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Alicja Walosik

Motivating secondary school students to raising the level of health literacy

People cannot achieve their fullest health potential unless they are able to take control of those things which determine their health.

THE OTTAWA CHARTER
FOR HEALTH PROMOTION
1986

Contemporary people are faced with the necessity of adjusting to social changes generated by the progress of civilization. At the same time, they wish to experience high quality of living. *Health*, as a foundation for successful completion of both these tasks, constitutes the plane for normal development of each human being, and health education should be considered an urgent challenge for present-day educators. Influencing students' perception of health as a value worth protecting and striving for is one of the most important aims of the process of education. Health education as an element of the national health policy has been reflected in the operational aims of the following actions:

- The National Health Programme for the years 1996–2005;
- The National Health Programme for the years 2007–2015;
- The National Activities Plan for Children for the years 2004–2012;
- The Strategy of Development of Health in Poland for the years 2007–2013;
- Expertise concerning Education for Sustainable Development (ESD) in Poland. Final Report 2012;
- Cooperation agreement between the Ministry of National Education and the Ministry of Health regarding the promotion of health education in schools and development of a network of health promoting schools of 23 November 2009.

The above documents constitute the main legal framework for the realization of health education at schools. However, its implantation and effectiveness require devising appropriate support for schools, in particular creation of a training system at the university level, as well as further professional training options and provision of methodological advice.

There is no unanimity as to the form of assistance provided to schools in that respect, especially that even the nomenclature and terminology is very often applied

interchangeably at schools, so that the meanings and actions undertaken are understood incorrectly. It pertains in particular to the notions of health promotion and health education.

According to the traditional approach, health education concerned improving and protecting health by means of stimulating the learning process and changes in behaviour. Its aim was merely to raise the level of knowledge and provide advice on health hazards. The contemporary idea of health education puts the main emphasis on practical actions. Accordingly, theoretical knowledge should only help in acquiring necessary information required for undertaking specific actions aimed at health protection.

Health education is an inseparable and complementary element of health promotion. The overriding objectives of health education are defined variously, depending on the chosen definitions and ideas behind them. It is generally assumed that the basic aim of health education is the acquisition of knowledge about health pertaining to the functioning of human body, its conditioning factors and potential risks. It concerns also the formation of the ability to identify one's health needs, the needs of the family and environment, the ability to make choices and decisions for the benefit of one's and others' health, as well as the ability to prevent and deal with difficult situations. Finally, health education aims at developing behaviour necessary for protection and improvement of health, and sets as its objective raising health awareness among young people (Woynarowska 2000, Krawański 2001, Dudkiewicz 2004).

Similar views are aired by Słońska (2001) who claims that health education does not involve only transmission of necessary knowledge about health, but it concerns primarily the formation of conditions conducive to the creation of health behaviours and introduction of positive changes aimed at raising the competences of individuals and whole social groups with respect to their independent health-related actions at various levels of social life. Young people's superficial, sometimes not well consolidated and fragmentary knowledge about factors conditioning health might have serious consequences for human health (Stoczkowska 2007, Woynarowska et al. 1999, Lewicki 2006).

Contemporary health systems aim, among others, at improving access to information about health. It has a positive influence on the participation of people in the health system (Kickbusch 2001).

A very important factor in developing health awareness among young people are the programmes promoting the ability to read texts concerning health with comprehension. One of the aims of these programmes is to present the opportunity of making informed and suitable decisions regarding one's health as well as the health of other people.

The notion of *health literacy* has its origin in the Ottawa Charter for Health Promotion of 1986. The contemporary definition introduced by the World Health Organization defines it as knowledge about health, or the ability to read health, and

extends the definition found in the Charter by incorporating in it the element of “developing personal skills,” which means developing skills such as: comprehending social elements of health, negotiating with the environment, understanding and assessing risk connected with individual and social behaviour, and the ability to participate in the health system (Kickbusch 1997). The new definition of health literacy is also closely connected with promotion of health.

Promotion of health is a process enabling individuals to control their own health and body. Health promotion is a new outlook on education, which should be conducive to the development of a healthy lifestyle, as well as on the environmental and individual conditions beneficial to health. One of the important methods for achieving the overriding aim of health promotion, *i.e.* strengthening human health, is the improvement of health literacy.

In Polish literature on the subject, the notion *health literacy* is translated in most cases literally or as “functional health knowledge”. The most recent definitions explain health literacy as “health competencies” (Niedźwiedzka, Hunskar 2010; Bulska 2010; Iwanowicz 2009; Kickbusch 2002; Nutbeam 2000).

The ability to read health constitutes an important element of human living, making it possible to react to changing environmental conditions. Without health literacy it would not be possible to understand data about the functioning of human body or to interpret a wide range of information about the state of one’s health and about its conditioning factors, which is necessary for the maintenance of normal health. Lack of ability to read one’s health impairs the realization of the idea of health promotion (Kirsch 2008). According to Karski (2003), scientific research which used the above definition indicated that lack of competency to read health constitutes a huge obstacle in educating patients suffering from chronic diseases and impairs proper application of medications. Today “reading health” pertains also to the ability to read information contained in brochures, notice boards, charts, or the Internet, in a way which enables application of the obtained knowledge to oneself and to the observed symptoms, and allows for utilizing the instructions pertaining to lifestyle changes. The ability to “read health” is also perceived as the key concept in health promotion (Karski 2003, Iwanowicz 2009).

Ishikawa and Yano (2008), as well as Ratzan (2001), rightly note that the definition of the World Health Organization expands the earlier definition of the term, among others, by including the development of social competencies, *e.g.* with respect to communication, negotiation, which are necessary for making decisions benefiting one’s health.

A very interesting interpretation of this term within the context of health was put forward by Nutbeam in 2000. He proposed a three-tier hierarchy of *literacy*:

- *basic literacy* which refers to basic competencies such as reading or writing necessary for effective functioning in everyday situations;
- *communicative literacy* which pertains to more advanced cognitive mechanisms, which in connection with social competencies might be used for active

participation in everyday life, selecting information incoming from various sources, as well as adjusting information to changing conditions;

- *critical literacy* which stands for the ability to analyse information critically and on that basis to gradually increase the control over various events taking place in everyday life.

In the context of the three-tier hierarchy of the notion, it is worth considering which competencies should be developed at the relevant levels of the so defined health literacy?

According to Zarcadoolas et al. (2005), a person with fully developed competencies at all three levels can apply necessary information pertaining to health in accordance with the changing situation and take active part in public and private dialogue about health, medicine, scientific knowledge and cultural convictions. An important element in this respect is comprehensive health education. The concept of comprehensive health education of young people assumes taking into consideration the holistic approach to health (all its aspects) and factors conditioning health connected with the environment; creation and implementation of innovative programmes of formal and informal health education; striving for popularization of knowledge about health which the student acquires from various sources (family, teachers, peers, mass media, advertisements, etc.); encouraging young people to lead healthy lifestyles, as well as creating conditions and opportunities for healthy lifestyle in educational establishments (Bednarski 2002, Woynarowska 2007).

Position and status of health education in the core curriculum for general education

The first appearance of health education in the core curricula for general education dates back to 1997.

An educational path “health education” was introduced at all levels of the educational system within the framework of the educational system reform of 1999. The acknowledgement of the necessity of introduction of a broadly defined health education of children and teenagers was an undisputed asset of the so-called old core curriculum for general education (1999–2002) as well as a result of the works on the reform of the educational system in year 2008 (Ministry of National Education 2009). Finally, this effect was brought about by the development of health promoting schools.

In 2007, during works on the new core curriculum, the educational paths were removed from the national programme of study. It was decided that health education would be carried out within the framework of other subjects, in particular Biology and Physical Education. The authors of the core curriculum for general education of 2009 (Ministry of National Education 2009) put great emphasis on prevention of health risks and health promotion. The importance of health education was increased, making it an important objective for schools and teachers. The above is defined in the Regulation by the Minister of National Education of 23 December

2008 on Core Curricula for Pre-school and General Education in particular types of schools (Ministry of National Education 2009), which reads: "An important objective for schools at the third and fourth educational stage is health education, whose aim is to develop among students the ability to protect their health and health of other people, and the ability to create environment conducive to good health". Further: "The set of teaching programmes at school, the personal development programme followed by the school, and the prevention programme compose a coherent whole and have to account for all requirements as described in the core curriculum. Their preparation and implementation is a task for the school as well as for the teachers".

The core curriculum for the third and fourth educational stage includes the requirements as to the various aspects of health education taught within the framework of various subjects, in particular Physical Education, Biology, Natural Science, Family Life Education, Civic Education, Safety Education, Ethics, modern languages and Introduction to Entrepreneurship.

Biology is among the group of subjects which embrace the greatest number of educational issues pertaining directly or indirectly to health education. They focus mainly on physical health and prevention of illnesses. Within the framework of the subject Biology (extended programme) at the fourth educational stage, some of the educational objectives (general requirements) are as follows:

II. Broadening the knowledge about the structure and functioning of the human body. Students are able to explain the functioning of the human body at various levels of complexity; they recognize connections between the structure and the functions at all these levels.

VI. Attitude towards nature and environment. Students understand the meaning of conservation of nature and environment; they know and understand the rules of sustained development; they present a respectful attitude towards themselves, all living creatures and the environment; they know how to define an attitude of a person who makes responsible use of natural resources.

The educational content for Biology accounts for many specific requirements pertaining directly or indirectly to health education (Table 1). They concern first of all:

- physical health and prevention of various illnesses in connection with the anatomy and physiological functions of the human body (it constitutes a continuation and extension of the educational content taught in lower secondary schools);
- environmental health, which, in accordance with the definition of the World Health Organization, pertains to the aspects of human life dependent on physical, chemical, biological, social, and mental factors, as well as on economic factors of a person's living environment – home environment, school, workplace, recreational facilities and local community.

Tab. 1. Specific requirements relating to health education at the fourth educational stage for Biology

Fourth educational stage. General upper secondary school. Extended programme.	
Subject: Biology	
Programme section	Specific requirements relating to health education:
IV. Variety of organisms	
Viruses	Student: 4) enumerates the most important human viral diseases (hepatitis type A, B and C, AIDS, HPV, influenza, measles, mumps, German measles, chicken pox, polio, rabies), names routes of infection and describes basic principles of viral diseases prevention.
Bacteria	Student: 5) enumerates the most important human bacterial diseases (tuberculosis, dysentery, typhoid fever, cholera, anthrax, Lyme disease, tetanus), names routes of infection and describes basic principles of bacterial diseases prevention.
Protists and primarily aquatic plants	Student: 4) enumerates the most important protists responsible for human diseases (malaria, trichomoniasis, giardiasis, toxoplasmosis, amoebiasis), names routes of transmission and presents basic prevention principles.
Terrestrial plants	Student: 6) gives examples of significance of plants for humans (e.g. edible plants, poisonous plants, plants used in manufacturing and medicine).
Fungi	Student: 8) presents basic principles of prevention of diseases caused by fungi.
Invertebrates	Student: 5) with the help of diagrams describes life cycles of unarmed tapeworm, nematodes – “roundworm”, <i>Trichinella spiralis</i> ; enumerates intermediate and definitive hosts, and routes of transmission.
V. Structure and functions of human body	
Musculoskeletal system	Student: 5) enumerates main groups of human muscles and describes factors conducive to normal development of muscles; 8) analyses the relation between regular physical exercise, density of bones and state of the musculoskeletal system.
Digestive tract and digestive processes	Student: 4) analyses energetic needs of the human body and compares (orders) chosen types of physical activity with respect to the energy consumption; 5) analyses relations between diet, lifestyle and health (obesity and its consequences for health; diabetes, eating disorders).
Respiratory system	Student: 5) analyses the influence of external factors on the state and functions of the respiratory system (allergies, active and passive smoking, air pollution).

Circulatory system	Student: 6) analyses relation between diet, lifestyle and state and functions of the circulatory system (atherosclerosis, heart attack, varicose veins).
Immune system	Student: 5) describes situations in which the immune system is defunct (immunosuppression after organ transplants, AIDS, etc.) and enumerates risks involved; 6) explains the notion and gives examples of autoimmune diseases.
Nervous system	Student: 8) explains the biological significance of sleep.
Sensory system	Student: 4) explains the basic principles of sight and audio organs hygiene.
Structure and functions of skin	Student: 2) describes basic principles of skin disease prevention.
Human reproduction and development	Student: 4) presents characteristics and course of human physical, mental and social development; 5) presents basic principles of prevention of sexually transmitted diseases.
VII. State of health and diseases	Student: 1) explains the meaning of the notions "health" and "illness" (health as a state of balance of the internal environment of the human body, physical health, mental health, social health; illness as a disruption of this state; 2) presents the negative influence of some psychoactive substances on human health (cigarettes, alcohol), drugs, doping, overuse of caffeine and some medicines (especially those affecting the mental system); 3) enumerates the most important human diseases caused by viruses, bacteria, protists, parasites, and methods of their prevention; presents routes of infection by HIV, HBV, HCV and HPV viruses, prevention principles, and is able to predict individual and social consequences of the infection; 4) presents factors conducive to the development of cancer (e.g. inappropriate diet, lifestyle, psychoactive substances, UV radiation) and gives examples of those diseases; 5) presents basic principles of cancer prevention; 6) explains the necessity of regular medical examinations (e.g. dental examination, basic blood and urine tests, blood pressure and heart rate measurement); 7) analyses information attached to medicines and explains why patients should not take in commonly accessible medications without justified reasons and why antibiotics and other medications should be taken in strict accordance with the doctor's instructions (dosage, times and length of treatment); 8) describes basic principles of personal hygiene; 9) analyses relation between appropriate amount of sleep and bodily functions, in particular influence of sleep upon the learning and remembering processes, as well as on the immune system.

Health education issues implemented into Natural Science – fourth educational stage.

The aim of Natural Science is to broaden the knowledge about natural sciences and simultaneously incorporate knowledge about health issues (Table 2).

Tab. 2. Specific requirements relating to health education at the fourth educational stage for Natural Science

Fourth educational stage. General upper secondary school.	
Subject: Science	
Programme section: Science and World	Specific requirements relating to health education
Chapter: Moral dilemmas in science	Student: 7) describes biological and social background of various forms of intolerance and suggests methods of their prevention; 8) presents his attitude towards GMO, reproductive cloning, in vitro fertilization, prenatal tests, human genome research, access to the information about individual genetic features, and other ethical problems related to the development of genetics, biotechnology and medicine.
Chapter: Science in media	Student: 1) performs critical analysis of information provided by the media with respect to its conformity with the current state of scientific knowledge; 4) analyses the influence of advertised products on health, in particular food products, pharmaceuticals, cosmetics (e.g. actual number of calories in products with the "light" label, products' "ecology", vitamin content versus daily demand.
Section: Science and technology	
Chapter: Sport	Student: 3) describes types of doping used in sport and argues for the negative influence of those chemical substances on human health; 4) analyses the influence of various factors on physical fitness and sport achievements (e.g. diet, training, high altitude mountain conditions); 6) analyses the influence of professional sport on health.
Chapter: Contemporary diagnostics and medicine	Student: 1) explains the principles of contemporary medical imaging and gives examples of its application; 2) gives examples of body fluids analysis and its significance in prevention of diseases (e.g. detection of protein and glucose in urine); 5) describes methods of gene mutation detection and assesses its significance in diagnostics; 6) researches and analyses information and statistical data about the causes and occurrence of modern-age diseases in the world.
Chapter: Protection of nature and environment	Student: 1) explains the mechanism of greenhouse effect and describes controversies pertaining to the human influence on climate changes; 2) describes the consequences of the use of fertilizers and chemical pesticides and its significance for farming; 3) presents the chemical characteristics of freons and their influence upon the environment; 5) explains the role of bacteria in neutralising environment pollution (e.g. biological water treatment); assesses the genetic signification of bacteria modified in the process.

Section: Science around us	
Chapter: Learning	Student: 2) describes various forms of learning and assesses their biological significance; 3) describes the role of neural connections in the process of learning; 4) describes basic characteristics of learning by senses; 5) presents methods of remembering information; 6) presents possibilities of application of contemporary technological achievements in the process of learning.
Chapter: Cycles, rhythm and time	Student: 4) describes the daily rhythm of human activity and analyses daily hormone secretion; 5) analyses the influence of daily rhythm disruptions on human health.
Chapter: Laughing and crying	Student: 3) describes chemical aspects of stress; 6) describes the significance of laugh and crying with reference to maintaining human relations among primitive humans and contemporary humans; 7) researches and presents information relating to cultural differences in expressing emotions in traditional and modern societies.
Chapter: Health	Student: 1) enumerates the mechanisms of heat loss; 2) explains the role of clothing in the exchange of heat between human body and the environment; 3) analyses leaflets attached to medicines and describes the information given; 4) explains in what way human body maintains homeostasis; 5) describes the state of physical, mental and social health ; 6) analyses the influence of external and internal factors on health; 7) analyses health as an individual and social value; 8) researches information pertaining to risks relating to living in different environmental conditions and points to means of their prevention.
Chapter: Beauty and good looks	Student: 3) gives examples of pancultural beauty canons and analyses their relation with sexual selection; 4) presents the significance of plant and animal products for the maintenance of bodily health and beauty.
Chapter: Water – a miracle of nature	Student: 7) justifies the necessity of sustainable use of water resources and presents actions that can be undertaken by them for this purpose.

Nonetheless, the “health education” module incorporated in the core curriculum for Physical Education is by far the most important and valuable innovation. It constitutes a completely new approach elevating Physical Education to the status of a key subject in health education in lower and upper secondary schools. It turns into practice the ideas that have been put forward for years by the representatives of physical culture studies. This solution creates one of the models advised by the WHO: a leading subject (Physical Education) and incorporation of educational content pertaining to health into various subjects.

The “health education” module should be realized within the framework of optional Physical Education classes. At the third and fourth educational stage Physical Education as a subject has important educational, development and health functions. It supports physical, mental and social development, as well as helps maintain students’ health and instils the habit of partaking in physical activities and caring for one’s health throughout the entire life. It gives rise to a healthy lifestyle and the awareness of the necessity to protect health.

The objectives of health education, until recently, focused mainly on the issues of physical health – hygiene, skincare, prevention of injuries and somatic illnesses. The innovative element within Health Education (Ministry of National Education 2009) is the focus on psychosocial health and development of life skills – an element of Health Education that has been rather neglected thus far.

The change is triggered by rapid social, economic and industrial changes in the contemporary globalized world. They force young people to face new requirements and challenges, and are conducive to the ever frequent occurrences of psychological disorders and problems (Ostaszewski 2007, Kozak 2007).

“Life skills” are defined as “abilities for adaptive and positive behaviour that enable individuals to deal effectively with the demands and challenges of everyday life” WHO (1993), *Life skills education in schools*, Geneva. Among life skills one can enumerate: communication and interpersonal skills, e.g. verbal and nonverbal communication, negotiation skills, assertiveness, team work, decision-making skills, critical thinking – especially with reference to peer pressure and analysis of media advertisements pertaining, for example, to smoking. Other life skills include the skill of directing one’s life and behaviour, e.g. building one’s self-esteem, self-awareness of one’s rights, behaviour, values, and being able to control emotions. These life skills influence the teenagers’ ability to protect themselves against various health threats and help them build competencies required for positive behaviour and strengthening relations with others. Life skills should be developed and improved at all stages of life (Woynarowska 2002).

The analysis of the theoretical assumptions of the core curriculum for general education (2009) with respect to health education allows for the conclusion that the curriculum is characterized by a holistic approach, i.e. it accounts for all aspects of health: *physical*, which pertains to normal functioning of the human body, organs and systems; *mental*, encompassing emotional health, which means the skill of recognizing experiences, expressing emotions in an appropriate way, coping with stress, conflicts, panic, depression, and the ability to think logically; *social health*, which refers to the ability of making and maintaining positive relations with others; and finally *spiritual health*, which includes beliefs, religious practices, moral values and life principles.

One of the conditions for the effectiveness of the educational process and educational practices with regard to health is motivation, which inspires for action, gives direction and points out aims to be achieved. The role of motivation and its

significance in the process of learning was stressed, among others, in the report "Learning – The Treasure Within" by Jacques Delors (Internet I). The report presents the pillars of the twenty-first century education. In one of the chapters, "Learning to be," the authors accentuate the role of education, thanks to which people attain full potential with respect to their intellectual development, competencies, emotional development and motivation. One of the most important objectives of education is the creation of lasting and strong motivation for learning as a basis for further self-education and personal development. According to Reykowski (1970), motivation is a mental process which conditions achievements of particular aims. In the literature on the subject the sources of motivation are divided into internal forms of motivation, which are generated by the individual (acknowledgement, development, independent thinking and acting, self-satisfaction) and external forms of motivation, imposed by the society (Broophy 2004). One cannot always expect that students will present sufficient motivation for learning; often the support of the environment, in particular the teacher, is required. It is the teacher who, by realizing the educational programme in a skilful way, by using teaching methods suitable to the topic of the lesson and intellectual level of students, triggers the learning process, at the same time mobilizing students to creative activity. The ideal situation, according to L.S. Vygotsky, is when the programme and teaching methods not only relate to the level of development already attained by the students but are somewhat ahead of that development. It provides young people with additional stimuli for work, motivates for effort, but does not discourage them. Such learning context creates the so called area (zone) of proximal development (Vygotsky 1971). It is well known that the students' attitude towards school is to a great extent influenced by the type of motivation. Motivation also decides about the fact whether the students' work is independent and they learn being motivated by reasons within themselves, or if they require encouragement from the seniors. The outcome of the teaching process is also to a significant extent dependent on whether students like to learn and are interested in gaining knowledge, whether they feel responsible for their learning and, finally, see the connection between the knowledge gained and their plans for future (Niebrzydowski 1989).

Object of the research and its methods

The skill of reading one's health is gaining importance in today's world. Its development is fuelled by the necessity of finding essential information quickly. In order to fully participate in social life one requires not only the skills for gaining knowledge, i.e. positive motivation for the creation of knowledge and for learning, but also the skills enabling appropriate application of the knowledge in everyday situations. The object of the research is the ability to read health and it is conducted in order to find out if students apply the skill of reading one's health in the process of acquiring information about health.

Theoretical objectives

Analysis of documentation (core curriculum for general education) with reference to the occurrence of content connected with health risks brought about by using and abusing intoxicants.

Cognitive objectives

Describing upper secondary school students' level of motivation to learn about issues relating to alcoholism, nicotinism, and drug addiction; accounting for directions of change in students' motivation to learn about issues concerning risks caused by using selected stimulants; and describing differences in the level of motivation to learn about stimulants among students taking part in the research.

Practical objectives

Conducting a series of classes with the students of the second grade of the general upper secondary school, pertaining to the prevention of stimulant use: cigarettes, alcohol and drugs. Conducting survey research before the classes and after their conclusion.

The research makes use of a survey construed in accordance with the assumptions of Likert's scale (Brzeziński 2006). A set of 26 sentences was constructed in order to define students' attitudes towards those issues. The statements were divided into three components of attitude: cognitive (11 statements), emotional (9 statements) and behavioural (6 statements). Students' attitudes pertain to their knowledge about alcoholism, nicotinism and drug addiction, perceived as element of Biology, i.e. the science of particular natural and social application, having influence upon interests and attitudes.

Likert's scale is a type of rating scale. Students expressed their attitude to each questionnaire item by choosing one of the five categories of answer to which numerical values were assigned: strongly agree – 5, agree – 4, neither agree nor disagree – 3, disagree – 2, strongly disagree – 1. The choice of "strongly agree" and 'agree' answers indicates positive attitude towards health risks issues. Choosing "disagree" and "strongly disagree" indicates negative attitude towards these problems. The answer "neither agree nor disagree" indicates indifferent attitude towards alcoholism, nicotinism and drug addiction.

The researcher assumed that motivation is to be understood as a sum of acceptance indicators for particular statements. For this purpose the following interpretation key is applied:

- 26–46 points – negative motivation
- 47–68 points – moderately negative motivation
- 69–88 points – neutral motivation
- 89–109 points – moderately positive motivation
- 110–130 points – positive motivation

The level of students' initial and final motivation to acquire knowledge about health risks

The research into initial motivation involved sixty students of the general upper-secondary school (14 students from class IIc, 26 students from class IId, and 20 students from class IIe). Class IIe is a control group in the conducted experiment, whereas classes IIc and IId are the experimental groups.

The research into the final motivation involved 40 students of the general upper-secondary school, that is 14 students of class IIc and 26 students of class IId. Altogether 100 survey questionnaires were analysed.

Initial motivation

Tab. 3. Initial motivation among students of the respective classes of general upper secondary school

Variable	Descriptive statistics (initial motivation)				
	N important	Average;	Minimum	Maximum	Standard deviation
Year IIc	14	89.07143	77.00000	97.00000	5.703768
Year IId	26	91.53846	78.00000	111.00000	6.598368
Year IIe	20	86.45000	74.00000	99.00000	7.330362

The lowest score in the initial research was recorded in class IIe – 74 points, whereas for class IIc and class IId it was slightly higher – 77 and 78 points respectively. The outcomes indicated neutral motivation. The highest score was observed in class IId: 111 points. The result indicated positive motivation. In class IIc the maximal number of points in the initial research was 97 points; in class IIe – 99 points. The results indicated a moderately positive motivation.

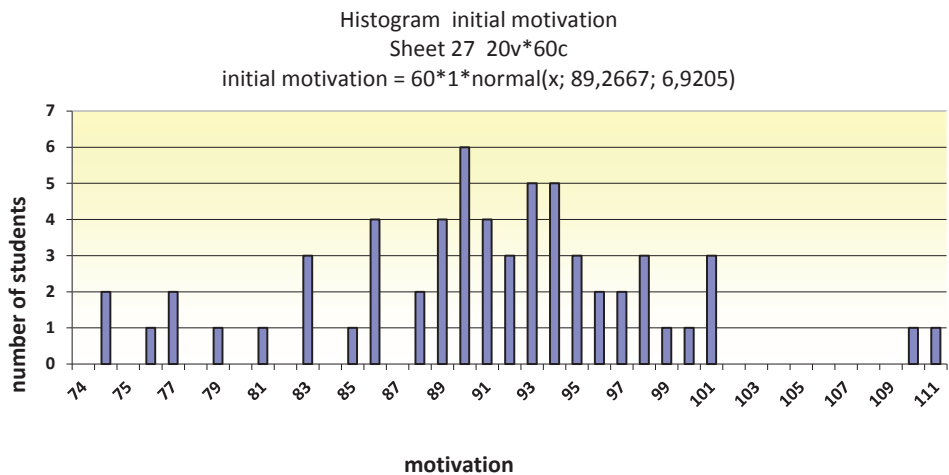


Fig. 1. Level of initial motivation for learning about selected health issues

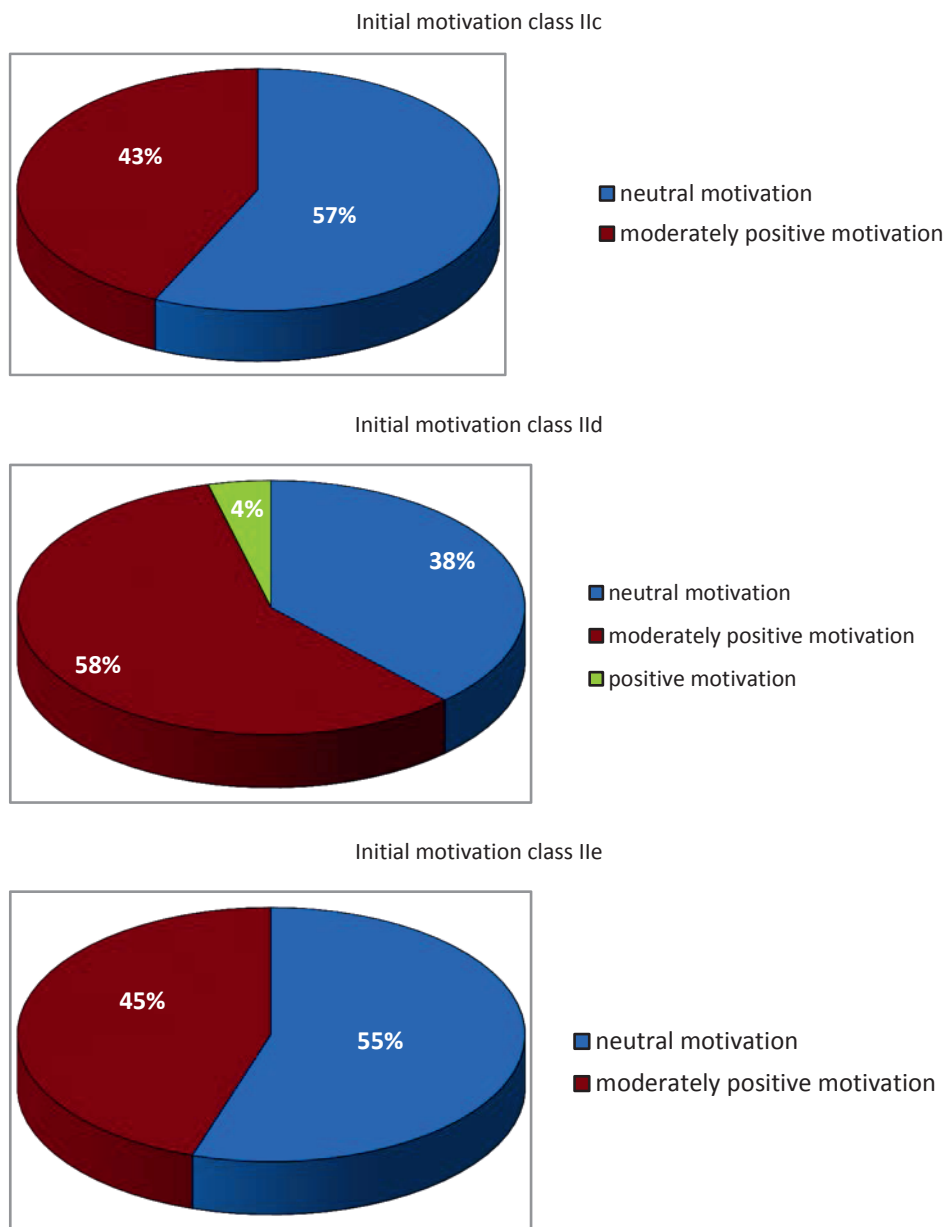


Fig. 2. Percentage presentation of initial motivation in particular classes

The analysis of initial motivation pointed to the fact that the highest number of students with moderately positive (58%) and positive motivation (4%) was recorded in class IIId. The largest number of students with neutral motivation was in class IIe (55%). Classes IIc and IIe do not present positive motivation. None of the researched groups presented either negative or moderately negative motivation.

Final motivation

Tab. 4. Final motivation among students of the respective classes of general upper secondary school

Variable	Descriptive statistics (initial motivation)				
	N important	Average	Minimum	Maximum	Standard deviation
class IIc	14	90.21429	82.00000	111.0000	7.392081
class II d	26	90.34615	69.00000	111.0000	9.649631

The maximal point score noted in the research into final motivation was 111 points in class IIc and class II d.

Histogram final motivation
 Sheet 27 20v*60c
 initial motivation = $40 * 1 * \text{normal}(x; 90.3; 8.8265)$

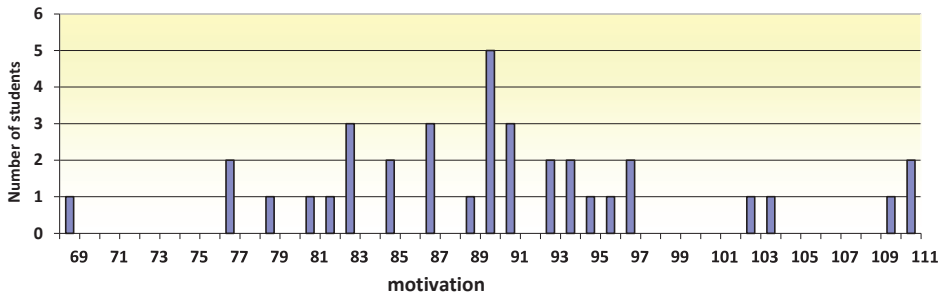
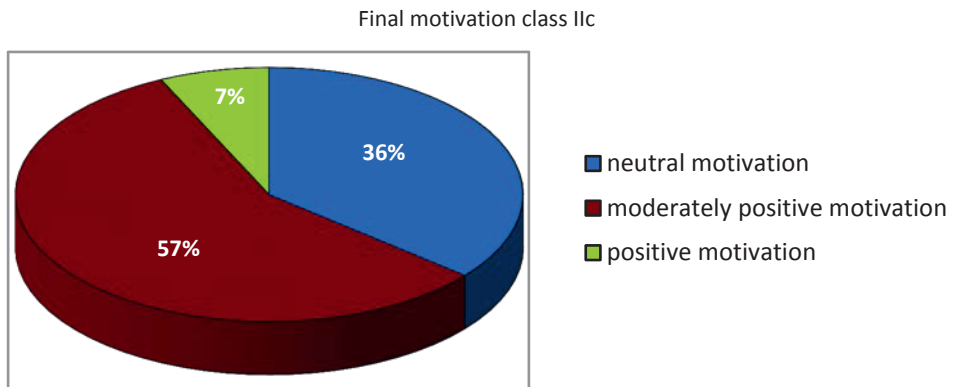


Fig. 3. Level of final motivation for learning about selected health issues



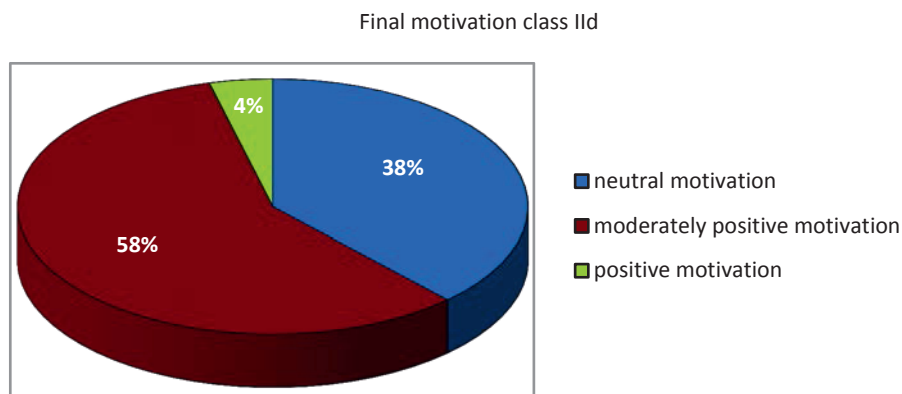
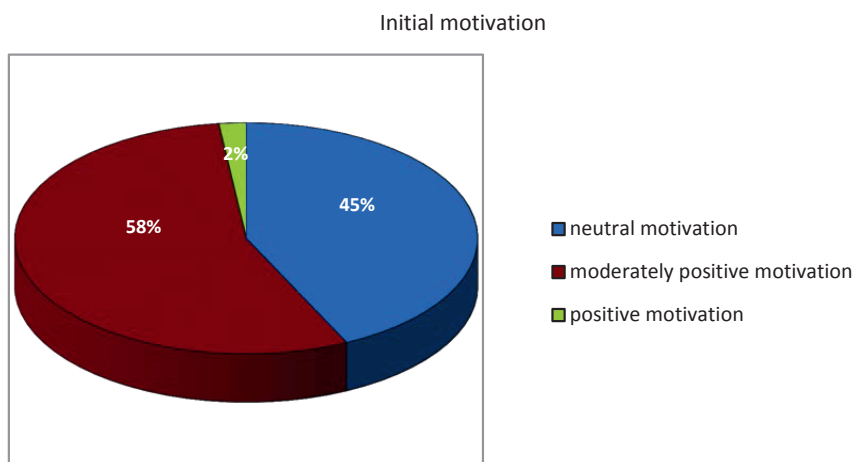


Fig. 4. Percentage presentation of final motivation for learning about health issues in the experimental groups

The research indicated that 57% students of class IId presented moderately positive motivation, whereas 7% of them were characterised by positive motivation. Only 36% of students from class IId present neutral motivation. Students from class IId were characterised by moderately positive motivation 1 pp /percentage point/ higher than students from class IId and positive motivation 3pp lower than the former group. Exactly 38% of students from class IId presented neutral motivation.

Comparison of motivation levels



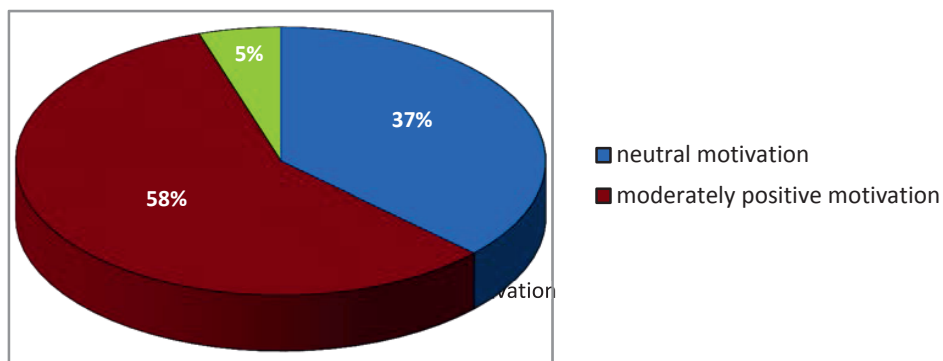


Fig. 5. Comparison of levels of initial and final motivation among secondary students taking part in the research

The comparison of initial and final motivation among students participating in the research allows for stating that after the series of classes on the use and prevention of stimulants and cigarettes the positive motivation rose by 3pp, whereas moderately positive motivation rose from 53% to 58%. The initial research, as well as the final research, did not record either negative motivation or moderately negative motivation. By comparing the average results of students' motivation one can note that students of class IIc, which has a Biology-Chemistry profile, are characterised by a lower motivation to learn about health risks and psychoactive substances than students from class IId (Humanities profile).

Acceptance indicator for particular statements

The level of acceptance indicators for final motivation differs from that for initial motivation except for one statement (no. 14), which pertains to the fact that *learning about human behaviour under the influence of stimulants will show the risks relating to hygiene and personal culture*. The indicator was the same in both cases and came to 3.750. The highest acceptance indicator was recorded for the statement number 7 reading that *everyone should know the structure of their body and how psychoactive substances influence their health* (4.650 – initial motivation; 4.750 – final motivation), and number 26 pertaining to the *influence of alcohol and its consequences for the process of thinking* (4.583 – initial motivation; 4.675 – final motivation).

High acceptance indicators were also recorded for questionnaire items relating to *behaviour under the influence of alcohol (in the context of changes in the brain)* – number 12 (4.150 – initial motivation; 4.125 – final motivation); and the statement relating to *the prevention of addictions* (no. 22 – 4.500; 4.225).

In the case of thirteen statements the acceptance indicator in the final research was lower than the indicators recorded in the initial research. For the remaining statements the acceptance indicators in the final research were higher than the

values of indicators in the initial research. Therefore half of the statements experienced rise in the level of acceptance with respect to the initial motivation.

The lowest acceptance indicators in the research into initial motivation were recorded for sentence number 4 (*information about the influence of alcohol, drugs and nicotine on human body is not particularly useful* – 1.813) and number 21 (*I do not put much value on good marks in Biology* – 1.838).

Low indicators were recorded also for sentences:

- I am interested in issues concerning alcoholism, nicotinism and drug addiction because they relate closely to my life – (2.569);
- One should not start learning Biology at school from learning about all types of stimulants – (2.841);
- The average person is not interested in problems relating to alcoholism, nicotinism and drug addiction – (2.558);
- Learning Biology is boring and tiring – (2.659).

The highest acceptance indicator (both in initial research and final research) was recorded for the sentences:

- Everyone should know the structure of their body and how psychoactive substances influence their health – 4.577; 4.242;
- In my opinion, in order to prevent illnesses one requires knowledge about them, knowledge about routes of infection, and common sense – 4.500; 4.239;
- An addiction is a disease very difficult to treat because it relates to mental, physical and social spheres – 4.533; 4.527;
- The higher the concentration of alcohol in blood, the more serious the consequences for the process of thinking and acting – 4.648; 4.497.

Conclusion

Contemporary young generation is exposed to a great extent to contacts with psychoactive substances, which might result in health and social problems. An increasing number of teenagers are suffering from lack of social adaptation, which shows in the consumption of alcohol and use of stimulants. It is proved, among others, by the results of the material research which point to weak motivation of students to learn about health risks caused by stimulants. Prevention of misadaptation in social life among young people has become a very important issue, almost a necessity. Young people, whose psyche has not been moulded yet, should receive help in understanding themselves, their behaviour and the surrounding world. Therefore it is vital to focalize activities aimed at prevention of addictions among teenagers. The above is supported by pedagogical factors pertaining to education and development of young people, as well as by factors concerning health and life quality. Proper motivation to learn leads to the creation of appropriate internal conditions. As a result, students start perceiving learning as important, and conditions for the development of important life skills are formed accordingly (Woynarowska 2002).

The research into upper secondary school students' motivation to broaden their knowledge about addictions applied the three-tier structure of "health literacy" according to Nutbeam (2000) and encompassed the first level – "basic/functional literacy". Particular emphasis was put on the role of the teacher – health educator – which mainly involved appropriate presentation, organization and transmission of information about risk factors, informing students about sources of reliable information on the material issue and health system, as well as giving them precise advice as to positive behaviours. The realisation and effectiveness of the educational process are to a great extent dependent on the teacher's personality, the style of their teaching, the organization of the teaching process, as well as on the quality of the teacher – student communication (Jędrzejczyk 2007).

The research was aimed particularly at the creation of basic life skills among students, as well as presenting them the ability of influencing their social and economic environment and material factors determining health. The final motivation to learn about issues concerning health risks rose slightly in comparison to initial motivation. The research did not record either negative or moderately negative motivation, which indicated a little growth of interest in learning about issues concerning alcoholism, nicotinitism, and drug addiction. The research also indicated that students possess only some ability to analyze information critically, which is an indispensable element in making decisions about health. Therefore comprehensive education of young people with regard to health literacy is required, in particular at the level of critical literacy. For the effectiveness of educational actions it is necessary to develop students' life skills, particularly in the context of risk situations; create safe environment conducive to the improvement of skills; as well as use such teaching and learning methods that enable students to practice their skills in various situations (also with an increased level of difficulty and risk), enable observation of the behaviour of others and allow for transmission of information concerning health. In the educational process it is also important to account for the development and individual features of the particular students, as well as for individual characteristics of the teacher, which to a great extent influence the communication and, as a result, the quality of the teacher-student relation and the level of motivation among students. It is therefore so important for teachers to constantly develop their teaching and professional skills so as to be able to motivate students to learning.

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Motivating secondary school students to raising the level of health literacy

Abstract

Recent decades have brought many changes in the concepts and implementation of health education. Contemporary health education of children and teenagers accounts for all aspects of health (physical, psychic and social health) as well as for their conditioning factors. One of the main challenges of the twenty-first century public health is the promotion of 'health literacy'.

The article presents changes that have been taking place in health education in Polish schools in recent years. It will also focus on the position and status of health education after the latest curriculum reform (Ministry of National Education 2009). The new core curriculum significantly increases the status of health education making it an important objective for the schools and the teachers.

The aim of the research conducted in year 2011/2012 was to investigate the level of motivation of secondary school students to learn aspects connected with health, as well as to measure their level of awareness and health literacy after a series of classes devoted to preventing the use of stimulants and psychoactive substances. The outcomes of documents analysis were researched by means qualitative approach, and the results of the applied pedagogical experiment were analyzed statistically. Students' motivation was measured by a survey, in accordance with the assumptions of Likert scale (Brzezinski, 2006).

The initial motivation and final motivation after the experiment were measured among 153 students from five grade 2 classes of the upper secondary school. After the experiment, a test research was applied to investigate the level of comprehension of issues connected with maintaining good health. The comparison of initial and final motivation of students participating in the research indicated that after the series of preventive classes their levels of positive motivation, as well as moderately positive motivation, have risen.

The research indicated that the main aim of health education classes should be the continuous motivation of young people to undertake pro-health activities and avoid health risks. It is important to draw teenagers' attention to the interlinks between their behaviour (in particular actions which put health at risk) and the regularities resulting from their development, and to make them aware about the necessity to lead a healthy lifestyle adjusted to their age.

Key words: "health literacy", curricula, students' motivation

Alicja Walosik

Department of Science Education, Communication and Mediation
Pedagogical University of Cracow