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The Need for Innovation of Security Education in Terms of Spatial Analyses of Crime

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ABSTRACT

Spatial analyses represent a precondition to understanding phenomena and their dynamics as well as the analysis of relations. Worldwide, spatial investigation of crime rates is not a novelty and the results are being actively used in the field of planning preventive activities as well as to present the results of mapping on web portals for the purposes of informing the public. In Slovakia, the crime rates are presumably observed on the level of districts and counties and based on these data, crime rate maps have been created since 2013. On the level of cities and municipalities, the punctuality of crime rate investigation is dependent upon the municipalities as such. Spatial investigation of crime rates is realized only within the range of research projects, namely in the cities of Prešov and Košice. In Košice, crime rates have been spatially investigated since 2013 and despite arguable results with the possibility of them being practically used, spatial investigation in Slovakia has not spread to other cities. One of the reasons is represented by the necessity of being acknowledged with geographical information systems and having sufficient knowledge in the field of rudiments of working with mapping outputs. One of the options in terms of how to fill in the gap is extending the security education in Slovakia and presenting the options the results of analyses might provide in relation to the practice.

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Introduction

The fear of crime is regarded as an important social phenomenon as well as an indicator of the quality of life[1]. So the crime-related problems on local level are tackled effectively, it is important to know the actual state of the occurrence of negative social phenomena. Also, it is crucial to know and to identify the factors that might significantly impact their occurrence, that is to say, to know the "attractors" and, for the purposes of optical clarity, to record them in a spatial graph or the so-called crime rate maps and maps of other negative social phenomena. The fear of crime depends on the place one is located in and very often on the people one is surrounded by or on the actual political, cultural or social situation the place is typical of.

Not only the crime rate but most phenomena we come across are of spatial nature and are bound to a particular place. At the same time, they are – more or less – influenced by their immediate or rather remote environment. This fact should also be taken into consideration when analyzing them and, surely, when choosing the right methods of analysis. Neglecting the spatial peculiarities and related spatial analyses of phenomena being investigated leaves us depleted in significant knowledge the absence of which may result in misunderstanding or, more precisely, being unable to discover the sought-after regularities of the investigated phenomena. In order to investigate spatially, geographical information systems (GIS) are used, providing a wide range of tools aimed at analyzing and presenting the data effectively. They may be used when tackling a wide variety of tasks and are also used in various fields and throughout the world, they are commonly used in the state and public administration as well[2] In Slovakia, the GIS systems have been continually applied in practice,

[1] J. Mitchell Miller et al., *21st Century Criminology: A Reference Handbook*, California 2009.
[2] M. Blišťanová, *Spatial Crime Rate Analysis in the City of Košice,* Košice 2017, p. 141.

though so far, their usage in the field of security sciences and risk analysis has significantly lagged behind the European or worldwide standard. One of the options how to extend their usage in practice is to implement them into the process of security education[3] .

One of the identified problems of stagnation in terms of spatial investigation of crime rates in Slovakia is the limited knowledge of the issue from the perspective of experts devoted to the issue as well as the executive organs and representatives of the local municipalities. A scientific-research task called The Use of the Crime Rate Analysis Results in Security Education focuses on this issue, being registered as VVÚ 237 and tackled at the Academy of Police Forces in Bratislava in cooperation with the University of Security Management in Košice. Its aim is to evaluate the options and design the procedures of implementing the results of spatial crime rate investigation for the processes of security education and for the practice in the field of crime prevention.

The importance and need for innovation of university education

At universities, the tasks of the educational work have significantly extended and become more complicated, aiming at forming the personality of a student in a more effective and quality way. Needless to accentuate that the requirements for the educational process under the conditions of universities have been constantly growing. Along with the scientific-research progress, or, more precisely, in a close connection to it, it is also the life style changes, acceleration of the development of young people, new knowledge about learning and many other factors that significantly influence the actual pedagogical practice.

Presently, universities face a lot of problems accompanying the changes in all areas of social life. The graduates of present universities work under conditions that keep changing and they change very quickly indeed. These facts can no longer be tackled in common and traditional ways. The system of education at universities needs to be adjusted to new demands which very often requires a rather radical recreation of all elements of the system of education and scientific work. In relation to these facts, it is necessary to deal with a wide range of crucial tasks. These are pre-

[3] M. Blišťanová, L. Kováčová, *The Level of Using GIS Systems in Security Practice in Slovakia*, [in:] *Medzinárodní kolokvium bezpečná společnost*, University of European and Regional Studies, České Budejovice 2017, p. 11–17.

dominantly related to a rational selection and optimization of the content and extent of the curriculum as well as its focus on key issues of particular field of study (specialization).

Ambitious development of intellectual capacities of university students requires approximation of the educational process to a scientific-research activity. When it comes to an expert with university education, versatile theoretical and practical preparedness meets the art of coming up with new solutions to scientific and practical problems, good orientation in the growing flow of scientific and generally theoretical information[4]. Meeting these requirements in case of university graduates shall enable to contribute to further development of science, technique and continual improvement of the intellectual level of our generation. Their preparation must respond to new social and economic conditions in Slovakia, to new trends and achievements of science and research, mainly in the fields of pedagogy, psychology and management. Also, it must respond to worldwide trends of the development of the society. University teachers must be trained to properly understand the impact of information and communication technologies on the society and structure of work, manufacture etc.

Building curriculum-material basis of a university represents a crucial condition of effective and quality functioning of the educational process. Under the term curriculum-material basis, we understand classrooms, offices, specialized classrooms, laboratories and their equipment, material didactic means – teaching aids and didactic technique, equipment of academy libraries etc. It is necessary not only to build the curriculum-material basis, but also to use it wisely in order to enhance the effectiveness of education. It is highly effective to pay attention to the field of material didactic tools.

Establishing modern education classrooms equipped with multimedia didactic tools is an important condition of enhancing the attractiveness and effectiveness of functioning of the educational process. Modern educational workplaces are built by means of interactive multimedia didactic tools.

[4] L. Kováčová, M. Vacková, *Applying Innovative Trends in the Process of Higher Education Security Personnel Order to Increase Efficiency*, [in:] *Procedia-Social and Behavioral Sciences*, Oxford 2015, p. 120–125.

Interactive multimedia didactic tools provide a wide variety of possibilities of creating graphic, dynamic lectures, concept maps, presentations including both audio and video content as well as storing the recordings of lectures in various formats; both teachers and students can browse network sources, go through presentations or realize virtual researches. They meet the requirements of both visual and dynamic aspect of the process of learning. At the same time, such innovative trends of education represent a dynamic tool of communication for the whole group as the teachers acquire – by means of interactive didactic tools – a powerful tool enabling them to focus the attention to a whole group of students.

The need for innovation of education in the field of security

Education and training of security workers working on various levels of security and mainly managing workers on which high educational demands are placed is an important aspect of tackling problems in the field of security. In terms of the university education, improvement of the state in a particular field can be achieved through increasing the security awareness of people switching from school to practice as well as through deepening their security-related knowledge and skills, enhancing the qualification and expertness of graduates, their training for risk, emergency and crisis phenomena in various fields of security. When dealing with problems in the field of security, education and training of workers of security services as well as of workers on various levels of security and managing workers on which high educational demands are placed represent important aspects.

In terms of the university education, improvement of the state in a particular field can be achieved through increasing the security awareness of people switching from school to practice as well as through deepening their security-related knowledge and skills, enhancing the qualification and expertness of graduates, their training for risk, emergency and crisis phenomena in various fields of security.

We can thus speak of security education. Security education can be defined as education the content of which focuses on both theoretical and practical knowledge and skills regarding protection of persons and property, focusing on diverting or minimizing security risks of various form and cause as well as on dealing with crisis situations and phenom-

ena in various areas of security (civil, economic, environmental, technical and technological, logistic etc.) that have already occurred[5].

Provided security education is to be understood as an intensive factor of economic and social growth of the educational society as a whole, it is necessary to know in what way, using what methods, forms and means, what intensity and under what circumstances it is necessary to treat the persons being educated in order to achieve the final effectiveness of education[6].

We can conclude that in the process of education, the range of forms, methods and tools is diverse and rich. When choosing them, it is necessary to follow multiple factors such as the extent of education one is able to devote to the education, the availability of education (distance, location), definition of the goal of one's efforts, investigation of financial demands, availability of study materials and technical tools, the quality of teachers (their expert, didactic and pedagogic competences, personal predispositions), spatial and technical equipment of education institutions as well as positive motivation and openness to education. Education is achieved in the process of education which is a social process.

Searching for innovative trends in security education is a never-ending process. It is not sufficient to deal with this issue just in the initial stage of creating and preparing the process of education. The education institution, i.e. all of its workers who realize, manage, organize, control or influence the process of education in any other way are obliged to continually deal with the possibilities of enhancing the process, thus to deal with individual factors of the educational process, to study them and revise them according to the actual needs in order to be able to achieve the determined objectives through their application.

Effectiveness might not occur as absolute – it is, though, expected to be as relative as possible. The summation of disposable, time and material means is basically limited and thus final, and taking this fact into consideration, it is necessary to supervise the ways of their rational utilization. Undeniably, material-technical means, i.e. quality ICT equipment is very helpful. Also, what is highly important is the extent to which these material-technical means are implemented into the educational process as well as the resulting tendencies not to maximize the effect of their effectua-

[5] Ibidem.

[6] L. Kováčová, *Effective and Innovative Trends of the Process of Education of Security Workers at Universities*, „Košice Security Revue" 2013, p. 67–72.

tion. The role of a university teacher remains relevant when coordinating the work in an interactive relationship with students.

Through detailed tackling the issue of enhancing the effectiveness of education in the field of security, adjusting the standards, methods and content of university education to the actual needs of the knowledge-based society, not only the enhancement of the quality and attractiveness of university education but also long-term competitiveness of the SR can be achieved.

The level and possibilities of innovation of university education

In the field of security, the method of mapping as a supporting tool in the process of risk assessment is being used more and more often. Mapping risks is a process of assessment in case of which areas with various levels of risks are identified. Similarly, the result of crime rate mapping may be a map that identifies places with increased occurrence of crime – social risk further analysis, observing trends etc. Maps represent an important analytical tool providing loads of information and they are processed based on both spatial and non-spatial – attribute – data[7].

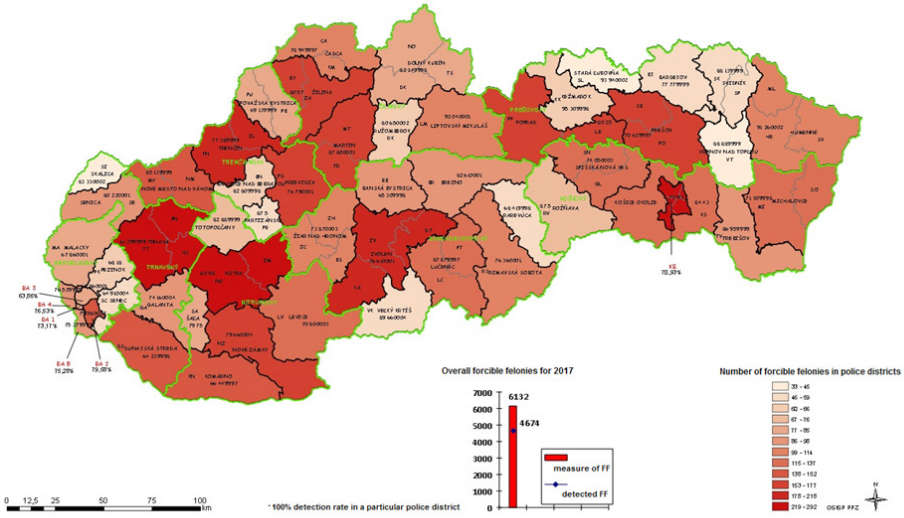
Since 2013, the Ministry of Home Affairs of the SR has been publishing maps of crimes in the Slovak Republic in individual districts on their website. The crime maps are elaborated for individual crimes: economic, immoral, violence and property offences and for detected crimes altogether. These maps are updated quarterly as depicted in Figure 1. These maps represent a valuable source of information for the purposes of comparing trends of crime in individual districts as well as observing the development in the districts.

On the level of cities, the issue of crime rate mapping in Slovakia was paid attention to only in relation to the realization of scientific-reseatrch tasks or as an individual research activity in the cities of Prešov and Košice. In Prešov, Matovičová, Mocák and Andrejko (2012) focused on the objective and subjective dimension of the crime rate level in the city of Prešov through using crime rate mapping in individual Circuit Departments of Police Forces (hereinafter as CDPF) in Prešov[8].

[7] M. Blišťanová, L. Kováčová, *The Level…*, p. 11–17.

[8] K. Matlovicova, K. Mocák, J. Andrejko, *Objective and Subjective Dimension of the Level of Crime Rate in the Territory of the City of Prešov*, „Acta Facultatis Studiorum Humanitatis et Naturae Universitatis Prešoviensis, Natural sciences, Folia Geographica" 2012, issue 20, Vol. LIV, No. 20, p. 146–172.

Graphic No. 1 Map of forcible felonies in the 4th quarter of the year 2017

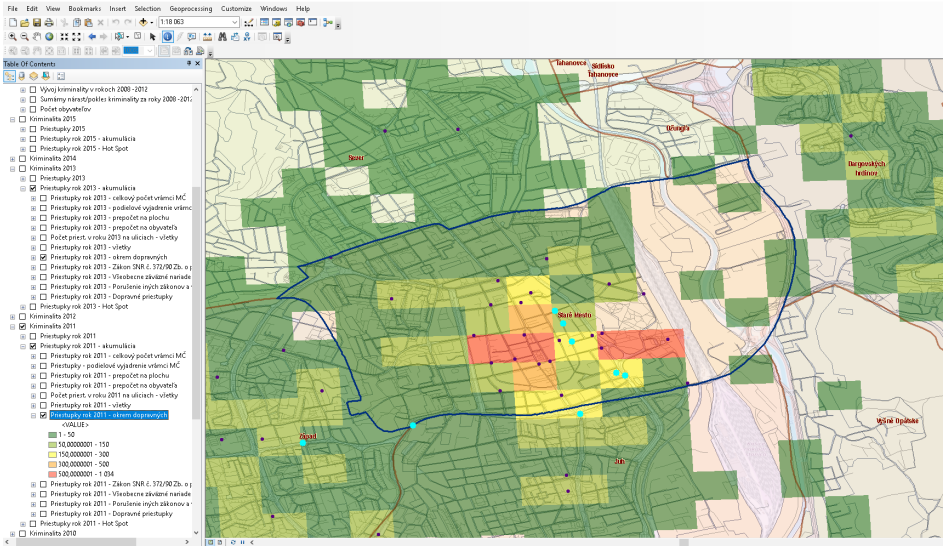


Source: Ministry of interior Slovak republic

A rather long-term crime rate mapping is only realized at the University of Security Management in Košice (hereinafter as USM in Košice) where maps of crimes and offences from 2011 to 2016 were processed and the mapping is still ongoing. Crime rate and offence mapping has been realized since 2013 when the project called *Crime Rate Map of the City of Košice* was obtained, having been supported by the Council of the Slovak Republic for the Prevention of Crime labelled as 77/KE/2013. The aim of the project was to analyze the possibilities of using available data provided by the Police Forces of the SR as well as the City Police of the City of Košice for these purposes. In 2015, a following project called *The Analysis of Offences and Other Illegal Activities and the Effectiveness of the CCTV Camera System in the City of Košice in the Environment of Geographical Information Systems* labelled as 2820/2015 was realized, having also been supported by the Council of the Slovak Republic for the Prevention of Crime, focused on the assessment of the effectiveness of preventive measures realized in the territory of the city of Košice. As part of the pro-

ject, selected spatial analyses were realized: hot spot analyses using multiple methods, but most importantly, the analysis of the range of CCTV cameras by means of buffer zones etc. For the purposes of the presentation of the way of the realization of the project, the analysis in the Old Town is featured. In Figure 1.8, the spatial depiction of the accumulation of offences in the Old Town in the year 2011 is portrayed. The size of the cell is 250x250 m. Colored blue dots refer to places where CCTV cameras were to be installed in 2013 in the Old Town. Red color is used for the cell with the number of offences ranging from 500 to 1364 (which was the maximum in 2013), orange refers to 300 to 500 offences, yellow to 150 to 300 offences, light green to 50 to 100 offences and dark green to 1 to 50 offences per cell[9].

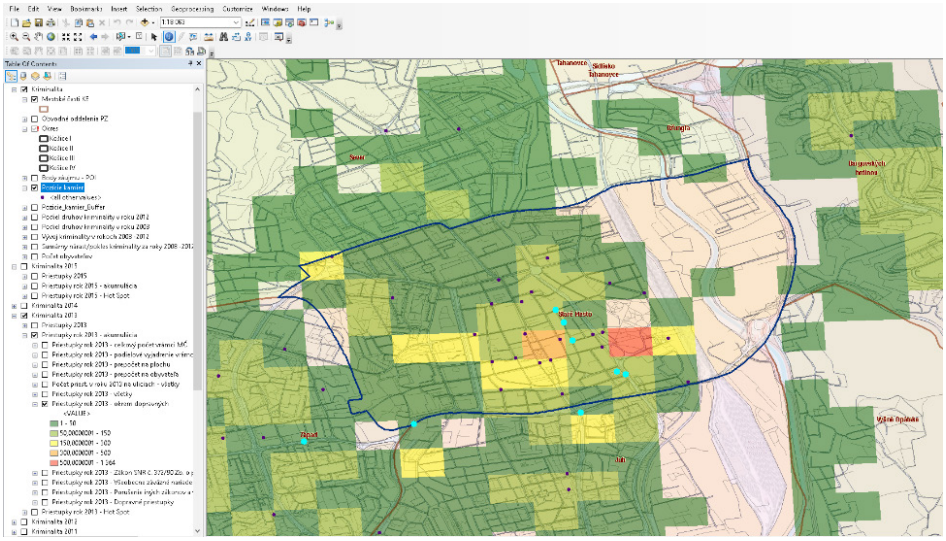
Graphic No. 2 Non-traffic offences in the Old Town in 2011, blue refers to CCTV cameras that were to be installed in 2013



Source: M. Blišťanová, J. Reitšpís, *The Influence of CCTV Camera System on the Public Order in Košice – Old Town*, [in:] *Bezpečnosť v lokálnom prostredí*, Žilina 2017.

[9] M. Blišťanová, J. Reitšpís, *The Influence of CCTV Camera System on the Public Order in Košice – Old Town*, [in:] *Bezpečnosť v lokálnom prostredí*, Žilina 2017, p. 12–23.

Graphic No. 3 Non-traffic offences in the Old Town in 2013, blue refers to CCTV cameras that were to be installed in 2013



Source: M. Blišťanová, J. Reitšpís, *The Influence of CCTV Camera System on the Public Order in Košice – Old Town*, [in:] *Bezpečnosť v lokálnom prostredí*, Žilina 2017.

The analysis realized in the Old Town confirmed striking decrease of the number of offences against public order in the Old Town as well as in locations where the CCTV cameras were installed. By the same token, analyses in other parts of the city were realized, too, however, in some locations the results were negative. Based on the results of the crime rate mapping in Košice, the following could be concluded:[10]

– As a result of the installation of the CCTV cameras, the number of offences against public order, civil coexistence, property and other so-called „non-traffic offences" decreased.
– The installation of the CCTV camera system did not have any major impact on the overall number of committed and registered offences in the territory of the city; the so-called repression of offences into locations not covered by the CCTV camera system occurred.

The realized scientific-research activities of crime rate and offence mapping in Košice confirmed that the results of mapping are directly usable in practice in the field of planning activities, planning preventive meas-

[10] M. Blišťanová, L. Kováčová, *The Level…*, p. 11–17.

ures, evaluating etc. Despite the fact that the mapped offences were recorded by the police, due to their analysis, valuable knowledge and confirmed criminology conclusions regarding the shift of crime were obtained.

Application in situational crime prevention

Great potential in terms of practical usage of the crime prevention mapping results can be seen mainly in the situational prevention focused on the elimination of opportunities for commitment of crimes and on the increase of the risk of capturing the offender. Some kinds of crime are dependent upon particular time and space. For instance, dispeopled residential areas during working hours or weekends represent an ideal place to commit property crimes – robberies by breaking into the apartments; shopping centers and city centers are heaven for pickpockets etc. Situational prevention has its benefits compared to social prevention: it is faster, simpler and cheaper[11]. Also, it is more popular as it brings immediate and obvious results. Its effectiveness can be verified more easily, though its duration is relatively short as it often leads to crime shifts. Five forms of shifts can be distinguished:

– Territorial shift – to neighboring towns, districts, locations.
– Time shift – from night hours to morning hours.
– Tactic shift – instead of searching for unlocked doors, the offender breaks the window.
– Shift to another object – the offender assaults a person under influence instead of robbing a shop.
– Functional shift – the place of stealth changes to the place of robbery etc.

The shifts can also be assessed through hot spot analyses. Generally, we can conclude that hot spots are places where high values aggregate. One of the very first important studies in the field of hot spots was the spatial analysis of more than 320 000 emergency calls to the police of Minneapolis from more than 100 000 addresses throughout the year 1986. The analysis showed that 50.4% of all calls were realized from 3.3% of the addresses where police patrol was dispatched. The report of the National Research Council Committee focusing on the research and practices of good prac-

[11] M. Ondicová, M. Blišťanová, *Possibilities of Using the Results of Spatial Investigation of Crime Rate in Terms of the Training of Experts in the Field of Security Services Focusing on Crime Prevention*, [in:] *Zborník z konferencie VI. Kriminologické dni*, Olomouc 2018, p. 470–482.

tice of police in the USA from 2004 claims that hot spot analyses had become a common strategy in preventing crime and tackling problems with public order and that they contributed to effective work of police[12].

In areas with high levels of concentration of negative social phenomena including crime, also known as crime hot spots, situational factors helping understand why a particular place is so problematic are increasingly present. This can be caused by the fact that the place is poorly guarded (either by the CCTV camera system or patrols) or insufficiently illuminated or the occurrence of negative social phenomena can be caused by the concentration of persons with criminal past or other "crime accelerators" in terms of the understanding of a risk location. In the Slovak Republic, risk location is not defined in any legal regulation. According to Ondicová, a risk location can be described as a part of an urbanized environment of relatively small area (colonies, city parts, neighborhoods, streets etc.) that is typical of (characteristic of) the following:[13]

– Increased occurrence of crime and other anti-social activities (offences and other anti-social acts).
– Occurrence of crime rate generators such as places (spaces, objects) producing crime in a particular location and overloading neighboring areas with it (certain types of settlement – architectonic solutions of particular locations, closeness of state borders, migration of population and related anonymity).
– Occurrence of crime attractors, i.e. places or locations and structural elements "attracting" crime offenders (abandoned objects, unpreserved objects, deteriorating industrial objects, local forests, unguarded forests etc.).
– Socio-demographic and economic peculiarities of particular environments presenting crucial criminogenic factors such as the number of citizens, constitution of citizens based on age and sex, local specifics in terms of the structure of the population, limited job opportunities, agriculture, industrial zones – anything that influences the development of the unemployment index (unemployment rate), the number of people on welfare, poverty, social and national conflicts, social exclusion, unwillingness/willingness of the citizens to cooperate when detecting for-

[12] F. Schmalleger, *Criminology Today – An Integrative Introduction*, Pearson 2015, 527, p. 320.

[13] M. Ondicová, *Criminal Geography and Its Application in Crime Prevention*, „Košice Security Revue" 2016, p. 285–292.

cible felonies, the attitude of the citizens to realized preventive activities, absence of social services etc.).

It should be recalled that worldwide, procedures necessary to map risk areas are being processed, based on the results of crime rate mapping. Its objective is to identify locations with increasing risks of crime, taking the vulnerability of the environment into consideration. The results of such analyses would be highly desirable in terms of the field of situational prevention.

Conclusion

Foreign experience has confirmed the usability of spatial analyses of crime for the purposes of practice, but also for the public in order to increase people's feeling of safety. The results of the research in Košice have confirmed that spatial analyses provide a different point of view on statistical indicators of crime and by means of them, it is possible to identify places with increased occurrence of crime. In order for these to be further developed, it is necessary to pay attention to the training of those who would be able to process both primary and secondary information into maps, or to analyze them spatially, but also to pay attention to the training of experts who would be able to use the information effectively when designing better quality and more effective, but mainly more direct measures of situational prevention.

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