

# Cognitive and administrative barriers to the implementation of the extreme forms of physical activity in the educational system for students

## Authors' Contribution:

- ✍ A Study Design
- 📁 B Data Collection
- 📊 C Statistical Analysis
- 📄 D Manuscript Preparation
- 🏠 E Funds Collection

Robert Bąk<sup>1ABCDE</sup>, Milan Ďuriček<sup>2BCD</sup>

<sup>1</sup> Faculty of Physical Education, University of Rzeszów, Rzeszów, Poland

<sup>2</sup> Faculty of Physical Education and Tourism, Holy Cross University in Kielce, Kielce, Poland

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## Abstract

### Background & Study Aim:

Large application potential of extreme forms of physical activity (EFPA) is confirmed in daily media reports. However, one of the basic assumptions of the Bologna Declaration is to give students freedom to select classes and university at which they will be held. The main objectives of the study was to obtain data on perception and preferences of academic youth from various faculties regarding EFPA and on the other hand data on students' knowledge about criteria of the Bologna Declaration in order to estimate any barriers to the implementation of EFPA to the education system.

### Material & Methods:

The study involved 402 students from Rzeszow University, Poland. The average age of students amounted to 21.8 years. Students represented three groups of sciences: G1 – humanistic and social sciences (n = 115); G2 – exact science and engineering (n = 90); G3 – life sciences (n = 179). The study involved the use of questionnaire developed by the authors. EFPA was identified on the basis of three criteria: threat to health or life (C1), coordination difficulty (C2), body burden with high level of effort (C3).

### Results:

Respondents pointed out to C1 as the most significant criterion to identify EFPA (78%), whereas they indicated C2 and C3 no more frequently than 30%. Knowledge about EFPA is obtained mainly from media (84%), from personal relations with other people (28%) and from their own physical activity only in 16%. Only 6% declared that they freely select classes during the studies, whereas 18% reported that they know, and 76% that they do not know the assumptions of BD and resulting application possibilities.

### Conclusions:

Negligible knowledge of students about the assumptions of Bologna Declaration is a substantial barrier hindering the possibility of applying EFPA. This also implies limited possibility of monitoring such expectations from students and hinders implementations.

### Key words:

Bologna Declaration • body burden with high level of effort • coordination difficulty • ECTS • threat to health or life

### Author's address:

Robert Bąk, Faculty of Physical Education, University of Rzeszów, Towarnickiego 3, 35-959 Rzeszów, Poland; e-mail: rbak@univ.rzeszow.pl

ECTS – European Credit Transfer System.

EFPA – “extreme form of physical activity are extreme sports, often classified according to the environment in which they are performed (water, land, air), extreme form of physical recreation as well as gainful activity or voluntary service, and all varieties of physical activity that meet at least one classification criterion of the feature associated either with extreme risk of injury or death, or extreme body burden with high level of effort, or extreme coordination difficulty” [11, p. 19].

## INTRODUCTION

The Bologna Declaration (BD) forms the basis for establishment of the European Higher Education Area. One of BD’s primary assumptions is to allow students to freely select classes and university at which they will be conducted, whereas evaluation of achievements is based on ECTS points [1-7]. However, in order to implement this process, at least two criteria have to be fulfilled: university must create the conditions for the process and the students must be aware that this possibility exists. This knowledge constitutes the basis for the application of new, often innovative learning content.

*Extreme forms of physical activity (EFPA)* are one of the fields related to human physical activity which are relatively poorly explored in scientific terms and thus they are nearly absent in didactics. This mainly applies to the grounds for identifying this activity as well as its application in socially useful fields [8-12]. To provide a basis for scientific analysis of this phenomenon, it was necessary to create objective criteria for the identification of extreme forms of physical activity.

The ones used in this study were for the first time presented in 2006 during the international scientific conference entitled “Trends in physical recreation and contemporary lifestyle”, Rožňava, Pavol Jozef Safarik University in Kosice (Slovakia) [10]. At that event, these criteria have been for the first time subjected to scientific review in a scientific discussion and during further stages they have ultimately been verified by experts in the framework of the so-called Delphi method [12].

Three criteria for EFPA identification have been developed [10, 12]: C1 – threat to health or life, C2 – coordination difficulty, C3 – body burden with high level of effort. The maximum intensity of one, two or three criteria listed allows to classify given physical activity as extreme. Studies involving these criteria revealed that there are empirical grounds for justifying introduction of these contents in education as well as for applying these forms of physical activity at physical education classes and/or health-related training for students [13, 14].

Extraordinary benefits of classes conducted in water – swimming, sailing, windsurfing [15] or field activities [16] provide countries, such as Poland or Slovakia due to their geographical location (field conditions), with great potential to popularise EFPA in this natural environment.

Psychomotor competencies, more generally referred to as *survival ability* (apart from somatic, mental and social health) were also included in the so-called *positive health profile* developed by Kalina [17]. It is used to compare subjective and objective assessment of positive health of a person examined [18] and as a consequence to determine incompatibilities and their possible correction. The profile is an extremely useful tool for making multidimensional diagnosis of health and for managing our efforts whose aim is to take care for health. It also very accurately fits into the application area related to physical education and recreation. *Survival ability* provided in the profile involves the following competences: ability to tolerate imbalances; ability to precisely act before and during physical effort; ability to fall safely; self-defence ability; ability to swim; rescue skills in the water; first aid skills; ability to survive alone (survival). Many of them are considered as competencies extreme in nature, although they have utilitarian nature in the profile. Nevertheless, they are indispensable to be able to talk about health in a positive sense of the word.

Contemporary popularity of various forms of extreme (or quasi-extreme) physical activity creates the demand for these forms of activity and when safety limits are maintained they one of one the most desired, attractive touristic and recreational products. It may be also concluded that the aforesaid “extreme nature” is for some people the major factor which encourages them to take up physical activity. This in particular pertains to young persons.

Taking into account these premises and elementary assumption about large application potential of extreme forms of physical activity, the main objectives of the study was to obtain data on perception and preferences of academic youth from various faculties regarding EFPA and on the other hand data on students’ knowledge about criteria of the Bologna Declaration in order to estimate any barriers to the implementation of EFPA to the education system.

## MATERIAL AND METHODS

The study involved students selected from 9 faculties of the University in Rzeszów who are currently on their third year of studies [19]. It was assumed that this is an education period sufficient to make the impact on education related to the specifics of a given field of study manifest itself. The principles

of selecting students' group studied meet the criteria for differentiating environmental impacts (mainly educational ones) typical for university with multi-profile education.

The studied group was randomly and purposively selected among students of three areas of science and in each one among three fields of education (Table 1). Average age of studied persons amounted to 21.8 years and places of residence included: city of more than 100,000 residents (n = 93), city of less than 100,000 residents (n = 120), village (n = 189).

Such sampling allows to generalise the research results as for the entire population of students of Rzeszów University, a university with a typical structure for medium-sized Polish high school (typical Polish high school with numerous faculties).

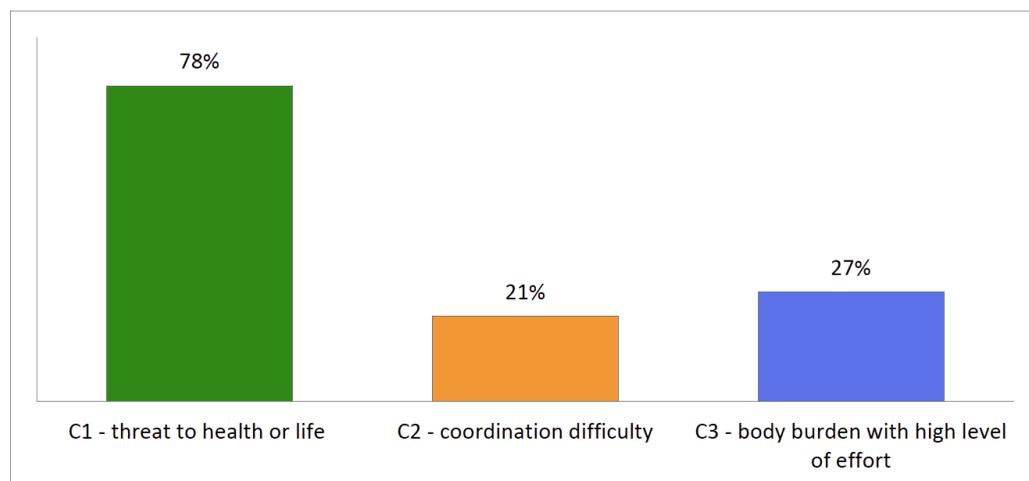
**RESULTS**

Respondents (taken as a whole) consider criterion C1 – threat to health or life (78%) as the most significant EFPA identification criterion. Two remaining criteria (C2 and C3) were indicated by 30% of respondents (Figure 1).

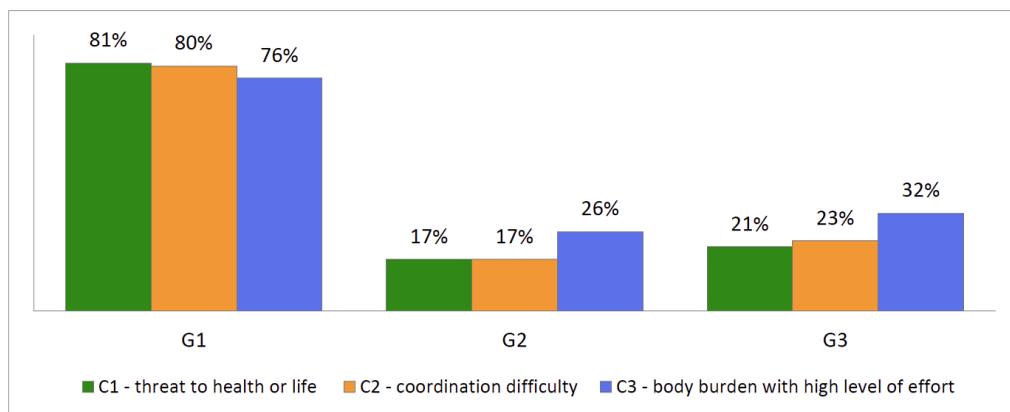
**Table 1.** Structural breakdown, codes of specialisations and number of persons in given groups of students (females and males) of Rzeszów University

| Groups of sciences   | Group code | Faculty                                 | Faculty code | Number of people [n] |            |            |
|--|------------|---|--------------|----------------------|------------|------------|
|  |            |   |              | All                  | Female     | Male       |
| Humanistic and social sciences<br>(n = 115)                | G1         | Economics                               | EC           | 49                   | 35         | 14         |
|  |            | History                                 | HI           | 28                   | 18         | 10         |
|  |            | Pedagogy                                | PD           | 38                   | 36         | 2          |
| Technology, Engineering and Mathematic science<br>(n = 90) | G2         | Education in technology and informatics | ET           | 30                   | 4          | 26         |
|  |            | Physics                                 | PY           | 33                   | 10         | 23         |
|  |            | Informatics                             | IN           | 27                   | 5          | 22         |
|  |            | Emergency medical care                  | EM           | 20                   | 9          | 11         |
| Life sciences<br>(n = 197)                                 | G3         | Tourism and recreation                  | TR           | 121                  | 74         | 47         |
|  |            | Physical education                      | PE           | 56                   | 16         | 40         |
|  |            |   |              | <b>402</b>           | <b>207</b> | <b>195</b> |

The study was conducted within the following research project University of Rzeszow URWWF/S/01 (2010-2014) – Resolution No. 05/12/2010 Bioethics Committee at the University of Rzeszow, Poland.



**Figure 1.** Graphical visualisation of the answers provided by the respondents (n = 402) regarding EFPA identification criteria in total.



**Figure 2.** Graphical visualisation of answers provided by respondents broken down into represented groups of sciences.

**Table 2.** Respondents' answers regarding EFPA identification criteria broken down into represented fields of education.

| EFPA identification criteria               | Groups of sciences and faculties [%] |    |    |           |    |    |            |    |    |
|--|--------------------------------------|----|----|-----------|----|----|------------|----|----|
|  | G1 (n=115)                           |    |    | G2 (n=90) |    |    | G3 (n=197) |    |    |
|  | EK                                   | HI | PE | ET        | FI | IN | RM         | TR | WF |
| (C1) threat to health or life              | 82                                   | 71 | 87 | 77        | 88 | 74 | 60         | 75 | 86 |
| (C2) coordination difficulty               | 18                                   | 21 | 13 | 23        | 6  | 22 | 35         | 31 | 11 |
| (C3) body burden with high level of effort | 22                                   | 21 | 18 | 37        | 6  | 30 | 35         | 33 | 29 |

**C3**  
 ET-FI ( $p=0,0027^{**}$ )  
 FI-IN ( $p=0,0148^{*}$ )

**C1**  
 RM-WF ( $p=0,0154^{*}$ )

**C2**  
 RM-WF ( $p=0,0132^{*}$ )  
 TR-WF ( $p=0,0030^{**}$ )

Taking into account group of sciences represented by students, such answers could have been provided by students of humanistic and social sciences (G1) as well as of exact science and engineering (G2), and life sciences in a smaller degree (G3) (Figure 2).

Statistically significant differences in the declaration of the respondents were observed in groups G2 and G3 sciences – between the faculties assigned to G2, and in all directions of G3 (Table 2, Figure 3).

Individuals with their own experience in EFPA point out the criterion of body burden with high level of effort more frequently than others (Figure 4). As far as the criterion threat to health or life is concerned, the answers are opposite.

Only 16% of the respondents mentioned their own experience in participating in EFPA classes. Half of respondents (50%) declared their willingness to participate in classes with elements of EFPA if they have had such opportunity during the course of studies.

At the same time, people who have already participated in EFPA declared their willingness far more often (88%) than other persons (12%).

Respondents obtain their knowledge about EFPA mainly from media (84%) and personal relationships (28%). Own activity is a source of knowledge for 16% of students surveyed (Figure 5).

Small number of respondents (6%) declared that they freely select classes during the course of studies. Nearly 1/5 of students (18%) knows the assumptions and possibilities guaranteed by the Bologna Declaration and 76% does not have knowledge about them (Figure 6). Distribution of answers broken down into fields of education is presented on Figure 7.

Analysis performed with the use of chi-square test of independence revealed significant statistical differences:  $\chi^2(8) = 28.4001$ ;  $p = 0.0004$ . This means that the knowledge about the Bologna Declaration depends on the field of study. Students of informatics

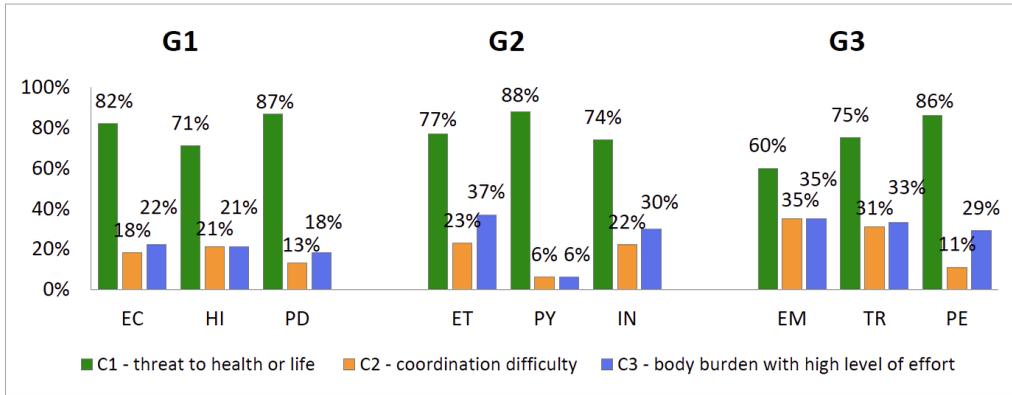


Figure 3. Graphical visualisation of answers provided by respondents broken down into represented fields of education.

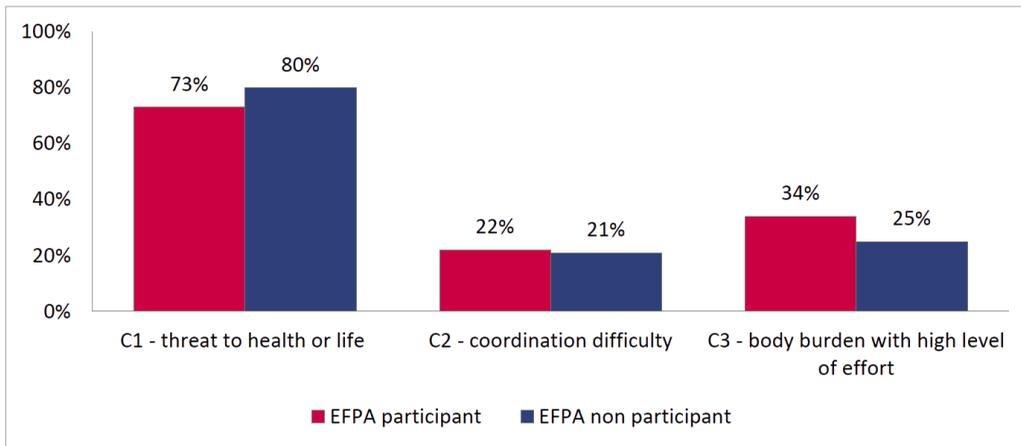


Figure 4. Graphical visualisation of answers provided by respondents broken down into persons who practice and do not practice EFPA.

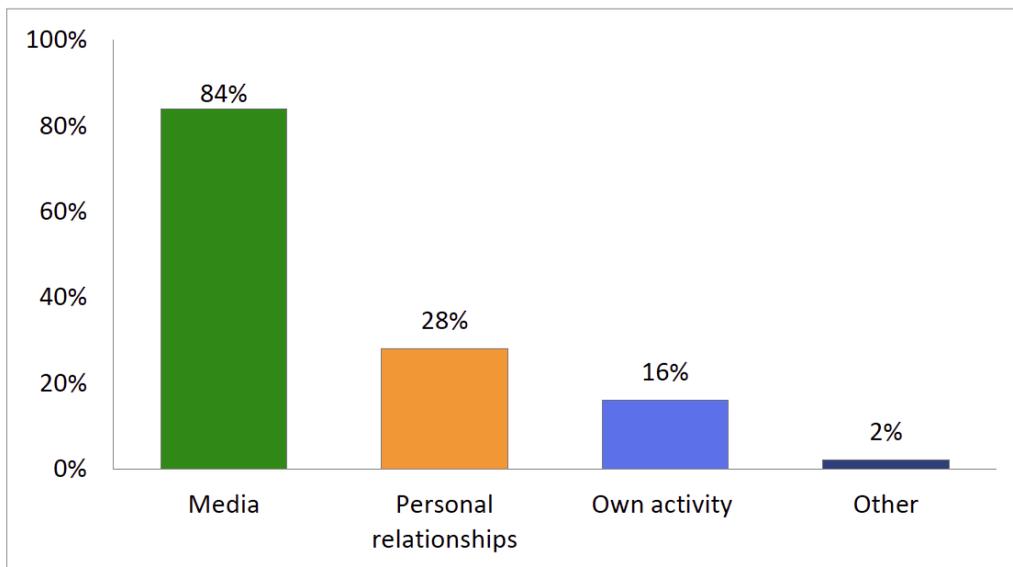
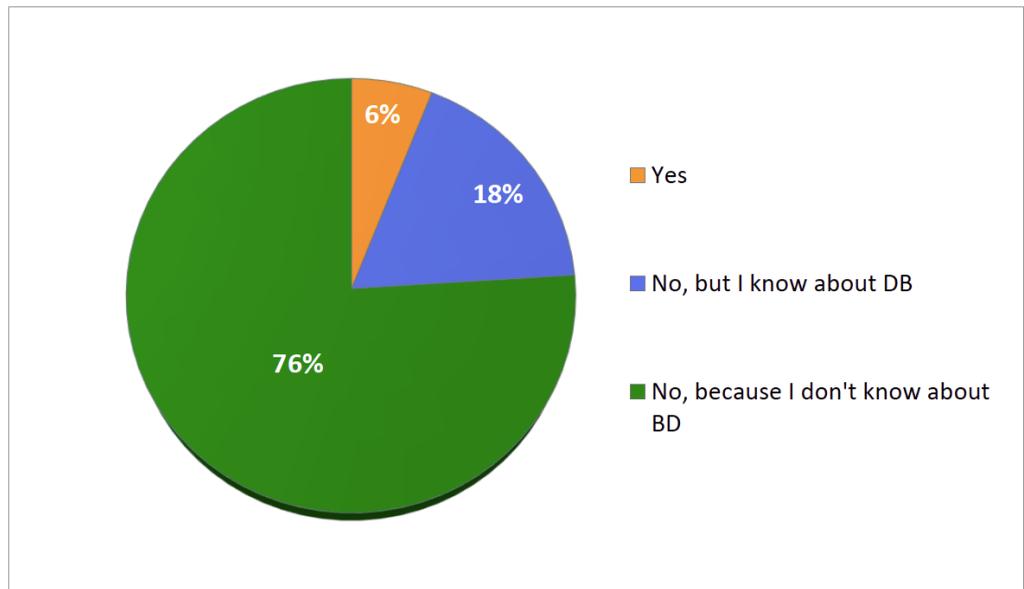
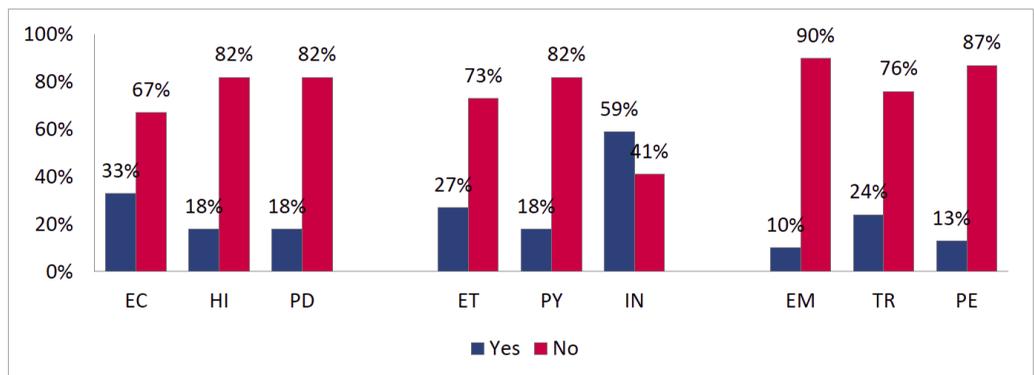


Figure 5. Respondents' answers (n = 402) about source of information about EFPA.



**Figure 6.** Respondents' answers (n = 401) about the use of the assumptions guaranteed in the Bologna Declaration regarding EFPA.



**Figure 7.** Graphical presentation of respondents' answers about free selection of classes guaranteed in the Bologna Declaration after merging "Yes" and "No, but I know about BD" columns broken down into the field of education.

(IN) (59%) constituted the most well-informed group, whereas students of physical education (PE) (13%) and emergency medical care (EM) (10%) were the least informed.

### DISCUSSION

Extreme physical activity is a special field of human activity. However, one should keep in mind the fact that this term does not only pertain to sport or recreation but also to increasingly wider spectrum of everyday human life (traffic accidents, natural disasters, the threat of terrorism, etc.). During times, when modern technologies are to help people, they sometimes also cause tragedies, often due to forces of nature (e.g. a disaster in Fukushima power plant)

which cannot be counteracted. Therefore, the human need to adapt to difficult situations both in mental [20-22], physical and psychophysical [23-29] manner becomes even more important.

Due to the great interest in EFPA (50%), there are formal and substantive grounds to include these activity forms as optional courses and to legitimize didactics majors in this field [13, 14]. This may allow greater number of members of a social group (students) to participate in any physical activity as the vast majority (88%) of respondents participating in EFPA intends to take up such activity once again. Therefore, it is justified to teach instructors/coaches competent in this physical activity which was reflected by students' answers. More than half of the respondents pointed

to the “*competence of instructors*” as necessary for the safe participation in EFPA which in combination with self-awareness regarding essential preparation of participants (81%) sets out the basic determinants of the organization of such activities [14].

High percentage of respondents aware of the necessary proper preparation of EFPA participants is of particular significance. However, this did not stop them from declaring the willingness to participate (50%) in such classes despite probable lack of preparation. Hence, the demand for educating qualified personnel who will be able to appropriately assess participants' preparation and lead less or more extreme activity from the perspective of physical education, tourism or recreation, is legitimate. All the more as there are no statutorily regulated criteria of education and the scope of competence for instructors of activities commonly classified as extreme, and since 2013 also for coaches [30]. They set forth only more or less formal regulations of associations or clubs which are not covered by unified education system, but only by settlements among groups or fans of given activity. The role of universities education graduates of physical education, tourism and recreation or sport (also physiotherapy) seems even more important. These are the institutions which are best prepared, as far as methodology is concerned, to assume a coordinating role in training of such personnel.

Guidelines for their education on the basis of survival were quite accurately formulated by Kucharczyk [31] who at the same time highlighted the shortages in the offer of training courses for future instructors and great interest in such forms of activity.

Given the strong and not always positive influence of the media, which primarily or almost exclusively emphasise on sensational threads, clear identification criteria of extreme forms of physical activity allow to fill the educational gap in a scientific manner (and not in a journalist way). This is reflected in the perception of students regarding extreme physical activity, as they point out to „threat to health or life” (C1) as the most significant identification criterion. After acquiring their own experience in this area, they more often choose the criterion of „body burden with high level of effort” (C3). This reveals that participation has clear educational impact. When combined with freedom in selecting the classes, this will allow for broader educating of students also with the use of extreme forms of physical activity in accordance with the assumptions of Bologna Declaration.

This is a perspective which allows to pursue one's interests in line with applicable law, in particular by many students of various fields who declare interest in extreme forms of physical activity and who wish to use the acquired psychomotor skills in future professional life with high social significance.

Furthermore, it seems reasonable to use a kind of boom – fashion for activities outside with the use of “extreme” factor, even if it is in the name only. This word is nearly always present in offers provided by the organisers of recreation, as it became a synonym of adventure, provides opportunities to overcome one's own limitations and increases self-esteem. Often famous and popular forms of recreation receive new, foreign and more effective names (*rafting, canoeing, downhill* etc.) to encourage potential participant by influencing their imagination. Due to their location and tourist attractions, mainly interesting, unspoiled mountainous areas with varied terrain, Slovakia and Poland have great potential primarily in the qualified tourism or the so-called “outdoor recreation” which are often associated with extreme physical activity.

However, the main barrier to introduce extreme forms of activity to university standard of physical education is created by insufficient possibility to select classes by students in accordance with the assumptions of the Bologna Declaration. In the group studied, 94% (!) of respondents declared that they have never freely selected their classes which is guaranteed by the Bologna Declaration and only 24% of them are familiar with its assumptions which indicates clear deficit both related to information and solutions facilitating such implementation of the programme of studies at nearly all faculties of the University of Rzeszów. Unfortunately, there are no empirical data about this subject which relate to other universities, thus comparative analysis cannot be conducted.

Referring the above considerations to the study group, which potentially was the most physically active social group, it was highly undesirable to cease the actions which would allow to use this potential, especially if enormous formal possibilities are provided by the Bologna Declaration. In relation to the above, the role of a university as the state institution is to create conditions to introduce new learning content, especially when its social utility is beyond doubt.

Although EU Member States (including Poland) joined the European Higher Education Area and

signed the Bologna Declaration, educational conservatism limits the flexibility of studying. Therefore, the most recent, innovative contents which in accordance with the idea of higher education should be a major determinant of its development do not reach the universities' learning content. One may risk saying that Polish universities have a great potential but are not able to use it. This becomes the more significant, the greater expectations of the society are.

## CONCLUSIONS

Students have low awareness of the objective criteria to identify extreme forms of physical activity. Generally, students associate EFPA with criterion „threat to health or life” which is consistent with common understanding of this phenomenon mainly shaped by media.

Study results provide scientific grounds for proper organisation of classes with the use of EFPA. Its application is mainly determined by large interest of students in such activity which at the background of the Bologna Declaration allows for its widespread implementation in education at universities. This, however, should be preceded by theoretical preparation of participants, in particular related to identification of EFPA and safety, which would ensure full awareness during participation.

Negligible knowledge of students about the assumptions of Bologna Declaration is a substantial barrier hindering the possibility of applying EFPA which limits its possible monitoring of such expectations.

## COMPETING INTERESTS

Authors have declared that no competing interest exists.

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