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INTERNATIONAL RESEARCH TEAMS – A SOCIAL TOOL OF HEALTH PROMOTION AND HEALTH EDUCATION

Międzynarodowe zespoły badawcze – społeczne narzędzie promocji zdrowia i edukacji zdrowotnej

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A – przygotowanie projektu badania | study design, **B –** zbieranie danych | data collection, **C –** analiza statystyczna | statistical analysis, **D –** interpretacja danych | data interpretation, **E –** przygotowanie maszynopisu | manuscript preparation, **F –** opracowanie piśmiennictwa | literature search, **G –** pozyskanie funduszy | funds collection

SUMMARY

Background: Research centers, operating in a very dynamic, changing and complex environment in the first decade of the 21st century, face a number of major challenges. Universities set up virtual research teams (VRTs), whose cooperation proves extremely effective, despite geographical distances, borders, differences resulting from time zones, cultural and organizational dissimilarities. They work out common models which are then put into practical action in those academic institutions. For five years now VRTs formed by employees of the colleges of higher education based in Suwalki and Grodno have been working successfully.

Aim of the study: Assessment of joint activities developed by VRTs, based on an analysis of medical and social aspects of pro-health attitudes declared by students of Prof. Edward F. Szczepanik State Vocational College in Suwalki (SVC) and Yanka Kupala State University in Grodno (YKU).

Material and methods: The studies in Grodno and Suwalki were carried out by a VRT coordinated by SVC in Suwalki, within the framework of the "Pro-health program for the years 2013–2016". We used the online questionnaire system LimeSurvey (social, organizational and statistical tool for implementation of health promotion and health education).

Results: Upon the analysis of 4,878 original electronic surveys, which were conducted in 2013–2015, Suwalki-Grodno-based VRTs obtained extensive knowledge of pro-health attitudes of students of both academic centers. As a result, there were created databases of, among others: a) studies on the impact of health-targeting behaviors, b) studies on the prevalence of psychoactive substances (alcohol, tobacco, drugs) among students, c) studies on knowledge about diseases related to addictions, and d) studies on the model of physical activity among students.

Conclusions: 1. Unconventional forms of work, including also the sphere of science, materialize along with socio-technological developments and the appearance of new, innovative communication media. 2. Activities of VRTs to a significant extent contribute to an international research cooperation. 3. Verification of the health policy implemented by both academic centers poses a challenge to actions undertaken by Grodno and Suwalki VRTs.

Keywords: virtual research teams, pro-health program, an online questionnaire system

STRESZCZENIE

Wstęp: Ośrodki naukowe pierwszej dekady XXI wieku, działające w niezwykle dynamicznym, zmiennym i złożonym środowisku, stają obecnie przed szeregiem ważnych wyzwań. W uczelniach powstają wirtualne zespoły badawcze (WZB), które niezwykle efektywnie współpracują ze sobą, pomimo odległości geograficznej, granic, różnic czasowych, kulturowych i organizacyjnych. Wypracowują wspólne modele, które następnie są wdrażane do działania w ośrodkach, które biorą w nich udział. Od pięciu lat w Suwałkach i Grodnie pracują wirtualne zespoły badawcze tworzone przez pracowników obu uczelni.

Cel pracy: Ocena wspólnych działań WZB na podstawie analiz medycznych i społecznych aspektów postaw prozdrowotnych studentów Państwowej Wyższej Szkoły Zawodowej im. prof. Edwarda F. Szczepanika w Suwałkach oraz Państwowego Uniwersytetu im. Janki Kupały w Grodnie.

Materiał i metody: Badania w Grodnie i Suwałkach wykonano w zakresie działań WZB koordynowanych przez uczelnię w Suwałkach, w ramach „Programu prozdrowotnego na lata 2013–2016". Wykorzystano internetowy system ankiet LimeSurvey (społeczne narzędzie organizacyjne i statystyczne dla wdrożenia promocji zdrowia i edukacji zdrowotnej).

Wyniki: Suwalsko-grodzieński WZB z analizy 4878 autorskich elektronicznych ankiet, przeprowadzonych w latach 2013–2015, uzyskał obszerną wiedzę na temat postaw prozdrowotnych studentów obu uczeni. Powstały bazy danych gromadzące badania dotyczące m.in.: a) wpływu zachowań studentów na zdrowie, b) rozpowszechnienia środków psychoaktywnych (alkohol, tytoń, narkotyki) wśród studentów, c) znajomości chorób związanych z uzależnieniami oraz d) modelu aktywności fizycznej wśród studentów.

Wnioski: 1. Niekonwencjonalne formy sposobów współpracy, także w dziedzinie nauki, powstają wraz z rozwojem społeczno-technologicznym oraz pojawieniem się nowych innowacyjnych mediów komunikacyjnych. 2. Działania WZB istotnie wspomagają międzynarodową współpracę naukową. 3. Wyzwaniem dla działań WZB z Grodna i Suwałk staje się ciągła weryfikacja polityki prozdrowotnej obu uczelni.

Słowa kluczowe: wirtualne zespoły badawcze, program prozdrowotny, internetowy system ankiet

(*PU-HSP* 2016; 10, 1: 3–8)

Background

There are clear concepts and the theoretical basis of international actions taken up by Virtual Research Teams (VRT). According to the definition found in The Encyclopedia of Management, a virtual band is described as a set of techniques and tools which, primarily, promote an exchange and dissemination of tacit knowledge [1]. In other words, virtual teams are formed due to the conformation of individuals, in our case – scientists – for execution of specific tasks.

The virtuality of such teams manifests itself in the fact that they use advanced communication technologies – a team of people on both sides of the national border can work together without a physical contact. A lack of modern communication technology (including the Internet, video conferencing and multimedia messages) prevents the formation of an effective VRT. The etymology of the concept of teamwork comes from business activities. It was used for the first time in the USA in the 1960's. It is worth mentioning that with time such teams began to engage employees in decision-making processes and resolving contentious issues. The result of that was teams carrying out specific tasks. This is a consequence of using modern technology, and it has led to the creation of virtual teams. A virtual team is a group of people cooperating with one another, separated geographically and in time, whose formation aims at setting up a specific project within the framework of, and sometime seven outside, the organization. Virtual teams are undoubtedly valuable assets in the form of a small number of people with complementary skills, who are committed to a common purpose and, at the same time, able to rely on each other [2]. The traditional concept of such a team seems to be the same, if there can be defined membership, group consciousness, a sense of common purpose and mutual interdependence in achieving the interoperability and the ability to act in a uniform manner [3], using, of course, innovative methods of communication.

Now, in the age of a global crisis, the creation of virtual teams is accompanied by cost savings of up to 50%. It seems that the model of teamwork enriched with elements of operation of an interconnected VRT may be the future of science. Equally important, resulting directly from the operation in the virtual world is that through the form of a temporary member of a team, employees can be transferred easily from one project to another, developing professionally and, at the same time, improving their skills in many disciplines. It must be emphasized that international teams of researchers represent different cultures, which also influences their greater creativity, and thus guarantees better results and effects of working together. All the mentioned arguments became the basis for the establishment of a VRT, formed by members of the academic centers in Suwalki and Grodno more than five years ago.

Another important element for the team collaboration is the assumption that in the years 2014–2020 the cross-border cooperation between Poland and Belarus is to be continued within the framework of the European Neighbourhood Instrument (ENI) by Cross-Border Cooperation Programme Poland–Belarus–Ukraine 2014–2020 [4] with the priority activities of the European Union (EU), taking into account the stable and sustainable development, aimed at improving the quality of life of citizens, through check-ups and preventive actions.

Aim of the study

The aim of this study was to assess joint activities taken up by the VRT, based on an analysis of medical and social aspects of pro-health attitudes of students of Prof. Edward F. Szczepanik State Vocational College in Suwalki and Yanka Kupala State University in Grodno. It was also to identify factors that determine the stable or variable pro-health stance and to indicate the impact of systematic and complementary educational activities to change health awareness, which lead consequently to building and strengthening pro-health at-

titudes. An important element of the research run by the VRT from Suwalki and Grodno is to increase the real chance to compete with other research centers.

The main types of cooperation, as part of the VRT, are cooperative research projects implemented in the framework of the International Agreement on Cooperation Science Teaching signed in 2012. VRTs are equivalent to classic research teams. The difference lies in concentration of employees or business partners based in different places on execution of a specific task, e.g. a research team examine pro-health attitudes of young people across the borderline or another team conduct epidemiological studies on the incidence of respiratory diseases among children in the region of Grodno and Podlasie, which allows a long-term and stable cooperation.

Research methodology – research techniques

Surveys conducted in cooperation with the Foundation for Education and Science (FES) are an implementation of the schedule of preventive and prophylactic use of the online system of LimeSurvey. The FES provides cooperating institutions with an online service that allows the latter to design and conduct their own surveys on the Internet, as well as to execute simple statistical processing [4]. LimeSurvey is distributed on the principle of a free software online survey system written in PHP and uses a MySQL, PostgreSQL or MSSQL. It is designed so that it is easy to use, allows users to develop and publish a number of surveys and to collect and analyze answers given by the respondents. Operating the system does not require specialist knowledge of programming languages, and users can use formatted text in questions and messages, availing themselves of a text editor.

Thanks to the solution the process of collecting and sorting information by providing respondents with an affordable form of participation in the study is greatly improved. It also allows VRTs to have quick insight into the quality of the collected data and to monitor the feedback. The LimeSurvey-based online survey questionnaire was made available in Polish, Russian and Belarusian.

Grouping of databases

The survey LimeSurvey system makes online questionnaires available, covering the following steps/procedures:

1. Registration data through computer-Speed Internet: respondents personally bring answers to survey questions on the online platform. Assigned, at this stage, it is the first code to segregate data (e.g. data from various countries, universities, departments, etc. get appropriate identity codes).
2. The processing of data received: it checks whether all questions of the survey have been answered, rejecting incomplete questionnaires.
3. Analysis and visualization of results (e.g. screening using selected parameters-risk factors).
4. Formulate conclusions, requirements and recommendations.
5. Recording data and results in a form that allows continuous access to them.

Thus, conducted surveys allow not only to determine risk groups, but also to identify their specific features (separate databases), facilitating creation of appropriate application for them. Possible actions can include directing the respondents to further clinical or laboratory consultations (depending on their positive or negative belonging to high-risk groups).

The result of such a consolidation is not only a subjective assessment of the respondents (e.g. the assessment of their health condition), but the objective grouping them by device. A variety of tools and platforms can be used for testing, including platform e-learning and Moodle software package [5].

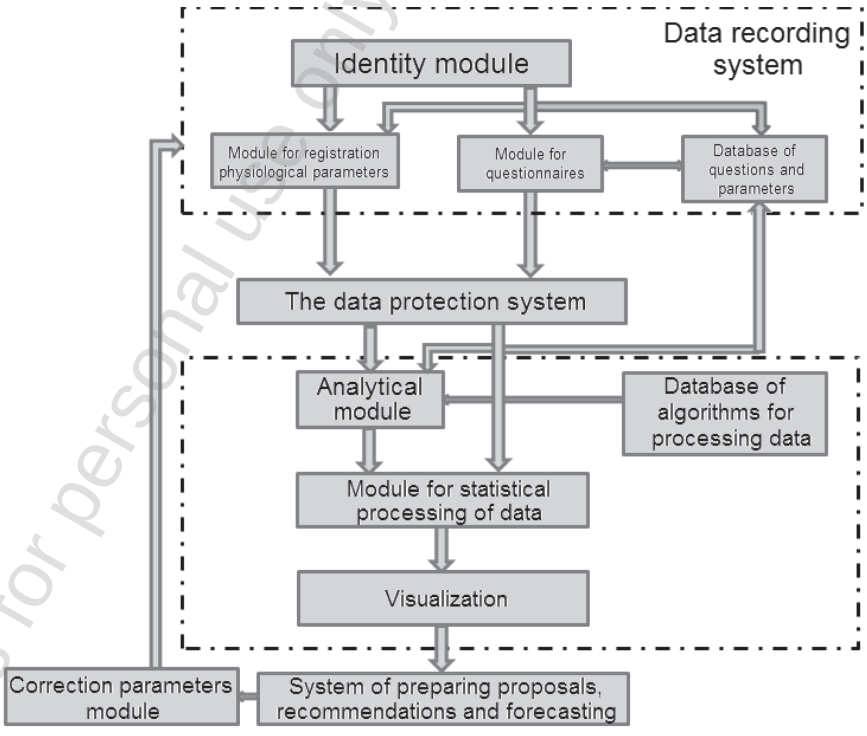

Figure 1. Modular test using the LimeSurvey methodology

In the next step, using a modular system LimeSurvey, the results are saved, including input parameters, i.e. the given country, university, date. Results can be monitored in a continuous manner (using one chosen model of reporting).

Ultimately, databases are created that contain a collection of data recorded in accordance with specific rules planned for a particular type of disease or gather-

ing groups of risk factors (e.g. smoking or excessive alcohol consumption). Conducting research with using LimeSurvey imposes minimum hardware requirements. The program enables simple statistical processing and allows building charts. For further analysis the user can export the data tables in Excel, SPSS or any other statistical program. LimeSurvey allows numerous safety profiles of different groups of respondents permitting to change the conditions of conducting surveys (adaptation of another questionnaire in terms of research already underway). Figure 1 presents a block diagram of the test, using the methodology LimeSurvey, and Table 1 summarizes the number of base data obtained by the VRT.

Table 1. The databases received by the VRTs

Research tasks set to Virtual Research Teams	Topics	Population		Academic year	Total
		PL	BY		
Assessment of alcohol consumption among college students in the borderland	Risky drinking	139	139	2010/2011	**278**
	Diet	226 341	237 293	2012/2013 2013/2014	**463** **634**
	Physical activity	341	293	2013/2014	**634**
	Smoking	139 226	139 –	2010/2011 2012/2013	**278** **226**
Evaluation of the quality of health care in the border area	General medical preventive examinations	341	293	2013/2014	**634**
	Dental preventive examinations	341	293	2013/2014	**634**
	Gynecological preventive examinations	341	293	2013/2014	**634**
	Environmental factors vs. family medical history	226	237	2012/2013	**463**
Total		**2 661**	**2 217**		**4 878**

During the application of "Pro-health program for the years 2013–2016", according to the adopted model, more than 4,800 students were questioned. Respondents were selected by field of study. Research was made on groups that participate in classes with "health education" (including standards of education in all the analyzed directions included health education Universities are state-owned, and record training in health education is being implemented in standards, both in content and learning outcomes).

Results

As a result, the Suwalki-Grodno-based VRT obtained extensive knowledge regarding pro-health attitudes as declared by students of both academic centers. It was also possible to analyze the material and create a relevant database related to individual problem areas, i.e.: studies on the impact of health-targeted behaviors, studies on the prevalence of psychoactive substances (alcohol, tobacco, drugs) among students, studies on knowledge about diseases related to abuse of psychoactive substances and studies on the model of physical activity among students. We surveyed students on many topics such as: alcohol consumption and risky drinking, pro-healthy diet and preventive medical examinations (general medical, dental, gynecological) or environmental factors juxtaposed against students' families' medical histories (Table 1).

Selected aspects of research in the border area and their importance for the final proposals

Polish integration with the EU has created a new system of geopolitical relations, including those to be shaped between Poland and its Eastern neighbors. One of the conditions of the sustainable development of stable relations between Poland and East-European countries is formation of good liaisons between people working with one another. Strengthening relations between the societies of these countries seems to be particularly important from the perspective of borderland regions.

Therefore, overcoming mistrust and stereotypes is of particular importance in this respect. In the last few years there has been a far-reaching evolution of the functions of state borders. It is a consequence of globalization, integration, democratization of sociopolitical life and the increasing openness of many countries to economic exchange. On the other hand, the Polish eastern borders (on Russia – Kaliningrad region and Belarus) are the external border of the EU at the same time, with full consequences of this.

Suwalki region is a borderland with all the attributes of its remoteness (including health care and social service). The border, as an integral part of its characteristics, must have specified, both positive and negative, effects on the problems of its functioning and growth prospects. The integration process in the Polish-Belarusian area is limited by its peripheral location, which impacts the quality of life and competitiveness. The border region has the characteristic potentials of development, including common labor market, complementary functions in tourism, health care, etc. However, in the studied border area there is a lack of information on the specific characteristics that determine the quality of life there. This knowledge, however, is the basis for joint strategies and ideas that bring together complementary strengths of both parts of the border area.

Hence the VRT work is intended to fill in the existing information gap and prepare the database that

forms the basis for common cross-border regional development. The finale of joint actions should be improvement of the quality of life in the border area, strengthening responses for common sustainable development and regional planning.

The situation of the border area also raises new values, attitudes and behaviors that differ from those that may be found in ethnically homogeneous environments. For these reasons, they appear to be a good region to make all kinds of comparisons, including the attitudes of health education of youth. The most important social objective of such comparative testing is also strengthening and further development of neighborly relations, as well as agreement on and arrangement of other projects of cross-border cooperation, which helps to reduce the obstacles and differences that may divide the border area regions.

The starting point is the international survey of earlier published work by scientists from Poland, Belarus and Lithuania (important because of our geographical location) [6–11] and many other countries. They show that more than 50% of the population in these countries display improper behavior patterns regarding health. Factors that influence the proper lifestyle provide information on promotion of intervention. In this regard, an important role is played by university graduates, directly or indirectly connected with medicine and widely-understood health promotion. After graduation they, as members of the intellectual elite, should play the role of promoters/leaders of pro-health attitudes.

Conclusions of the methodology of the use of virtual research groups

Any action of an international VRT must be classified, as in business [12], through the prism of benefits:

- for the researcher – including travel time savings in order to implement joint scientific work, and consequently, the time flexibility of working hours, the possibility of remaining with their family,
- for the employer, or university – savings in the use of space laboratories, lecture halls, and above all a better chance to use highly qualified workers.

This puts an emphasis on the fact that a VRT activity generates technological innovations, information and communication, which in turn leads to stimulation of new ICT (information and communications technology) solutions. Researchers learn to better manage their professional and private lives, as well as prepare joint work to promote health education, physical activity and quality of life, from the regional activities to global. VRTs attract the best researchers for projects requiring competences on the highest international level. Each researcher of the project becomes a tool of international cooperation and this, in turn, leads to forming groups of specialists in different scientific fields, ones who make better use of the possessed knowledge and are capable of creating new elements of it as such. This results in an increase in the number and standard of scientific publications prepared by virtual teams as compared with the amount of work available from single-handed research workers. It increases the efficiency of the resulting assembly-oriented task. The knowledge collected by a VRT is available online from/ /to all its members. It is also important to move a virtual team's activities onto a network electronic platform that allows simultaneous work on the same document and gives other team members an access to all documentation throughout the process of its creation. Staff expansion is of considerable importance for the system of work: they have a greater sense of responsibility, which contributes to a faster development and mobilization for completion of activities. Furthermore, stimulation through joint activities leads to obtaining better final effects (synergism). Individual work, focused on high results, also shows the contribution of each individual member of the team in achieving the objectives of the entire group (network), which raises the creativity of researchers and leads to sharing knowledge, resources and competences.

Incontrovertible is the fact that unconventional forms of work, even in science, are possible along with socio-technological developments and the appearance of new, innovative communications media. As long as the need to educate contributed to the creation of research centers and educational institutions, which eventually became schools and universities in the past, so now digital technology generates a specific form of virtual work in the cyberspace – VRTs. It is worth noting that although the Internet-based network integrates large human communities, cooperation and communication within small groups is still continued with success nowadays. They often become an effective center of creating/organizing new knowledge. When they find acceptance in the eyes of a critical scientific community, their activities are extended to other research teams. It is also important that new research groups can be admitted to participate in the already initiated activities, forming larger and larger circles which deal with research.

The basic problems faced by VRTs while developing their activities include: distribution, often along parallel lines, of designs, resulting from the implementation of individual universities' policies, timely provision of data necessary for the implementation of joint projects and project management, the results of which are the target product of the VRT activity. The advantage is execution of a contract which exceeds the capabilities of any single university. This is beneficial to each university and a VRT itself, which is appointed to perform a task that requires knowledge and skills in many different fields. The covenant which is formed is not in the strict sense a mere political covenant, but a science-oriented covenant that makes use of competence of an individual team. The basis is management of partners' competences, formation and further management of the VRT. Bearing in mind various aspects of public health, including local good practice in health and social care, the joint university policy should be reviewed. This especially should be achieved by collectively conducted scientific internships, during which a VRT consisting of specialists and experts in different fields, develop conclusions from studies at different stages and from different perspectives.

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The conflict of interests

The authors do not report any conflicts of interests.

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