence College, revealed that **the instructors at the EASS and Defence College are not mutually aware of the possibilities of VLE and do not cooperate.** However, the experts, including instructors, admit the need for the cooperation between the two institutions. Different software is used in the two institutions, joint application of which would create diverse possibilities for the training of the officers of Defence Forces and internal security. The Defence College has greater

training capacity than EASS, and VLE training classes are conducted in a mobile way in various locations in Estonia. It would compensate the shortcoming of VLE used at EASS where training classes are only conducted at Kase tänav. Improvement of cooperation between the two institutions would enable the wider scope of application of the introduced framework and would create better possibilities for its further development.

Regarding the preparation of officers of internal security it was emphasized in expert interviews that the training preparation of commanding officers of patrol units is partly insufficient. In practice there is an issue of the lack of criteria as to the specific type of competence that commanding officers of patrol units should have, and in the management process of a joint response event it is not clear at which stage the field commander needs to take over command. It became evident from the interviews that PBGB experts have different expectations for the graduates of PBGC, e.g. the Head of PBGB sub-unit expects a student who has finished the vocational training to be able to act as a field commander on II management level, whereas the PBGC focus group is of the opinion that the student of such level needs to be able to follow orders and understand them, but not participate on the management level. The cooperation between the PBGB and PBGC in compiling curricula and syllabi needs to be more efficient and as document analysis suggested, the content of curricula and syllabi is over-generalised, making the level of competence a graduate should have regarding the management of a joint response event unclear. The lack of such indicators points at insufficient definition of the aim of learning process of joint response events by the PBGC. **For the improvement of the cooperation of PBGB and PBGC and for better formulation of the aims of learning process, the experts have proposed the possibility of the implementation of professional standards**, which would ensure systematic training. The effectiveness of professional standards can be demonstrated with the example of rescue officers, whose preparation for the management of a joint response event has been highly evaluated by experts. Document analysis also concluded that the aims of the syllabus of the management of rescue work have been formulated in a concrete and understandable manner. The given conclusion suggests that the preparation of students of RC regarding joint response training is of a higher quality than in PBGC and the underlying reason could be the lack of professional standards in the field of public order police work at the PBGB.

In order to make the learning process more effective for the officers of internal security the Estonian experts recognise the need for **partial integration of subjects at PBGC and RC**, where joint activities can be conducted for all students.

Several experts also see the need for the Health Board to create the position of **field commander of a medical emergency unit in all regions of Estonia**, not only in the Tallinn region, where such a position has already been created.

Medical emergency officers have been well prepared, but they lack the competence of managing joint response events, which hinders good cooperation in the case of a larger number of casualties.

In the consolidation of the training process for all agencies involved in joint response events the most serious problem lies in **insufficient Estonian legal regulation**, which hinders the designation of managerial responsibility in the case of a joint response event. A Regulation issued by the Government of the Republic has only been prescribed for events managed by RS, but a similar regulation needs to be elaborated and implemented for events run by the PBGB and Health Board. Today different instructions and guidelines on how to respond to a certain type of event are used, but they have not been coordinated between agencies and there are discrepancies in the documents. Such a situation does not facilitate inter-agency cooperation as the parties have received the training on a different bases and in the case of a joint response event, officers may misunderstand each other. Terminology used in the solving of joint response events needs to be consolidated to avoid miscommunication.

3. A VLE-BASED TRAINING FRAMEWORK FOR JOINT RESPONSE EVENT MANAGEMENT

This section introduces a holistic didactic training framework for solving a joint response event. The framework uses a virtual learning environment as a substantial component of the training. The suggested framework is composed as a result of research of theoretical sources and a survey and it takes into account specific characteristics and needs of the Estonian internal security authorities.

Analysis of theoretical findings and interviews indicated that it is suitable and justified to use a VLE in a training plan of different management levels. For example, a VLE is not suitable for practicing such tasks where real practical activities are necessary, like cutting of a vehicle to open it and rescue a person. For supporting efficient cooperation in a real joint response event, previous joint inter-agency cooperation training is necessary. Expected activities, probable scenarios and proper integrated response to the possibly emerging situations can be trained in inter-agency cooperation. In turn, a prerequisite for resultant multi-agency training is that all participating bodies are competent and know their own activities. Each participant should fluently know how a joint response event is handled inside their own organisation. Therefore the study course should begin from training based on a single agency and related the joint response event activities of that authority. The interviews made during the current research indicated that the structure of the training process is, in principle, similar for training inside an agency as well as for multi-agency training. For both training courses it is first necessary to obtain theoretical knowledge and then perform corresponding practical exercises in order to obtain the necessary level of competence.

Based on the previous discussion, the introduced training framework consists of two similar phases. The first phase is training inside the organisation (in-house training) where emphasis is on activities that during a joint response event are specific for that particular organisation. Even under such conditions, there are some points where efforts can be combined, the results of document analysis in the current research indicated that some study subjects in EASS can be integrated as subjects within different colleges of EASS as they have a common part that could be delivered to all students together.

The introduced framework suggests that PBGB and RS should first implement in-organisation training (single-agency training) for studying the correct response to those joint response events in which that authority has the leading role. In order to achieve later resultant cooperation it is important to implement the same training principles for all cooperating authorities. The second phase of the study course foresees multi-agency training to emphasize inter-agency cooperation. In that phase authorities perform all activities together and the process of solving of a joint response event is seen from the cooperation viewpoint. As a result, the suggested framework states that both training phases are similar, the difference is in the specific content that is held during the training of each phase as described hereunder.

Each phase consists of two stages: the training planning stage and the stage of performing the exercise. The specific content of the training for a particular phase will be specified during the training planning stage. The training planning stage itself consists of six steps that should be implemented in a fixed order.

The first step in the training planning stage is a training needs analysis. The needs are detected from reality. It is necessary to identify exactly what, to whom and in which extent it is planned to be taught. Determination of training needs that are based on practical reality guarantee improvement of bottlenecks that emerge in reality. As the second step of that stage, the training goals and learning outcomes will be defined. According to the framework, the third step foresees setting the assessment goals and features according to learning outcomes. Assessment criteria are later used as indicators showing on which competence level training aims are fulfilled. In the fourth step the training programme will be finalised. During that step also suitable teaching methods will be chosen that support the fulfilment of aims. The teaching methods should also facilitate measuring of how aims will be fulfilled according to evaluation criteria. The finding of correct methodical solutions depends on a specific training aim, but at the same time it is also important to take into account the target group of the training and differences among students as Gardner has presented through his multi-intelligence theory. According to the suggested training framework, the fifth step of the training planning stage is designing the virtual reality exercise scenario. During the design of the scenario, specific needs and aims of the training should be carefully taken into account. The last,

i.e. sixth step is the testing of the VLE exercise design by instructors. This step can be seen as feedback to previous steps and it should indicate whether it is possible, using the planned VLE exercise, to reach the aims of the training and later to evaluate acquisition of corresponding skills. The need for such a step in the framework was also indicated by instructors from RS during the interviews.

It is important to have continuous and active cooperation between the subscribing organisation and the trainer during the whole planning stage. Good cooperation during planning ensures that the needs of the subscribing organisation are met while the most suitable training methods and exercises are chosen.

The planning stage is followed by the second stage of the phase, performing the exercise. The foundations of this stage are based on the theoretical and empirical findings of the current research. From the theoretical aspect Kolb and Kolb (described on page 6 of the current article) and Bloom's (page 5 of the current article) viewpoints are taken as the basis. Also the experts indicated in interviews that for mastering competence it is important that the training process supports gradual and continuous development of students. This stage has some differences when comparing the training in the first phase (single-agency training) and the second phase (multi-agency training). Naturally in the first phase the emphasis is on mastering the competence of performing the activities of a single agency in a joint response event. Emphasis in the second phase is on smooth cooperation and maximisation of joint performance of all participating agencies. Of course the exact content of training heavily depends also on the aims and characteristics of a joint response event.

The second stage consists also of six steps. It is planned that theoretical aspects of a joint response event exercise will be presented and obtained at the first step of the second stage. In the second step this will be supported by different practical exercises in the classroom. The aim of this step is to fix the theoretical knowledge of students by emphasizing several analysis and planning exercises. Theoretical studies and practical exercises will be followed by students' knowledge assessment as the third step of that stage. This assessment is necessary as it indicates whether the student has understood the topics in principle and is ready for practical training using VLE. The evaluation of theoretical knowledge is in the form of a written test. Obtaining of theoretical knowledge at a satisfactory level is a prerequisite for moving on further in the training

process. In the fourth step of the second stage the actual implementation of VLE takes place. Also here theoretical and empirical findings of the research are used for composing the introduced framework. Practical experience of RS instructors and external (foreign) experts are taken into account. As a result, this step of the implementation of VLE consists of four sub-steps.

The first sub-step in implementing the VLE is a demonstration by the instructor. The instructor will demonstrate the process of solving a joint response event using the overall model view mode in VLE. The overall model view mode means that the situation is presented from a bird's-eye view point. All activities and movement of resources in the scenario can be followed in one picture. The instructor's role in that sub-step is to help a student to adapt with VLE and to become familiar with the general approach used in VLE. In the next (i.e. the second) sub-stage the student himself or herself will solve a similar exercise using model view mode in VLE. During this activity the instructor guides and supervises the student. The sub-step facilitates creating links between theoretical knowledge and a practical VLE exercise. That sub-step enables the student to obtain a better understanding on how the modelled event should be solved. The practical exercise facilitates the student to understand his/her mistakes in real time. During the third sub-step of VLE implementation, the student will solve the exercise independently using ground-eye view mode in VLE. The student is in the centre of the event and the instructor will merely give some guiding questions but will seldom intervene in the solving process. The previous (second) sub-step enabled the student to understand the whole event. The current sub-step presents a more realistic view as the student in the actor view mode can see the joint response event only as participating himself/herself in the event. In such a situation the event management process is more difficult. In the last (fourth) sub-step a student should independently play a role in a joint response exercise using the VLE. The behaviour, choices and decisions of the student will be evaluated. In that sub-step the instructor will not intervene. The feedback to the student will be provided after performing the exercise. The truthfulness (veracity) of VLE scenarios and their correspondence to the principles of real life are important in all the steps of that stage.

The aim of implementing the VLE in the training process is to prepare students for better performance in real life exercises. According to the

proposed framework, the fifth stage is a real practical exercise in a realistic environment (not in VLE). The real life exercise will give the best estimation about how successfully the students can solve the joint response event. The exercise will demonstrate how they have obtained the management competence for solving the event. Since this real life exercise follows implementation of VLE, it is expected that results will be significantly better than without previous implementation the VLE in a study process. Finally, the last i.e. the sixth step of the second stage comprises multi-sided feedback to the training. During that step also conclusions will be made. The feedback and conclusions have significant influence in planning further training. Multi-sided feedback is a trendsetter for a trainer as well as for the student for future improvement.

As demonstrated, the framework emphasizes the importance of the complex handling of the study process, it indicates that beside VLE-based training and practical training also integration of theoretical knowledge is extremely important. The key issue is feedback to the student. The feedback is described in nearly all the steps of the second stage. The most complex one is multi-sided feedback at the end of the described stage. In every stage the feedback is the basis for self-reflection. So far there was described the ideal sequence of stages and steps. In a real training process there is always a need to evaluate whether aims of a particular step are fulfilled or could there be a need to move back or repeat any step. For example, such need may arise when the student does not pass the theoretical knowledge check and (s)he should repeat the previous step(s). The training is fruitful only if all the steps are fulfilled to a satisfactory level.

As described previously, the framework introduces two phases which, in turn consist of two stages in each phase, six steps in each stage and four sub-steps of implementing VLE. The activities together compose a holistic didactic framework for training management levels in a joint response event in VLE. The framework takes into account and specifics the needs of Estonian internal security authorities. The described framework is suitable for implementation by all organisations who participate in the management and solving of a joint response event. The framework is illustrated in Figure 3.

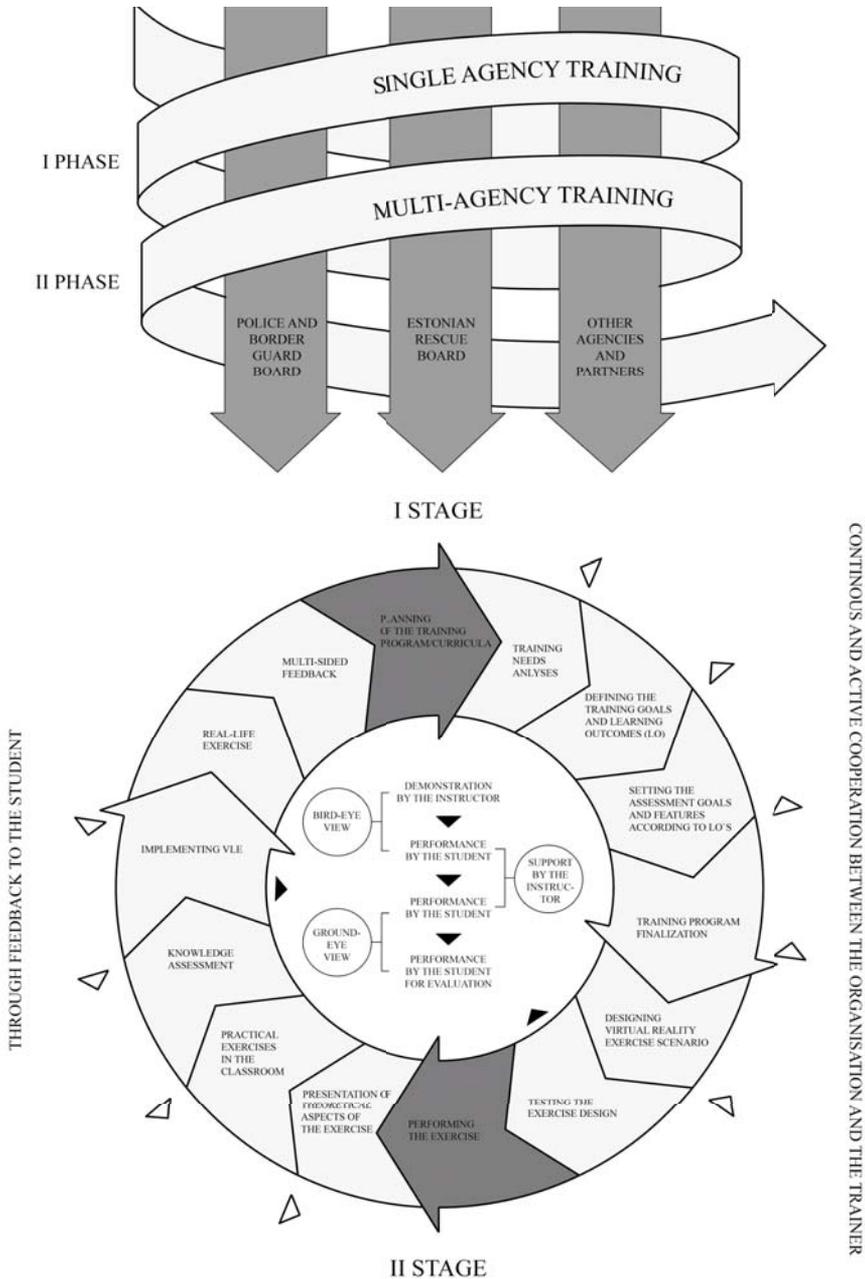


Figure 3. A holistic didactic framework for training management levels of a joint response event in VLE, taking into account the specifics needs of Estonian internal security organisations. Compiled by authors.

Based on the theoretical and empirical analysis there are 7 suggestions presented that better support the implementation of the framework in EASS.

1. A working group between the CIALT of EASS and the Centre for Applied Studies of the Estonian National Defence College, should be created in order to improve cooperation and to extend training possibilities in the internal security domain.
2. Joint response event management courses in the Police and Border Guard College, Rescue College and Internal Security Institute of EASS should be integrated.
3. Personnel of VLE instructors in CIALT should be extended in order to enable more courses for all internal security authorities to be conducted.
4. A cost-effectiveness analysis of VLE in CIALT should be performed for focussing on the possible developments.
5. Occupational standards for field officers in the law enforcement area of PBGB should be elaborated and implemented.
6. Regulations for conducting the management of joint response events should be similar and integrated for all authorities not depending on the specific event.
7. It is also suggested that a field manager's position in the emergency medical service (ambulance service) be implemented in all regions of Estonia as it is implemented in the Tallinn region.

As a result, implementation of the suggestions also supports development of the whole internal security domain in Estonia.

SUMMARY

The article reviewed theoretical aspects of using a virtual learning environment (VLE) in the training process in the internal security domain. The focus was on joint response events that need professional and coordinated activities of all participating authorities. Analysis of the corresponding theory indicated that the learning process of adult learners should be based on a core framework of andragogy and learner-supported learning. It is important to use different teaching methods since students use different ways and capabilities to obtain the knowledge (e.g. the preference may be on seeing, listening or practical activities). It is important to consider each learner personally when conducting the study process. The feedback should be given personally, based on the development needs of the student. When implementing a VLE in a training process, the exercise must support the raising of the competence. The implementation of VLE should also support to evaluate how students perceived the targets of the training.

Document analysis was performed and 12 experts and 1 focus group interviewed during the research. Experts from internal security authorities in Estonia and abroad presented professional opinion on how to improve training process for related agencies.

Based on theory and practice, a holistic didactic framework for training how to manage a joint response event in VLE was presented in this article. The introduced framework is based on the specific needs of authorities from the Estonian internal security domain. Also presented are suggestions for better implementation of the framework in EASS and the improving of the corresponding teaching process.

The framework, presented in the article improves cooperation of Estonian internal security organisations in the conducting of a joint response event. The framework together with implementation suggestions are unique. The framework can be used for solving similar problems internationally, but implementation suggestions depend on the situation in each particular country. The future research would focus on how to implement VLE for other training and modelling activities in the internal security domain. The long-term influence of VLE training exercises for later work performance is also one of the possible research challenges.

Contacts

Sten-Fred Pöder

Põllu tee 24, 76901 Tabasalu
+372 5661 5118
sten-fred.poder@hotmail.com

Raul Savimaa

Pärnu mnt 139, 15060 Tallinn
+372 612 3090
raul.savimaa@politsei.ee

Marek Link

Kase tn 61, 12012 Tallinn
+372 696 5432
marek.link@sisekaitse.ee

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2013

Small State Performance in the EU Decision Making Process: Case of the IT-Agency Establishment to Estonia

*Ketlin Jaani-Vihalem,
Ramon Loik*

The Relationships of the Willingness for the Defence of Estonia Among Upper Secondary School Students with the Subject 'National Defence' Taught at School

*Mari-Liis Mänd,
Shvea Järvet*

Changes in Framing Drug Issues by the Estonian Print Press in the Last Two Decades

Marianne Paimre, PhD

Will Efficient Punishment Please Step Forth!

Indrek Saar, PhD

Confidence and Trust in Criminal Justice Institutions: Lithuanian Case

*Aleksandras Dobryninas,
Anna Drakšienė,
Vladas Gaidys,
Eglė Vileikienė,
Laima Žilinskienė*

Issues of the Victimisation Experience and Fear of Crime in Lithuania in the Context of Restorative Justice

Ilona Michailovič, PhD

2014

Volunteer involvement to ensure better maritime rescue capabilities: A comparative approach to describing volunteering and its motivators by state officials and volunteers

*Jako Vernik,
Shvea Järvet*

Crime reducing effects of local government spending in Estonia

Indrek Saar et al.

Two perspectives of police functions: discourse analysis with the example of Estonia's security policy

Priit Suve

Insights into the Public Defence Speciality Lecturer's Roles in the Institution of Professional Higher Education and the Controversial Role Expectations in Developing Their Professional Identity

Anne Valk et al.

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