



Creating and using nutrition education program as example of developing proper eating habits among children

Tworzenie i wykorzystanie programu edukacji żywieniowej
jako przykład kształtowania prawidłowych nawyków żywieniowych wśród dzieci

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ABSTRACT

Health education, including nutrition education, is defined as a process which is aimed at teaching a proper lifestyle, maintaining good health, strengthening it and creating an environment which would be beneficial to physical and mental health. Properly planned and conducted education brings both health and economic benefits and is a long-term investment in the health of the population. Providing education is especially needed among the youngest children, beginning from children at the preschool age. Forming proper eating behaviors from the earliest age of a child may prevent the development of diseases in older age, for example overweight and obesity, accompanying diseases such as diabetes, atherosclerosis or malignancies. Thus, it is necessary to implement educational programs which supplement preschool education and school health education. A response to the needs of the population was the creation and implementation of the authors' own educational program "Children's Academy of Culinary Art", whose aim was to increase children's interest in proper nutrition and form proper eating habits which will improve health in future. The program consisted of a technological module which included practical classes in technological workshops and an educational one which consisted of theoretical and practical parts. The huge success of both editions of the program convinced the authors of the necessity and importance of further actions connected with nutrition education.

KEY WORDS

children, nutrition education, educational program

Received: 02.10.2016

Revised: 22.11.2016

Accepted: 08.10.2017

Published online: 14.09.2018

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**ABSTRACT**

Edukację zdrowotną, w tym także żywieniową, definiuje się jako proces służący nauce sposobu życia, mający na celu zachowanie zdrowia oraz wzmacnianie go, a także tworzenie środowiska sprzyjającego zachowaniu dobrostanu fizycznego i psychicznego. Prawidłowo zaplanowana oraz przeprowadzona edukacja niesie za sobą zarówno efekty zdrowotne, jak i ekonomiczne, ponadto stanowi długofalową inwestycję w zdrowie populacji. Edukacja potrzebna jest szczególnie w najmłodszej grupie wiekowej, począwszy od dzieci w wieku przedszkolnym. Kształtowanie prawidłowych zachowań żywieniowych już od najmłodszych lat życia dziecka może zapobiec rozwojowi w starszym wieku m.in. nadwagi oraz otyłości, jak również chorób towarzyszących, takich jak cukrzyca, miażdżyca czy nowotwory. Konieczne staje się zatem realizowanie programów edukacyjnych, uzupełniających przedszkolną oraz szkolną edukację zdrowotną. Odpowiedzią na potrzeby populacyjne było stworzenie i przeprowadzenie autorskiego programu edukacyjnego „Dziecięca Akademia Sztuki Kulinarnej”, który miał na celu zwiększenie zainteresowania dzieci tematyką prawidłowego odżywiania oraz wykształcenie prawidłowych nawyków żywieniowych, mających w przyszłości wpłynąć na poprawę ich zdrowia. Program składał się z modułu technologicznego, uwzględniającego zajęcia praktyczne w pracowniach technologicznych, oraz edukacyjnego, który obejmował część teoretyczną i ćwiczeniową. Duży sukces obu edycji programu utwierdził Autorów w przekonaniu o konieczności i istotności prowadzenia dalszych działań związanych z edukacją żywieniową.

SŁOWA KLUCZOWE

dzieci, edukacja żywieniowa, program edukacyjny

I. Health education*Nutrition education as an element of health education*

Health education, including nutrition education has been defined in various ways. A definition which was proposed by Woynarowska et al. [1] presents education as a process which teaches people how to live to maintain good health and how to strengthen it and also how to create an environment which fosters physical and mental well-being. Education should teach how to deal with illness, disability and how to minimize the effects of such a state [1]. According to the program assumptions, the aim of the education is to form proper habits which are directly and indirectly connected with health protection and correction of present behaviors [2]. The effects of properly planned and conducted education have not only health but also economic advantages. It is a long-term investment in the health of the population [1,2]. Conducting education is especially needed among the youngest children, beginning from children at the preschool age. Creating proper nutrition behaviors from the early age of a child may prevent among others overweight, and diseases connected with it such as diabetes, atherosclerosis or neoplasms in adulthood [3].

Education is not a child's obligation but a privilege [1]. It should be carried out in many areas of life both by the closest environment – parents, grandparents and also by school and even media. Education carried out by schools should be coordinated by principals and realized by teachers in cooperation with parents, school employees, and also if it is possible, by the local community [4].

It is worth recalling that health education is guaranteed under the Act on Education of 7th September 1991

according to which school cares for a pupil and creates development conditions via active prohealth campaigns [4]. As a result, the core curriculum is planned in a way that a primary school graduate knows and uses the rules of rational nutrition and does physical activities suitable for him. Primary school should be aware of the relation between nutrition habits, physical activity and the state of one's own health [1,4]. The present research shows that education conducted in such a way is neither sufficient nor effective. There are a few reasons for this. One of them is the pupils' little interest in health issues. Another problem is the fact that teachers who are responsible for these activities do not spend a sufficient amount of time on this issue or they treat it superficially. As a result, it is necessary to train educators, initiators or leaders in the scope of widely understood health education, including nutrition education, who will be engaged in working with children and youth and will provide professional knowledge of health promotion and protection. It is necessary to create and conduct educational programs which support school and family activities, both nationally and locally [5].

II. Methodology of creating educational program

Health education should be designed in a way which would help to understand the reasons for nutrition behaviors that have an impact on the proper development and state of health in a long perspective of life [6,7,8,9]. The educational program should be multi-layered and conducted at each level of education [10]. Figure 1 shows the scheme of creating such an educational program [11].

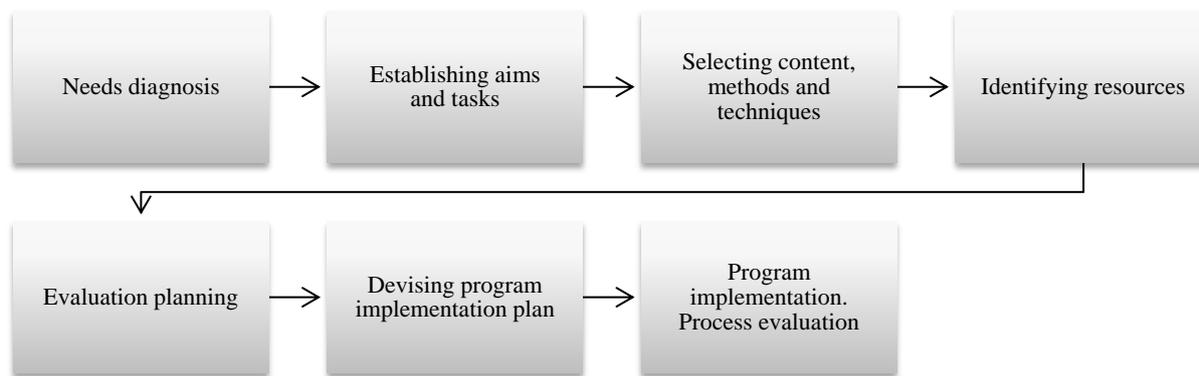


Fig. 1. Scheme of planning educational program (authors' own elaboration on basis of Woynarowska's research [11].

Ryc. 1. Schemat planowania programu edukacji żywieniowej (opracowanie własne na podstawie: Woynarowska [11]).

Table I. Process of planning educational program (author's own elaboration on basis of Woynarowska's research [11])

Tabela I. Proces planowania programu edukacji zdrowotnej (opracowanie własne na podstawie: Woynarowska [11])

Question	Further planning steps
1. What do we want to achieve?	Establish needs → select priorities → specify detailed aims and tasks
2. What are we going to do?	Choose the best way (task) to achieve the aim (among available resources) → identify resources → establish who, how and when will realize the program
3. How will we check if we achieved success?	Plan the process and results evaluation

Needs diagnosis

Needs diagnosis should be carried out at the first stage of planning the educational program both for organized groups and for individuals. It needs to be carried out because of the significant differentiation of needs in specific groups. Proper diagnosis of needs creates greater interest in nutrition issues and increases the motivation for active participation in the program [12,13]. One of the main elements of diagnosis is to collect information about the needs and problems of people who will take part in the program. It can be obtained by conducting one's own research (surveys, conducting interviews) or by using available databases, depending on the realized scenario [14]. There is a possibility that new needs may arise among the participants, thus one needs to verify their status during the whole program. Fulfilling all the needs reported by the participants is not possible, thus the authors of the program should establish priority issues [12]. Making any mistake while conducting the diagnosis may result in accumulating mistakes during the whole educational program [13].

Establishing aims and tasks

Specifying the educational activity direction facilitates formulating the aims of the educational program. Proper realization of this stage should be based on rules regarding compliance with the diagnosed needs of the participants, the possibility of achieving the aim and measurability achieved by evaluation. To establish the aims of the educational program, one needs to distinguish the main aim and the specific aims (cognitive, behavioral and affective) [12]. The main aim has to result directly from the diagnosed needs and the participants' problems. It cannot be formulated too widely or too narrowly. Moreover, the detailed aims are a collection of fragmental aims which are necessary to attain the main goal [15].

Each well-designed aim should be created on the basis of the SMART rule, hence it should be: S (specific); M (measurable); A (achievable); R (relevant); T (time bound) [16].

Specifying the proper aims of health education enables one to choose the applied methods and techniques of its realization [12].

Choice of content, methods and techniques

Proper choice of the content, methods and educational techniques depends on the needs and the ability to absorb knowledge by the recipients and also on the sociodemographic factors as well as organizational possibilities [12].

By the method we mean an intentionally and consistently used way of behavior to obtain the desired goal. With reference to teaching, a method is a way of working with recipients systematically used by a teacher, thanks to which it is possible to achieve the educational targets. The methods of teaching under-



stood in this way focus attention on the aim which should be achieved. Choosing a proper method of teaching depends as a result on the expected effect [17]. The aim of education should not be the only criterion of choice. The methods, techniques and above all the content should be adjusted to the predispositions and skills of individual pupils [18]. It is essential to use various methods and teaching techniques in order to make nutrition education effective. Among them there are methods based on verbal communication such as a prelection, lecture or a short talk [6,11]. The essence of these methods is to communicate ready-made information which significantly limits students' participation in the process of teaching [11,17]. Activating methods are most currently used nowadays [6]. Their characteristic feature is to enable students to actively take part in fulfilling tasks which increases motivation and enhances autonomy of thinking [17]. Activating methods include among others: projects, working in small groups, simulations, brainstorming, role-playing, unfinished sentences, drama, the "draw and write" technique, directed discussion, individual and team games [6,19,20]. Activating methods are especially needed in teaching children's at the early stages of education. This results from the fact that the main form of children's activity at that age is fun, which is begun in a random way in various circumstances. Using activating methods enables to the teacher to combine education and fun, increasing the attractiveness of the teaching process and its effectiveness [20,21]. In the next stages of education, the child, apart from fun, develops new forms of activity such as learning and work. The pupil masters the skills of perception, understanding, analyzing, recalling and remembering, thanks to which he can commence making some plans. Mastering the skills of controlling and managing one's own activity makes the child a conscious participant of the educational process and thus in these stages, activating methods should play a basic role [22].

The advantage of activating methods results from the variety and number of simultaneously used senses and learning styles by the child. It is reflected in the percentage of remembered material presented via different methods of teaching and types of activity, which is shown in Figure 2 [18]. Teaching is more effective when children use their knowledge in practice and they use more senses or more learning styles. Despite the lower effectiveness of learning based on the verbal message, it should be also used, preferably preceded by activating methods. Using a larger number of va-

rious activating methods enables students to obtain knowledge quicker and more effectively [18].

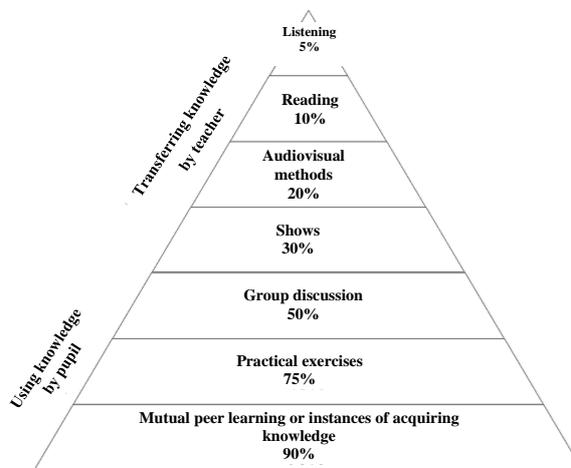


Fig. 2. Pyramid of learning (own elaboration based on Hłobił [18]).

Ryc. 2. Piramida uczenia się (opracowanie własne na podstawie: Hłobił [18]).

Identifying resources

The detailed aims specified earlier condition the need to use specific resources which can be divided into human, material and time. Human resources include authors, program facilitators and people belonging to the student's closest environment. Material resources include didactic tools used during education and general conditions in which the classes take place [12]. The choice of enumerated resources strictly depends on the commencement level, desired effects, methods and the way of evaluating the program [16].

Planning the evaluation

The next element of planning the educational program is to devise an evaluation method. The participants, implementers of the program and internal subjects who are connected with the program are subjected to evaluation. Assessment may be performed by the implementers of the program by carrying out self-evaluation or internal evaluation and also by people not participating in the program (external evaluators), for instance experts [16].

The process and outcomes should be evaluated separately. Evaluation of the process enables one to perform possible corrections in the educational process and evaluation of the results summarizes the stage of realization of the program goals which had been set



earlier as well as determines if the program should be continued in its present form [12,16].

Devising program implementation plan

Designing the execution of the program is a multistage process whose base should be the above mentioned points. An indispensable element of carrying out the program is to create a few variations of class scenarios which should enable realization of the earlier adopted main and specific goals [11].

Program implementation. Process evaluation

Implementation of the authorial nutrition educational program is described in Section IV.

III. Selected educational programs realized in Poland

Over the last 20 years many different educational programs have been carried out in Polish schools. They supplemented health education conducted in schools in the scope of core curricula. The most famous include: “School Promoting Health”, “Poland for kids”, “Milk at school”, “Fruit at school” or “Keep fit!” [3,23].

The health program “School Promoting Health” has been realized in Poland since 1991. Later, it was developed within the European Network of Schools Promoting Health (ENoSPH) which was created in 1992 and later developed into the European Network of Schools for Health in Europe – SHE [4,24]. Its basic aim was to create a healthy lifestyle among schoolchildren so that in the future there would be a lower incidence non-infectious chronic diseases [25]. Evaluation of this venture revealed positive changes in all the conducted ranges [26].

Another program realized in our country was the National Action Plan for the Sake of Children 2004–2012 “Poland for Kids”. It comprised aims and directions in four scopes: promoting a healthy lifestyle, providing a proper quality of education, helping and supporting families, as well as protection against molestation, abuse and violence. The area of promoting a healthy lifestyle embraced the development of social awareness and skills of undertaking actions for the sake of health in general. The suggested actions were based on implementing educational programs in kindergartens and schools, creating a wide-range offer of after-school and out-of-school classes and promoting pro-health behaviors in media [26,27].

There is also another very popular program introduced in 2004, “Milk in school”, whose aim is to form proper eating habits among children and youth by promoting the consumption of milk, dairy products, including cheese, cottage cheese and yoghurts. The pro-

gram was introduced by the Agricultural Market Agency and it is financed from European Union funds [28].

Another country-wide educational program was the “Keep fit!” program organized by the Main Sanitary Inspectorate and the Polish Federation of Food Industry Union of Employers. It realizes strategies concerning diet, physical activity and health. The aim of the program is education conducted in such a way that via the promotion of an active lifestyle and balanced diet based on individual responsibility and man’s freedom of choice, pro-health habits in the young generation can be permanently shaped. This program is intended both for schoolchildren of state and private schools, secondary schools and primary schools (year 5th and 6th). Schools enrolled in the program obtain free didactic materials, for example guidebooks, brochures for students and leaflets for parents. There is also an educational Internet website www.trzymajforme.pl. During realization of the program the activity of schoolchildren is advised on all its stages. Schoolchildren together with a teacher decide on, suggest and prepare the topics and aims of the project, next they plan the work, design the schedule and present the results. The results of the observation of the “Keep fit!” program show an improvement in shaping proper behavior habits. 72% of the program participants after being educated declare daily consumption of breakfast and exhibit a much higher level of physical activity and also higher attendance in Physical Education classes at school. These students also more often eat fruit and sandwiches with vegetables and drink mineral water for the second breakfast [29,30,31].

The program “Fruit at school” is on the other hand directed at students from the 1st to 3rd classes of primary school. Its main aim is to change the eating habits by increasing the amount of fruit and vegetables in the everyday food ratio and promoting healthy nutrition through additional educational activities. The program is realized by the Agricultural Market Agency and is financed from the European Union and state budgets. Fruit and vegetables are given to children twice or three times a week. Each pupil receives a portion consisting of one fruit and one vegetable produce. They are most frequently apples, pears, strawberries, blueberries, carrots, sweet pepper, red radish, tomatoes, kohlrabi, as well as fruit and vegetable juice. Additionally, children take part in many information campaigns, during which they learn about the advantages of vegetable and fruit consumption. Furthermore, schools which participate in the program are encouraged to educate in the scope of proper nutrition [32].

The results of the analysis carried out by Goluch-Koniuszy et al. [33] show the effectiveness of education among this group of people. The authors evaluated the nutritional habits, state of nutrition and pro-



-health nutrition education among youth during the pubertal growth spurt. According to the survey, 3 months after completing nutrition education, pupils introduced changes in their nutritional habits: they eat breakfast, snacks, whole-wheat bread, fruit and vegetables, and they cut down on sweets and high calorie products [33]. The presented example shows that nutrition education is needed and brings positive results.

Campaigns of a broadly defined health education should be carried out in the school, local, regional and nation-wide scope. Apart from national and local educational programs there should be one-time or periodical campaigns organized by properly qualified educators in educational institutions, clinics or during festivals.

IV. Implementation of authors' own nutrition education program – “Children's Academy of Culinary Art”

The educational program “Children's Academy of Culinary Art” is a project which was twice realized by the Students' Scientific Circle of Young Educators at the Department of Human Nutrition, Faculty of Dietetics, Medical University of Silesia in Katowice with lecturers and Association of Polish Academy of Culinary Arts. Its main aim was to increase children's interest in proper nutrition and to form proper eating habits which will improve health in the future. The addressees of the program were children at preschool age who attended selected kindergartens in Zabrze and Bytom. The program consisted of two modules: a technological module which included practical classes in technological workshops and educational one which comprised theoretical and practical parts. During the technological module children together with cooks and students prepared meals. Children learnt among others how to prepare sandwiches with pastes, canapés, pancakes or salads (Photo 1). After cooking the children were able to taste what they had earlier prepared.



Photo 1. Preparation of healthy meals with chefs and educators.
Fot. 1. Przygotowanie zdrowych posiłków razem z kucharzami i edukatorami.

Then, students from the Students' Scientific Circle of Young Educators carried out a nutrition education program. In order to achieve the earlier set goals, activi-

ties aimed at children's cognitive development were used (comprising what children should learn, get to know and understand), shaping or changing (in the case they are improper) attitudes, beliefs, opinions and also teaching practical skills by developing interpersonal skills. At the beginning the children were presented the rules of rational nutrition. This action was supported by a multimedia presentation, selecting its content and form according to the characteristics of the audience. Then, in groups the children, under the supervision of educators, did practical exercises. Some tasks included: creating a paper plate which showed a “healthy and tasty” breakfast, coloring pictures which showed healthy and unhealthy products (Photo 2).



Photo 2. Children's team work during educational tasks.
Fot. 2. Praca dzieci w grupach przy zadaniach edukacyjnych.

Moreover, after a short multimedia presentation, the children gave an answer to the following questions: “How many meals should one eat during the day?”, “What kind of bread should we eat most often?”, “At what time should we eat supper?”, “What should one drink if he feels thirsty?”, or “Which yoghurt is the healthiest for our organism?” The next task was to listen to a poem on whose basis the children with the help of a green and red board showed if the sentences read by the lecturer were true or false (Table II). This task was part of an earlier planned evaluation.

Table II. Sentences concerning proper nutrition read to children after the poem
Tabela II. Zdania odczytywane dzieciom po przeczytaniu wiersza dotyczącego prawidłowego żywienia

1. One should eat a lot of fruit and vegetables.
2. We wash fruit and vegetables before eating.
3. We eat meals with dirty hands.
4. Food should be eaten in a friendly atmosphere.
5. One should not eat too much before going to sleep.
6. Food should be swallowed as a whole.
7. It is enough to eat one meal during the day.
8. One should drink milk and eat dairy products every day.
9. Fruit and vegetables are a rich source of vitamins.
10. Sweets have a positive influence on the appearance of our teeth.
11. Hamburgers are unhealthy.
12. Drinks such as coca-cola have a lot of sugar which has a bad influence on our teeth.



The final element of the program was listening to and learning an educational song, learning a dance arrangement, singing and dancing together (Photo 3). At the end of the program there was a summary of the classes and after that the children got souvenir diplomas (Photo 4 and 5).



Photo 3. Learning a dance arrangement, singing and dancing together.
Fot. 3. Nauka układu tanecznego, wspólne śpiewanie i taniec.



Photo 4. Participants of "Children's Academy of Culinary Art" educational workshops and educators.
Fot. 4. Uczestnicy warsztatów edukacyjnych „Dziecięcej Akademii Sztuki Kulinarnej” oraz edukatorzy.

classes schoolchildren expanded their competencies in the scope of proper nutrition which is an essential step in the direction of preventing nutrition-dependent diseases. Thereby, educators together with lecturers, noticing the need to undertake further actions, organized another Students' Scientific Circle of Young Educators at the Department of Technology and Evaluation of Nutrition Quality, whose aim is to organize culinary-educational workshops together with the Students' Scientific Circle of Young Educators. The effects of the undertaken actions resulted in the initiation of other programs targeted at children and youth, among them these two are worth mentioning: "Colorful means healthy" and "Healthy and in a Silesian way".



Photo 5. Participants of "Children's Academy of Culinary Art" educational workshops with chefs.
Fot. 5. Uczestnicy warsztatów edukacyjnych „Dziecięcej Akademii Sztuki Kulinarnej” z kucharzami.

ACKNOWLEDGEMENTS

Both editions of the "Children's Academy of Culinary Art" were successful. As a result of the conducted

Thank you Mrs. Agnieszka Bialek-Dratwa for the photos.

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