

EDUCATION FOR HEALTHY EATING IN THE ACTUAL CURRICULAR CONTEXT - A CASE STUDY

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Abstract. *A healthy diet is the easiest way to protect the individual's health, having a series of benefits which starts from ensuring the whole needed palette of nutrients for the body and ends with relieving the symptoms of diseases, such as diabetes or hypertension. In this respect, it is important to train the children to eat healthy foods, the schools playing a very important role in the education and promotion of healthy eating among young students.*

One of the projects - coordinated by Valahia University Targoviste - that proposed training activities for teachers and learning activities for students, having as central target developing healthy and sustainable habits which must be acquired by young students related to healthy eating, is the Erasmus+ project entitled: "EduForHealth - Let's make it better! Raising the awareness of the triad nutrition – health - food safety in school education". In the frame of the abovementioned project, an accredited continuous professional development program was organized, being oriented on topics (learning units) concerning Food Science, divided so that - on the one hand - to provide to learners, regardless of their level of education, an extensive coverage of the area, and - on the other hand -, to fulfill the teachers' expectation and needs, as it was concluded during the first project activity focused on analyzing the curricula related to Nutrition, Health and Food Safety. The activities were designed from theoretical and practical point of view, having in mind that the experiential learning is meaningful, and, at the same time, there can be developed long time skills for the actors involved in the educational process.

The paper underlines the results of a case study designed to identify the conditions that influenced the implementation of the learning units in the classroom, taking into account both educational levels: primary and secondary.

Keywords: *Healthy eating; nutrition; education for health; learning units; EduForHealth project.*

1. INTRODUCTION

In the last years, the educators are required to place more emphasis on *Food Science Education*. Integrating *Nutrition*, *Food Safety* and related subjects into Science curricula,

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using hands-on food-based activities may strengthen the students' understanding of scientific concepts [1]. In this respect, both children and adults are eager to understand the science behind food and nutrition [2]. As result of that trend, the educators seek guidance from specialists in *Food Science* and *Educational Science*, in order to be able to develop specific curricula and to provide to students accurate scientific information related to food. Those professionals must to share their expertise with educators, in order to design the students' training process for applying food and nutrition science in the context of *healthy living* [3].

Taking into account those considerations, it is necessary to provide amendments to the actual curricula, by including sections dedicated to *Food Science Education*, under the umbrella of a discipline like *Education for Health*. Even the Romanian president mentioned that "*Education for Health*, introduced in the formal education system, represents a major opportunity. It is a first way for children to find correct information about different aspects of health in the starting moments of gathering of their attitudes and skills, that will have effects on their health during the whole life. In time, a preventive behavior is formed, the impact being greater when it begins at an early age. The school has a recognized moral authority and therefore the health education provided in the formal education system acquires a special individual and social recognition" [4].

As known, the curriculum development represents a process that organizes, in a systematic manner, planned learning experiences. This is possible by defining and connecting the following important elements: *content*, *teaching and learning strategies*, *assessment*, and *evaluation* [5]. But *competency-based education* has become increasingly popular on guiding the development of a curriculum [6], including the one dedicated to *Education for Health*, in order to make individuals to achieve the wellbeing status in their own life, through defined learning experiences, based on skills, attitudes and practical knowledge. For educators, the development of the students' competences represents a challenge [7], recent studies being conducted to identify their learning styles with the aim to actively participate into curriculum design.

2. PROBLEM STATEMENT

According to the theory of the experiential learning [8], "*learning must to be seen from the perspective of the adaptation process of the individual to the environment*", the individual acquiring knowledge through assimilation and accommodation. Kolb sustains that: "*learning is a determinant of the development and moreover it is essential for the individual and organizational effectiveness. Experiential learning is based on the individual experience. Experiential learning appears as a response to learning based on memorization and reproduction of information*" [9]. It is needed to make a clear distinction between *experiential learning* and *experiential education*. The philosophy of the experiential learning draws attention to aspects linked to the individual learning. The experiential education is concentrated on the aspects related to the aim and the objectives of education, relationship between teacher and student, teaching resources used in the frame of the learning process, learning motivation. Kolb considers that, in order to take place a learning process, a student must: to wish to play an active role within the experience; to be able to reflect on the experience; to have and to use analytics abilities for conceptualization of the experience; to have decisional abilities also for solving problems, in order to be able to use the new ideas acquired from the experience. This model can determine changes in the judgment on the subject of learning, feelings or attitudes in relationship with the experimented topic, can influences the decision making in relationship with the reality. In the frame of this learning

model, an important role is held by the action of stimulating and encouraging the student to be concretely involved within the reality, that represents the subject of the experience, and to reflect on its results. In this way, the acquired knowledge is thoroughly assimilated and is long-lasting too. The process of learning is made going through the following steps [10]:

- *Reflexive observation* - indicates an impartial and reflexive approach of learning. The students with this style of learning rely on careful observation of the reality and reflexive thinking. They agree on learning situations based on narratives, lectures, and stories. In this stage, the students assume the role of objective and neutral observer.

- *Abstract conceptualization* - indicates an analytical and conceptual approach of learning, based on the logical reasoning. In the learning process, the students focus on the object of learning.

- *Active experimentation* - indicates an active approach of learning, action-oriented, based on experimentation. The students learn best when they are engaged in activities such as: projects, homework or discussions in small groups.

- *Concrete experience* - which is based on the orientation of the learning process on the individual - each student is treated as a unique person that succeeds to learn from specific examples. The student capitalizes to the maximum the discussions and reactions of those around.

In the frame of the learning process based on the exploitation of the Kolb's model, the didactic design for a discipline like *Education for Health* can be described proposing the following steps: (a) *Motivation* to carry out the activity; (b) *Experience of learning* (intuition / perception / discovery of information - training in practical/concrete form); (c) *Reflection and analysis of experience*; (d) *Conceptualization* of experience / abstracting; (e) *Practical training* / validation or improvement of the conceptualized model.

Each step of the didactic design has elements of specificity, but is not delimited from the model of learning based on concrete experience. Thus, in the stage related to the motivation to carry out the activity, the teacher must take into account the *impulse of students' self-affirmation*, in order to get a maximum level of their motivation to participate actively in the lesson. In this case, particular strategies can be suggested: the teacher raises the interest of the students towards the lesson by introducing them into the subject, on the basis of questioning in relation to a life situation that represents the subject of learning (*Who? How? In what way? Why?*). The model of the experiential learning is explained in the context of the constructivist paradigm - according to Piaget and Bruner, "*the learners build their own knowledge through experience, but not through given information*" [11, 12, 13], "*the experience in educational activities representing an important force that guides the development of genuine concepts*" [14, 15, 16].

The abovementioned pedagogical model stays at the basis of the *learning units* designing, proposed for disseminating the core-problems of *Education for Healthy Eating* - an important part of *Education for Health*. The demarche was considered appropriate because it facilitates the formation and development of healthy living habits, sustainable attitudes and behaviours, in the context of a learning based on active reflection and selection of the factors that influence the healthy eating. The active participation of the students through observation, active and concrete experimentation, in relationship with the object of learning, mediates the learning for the rest of their life. In this case, the experiential pedagogy requires the use of different methods of learning (learning through discovery, problem-based learning, project-based learning, case study, experiment, participatory observation, brainstorming, digital storytelling, role playing) [17]. Taking into account those methods, there were designed lessons proposed for the primary and secondary level of education, in the frame of the accredited training program entitled *Modern Approaches in Education for Health* (OMENCS 5990/16.12.2015). The training modules were implemented by teachers in schools from rural

and urban area of Romania. Ten *learning units* were developed, as follows [18]: “*The basic composition of foods*”, “*The role of nutrients for the human body function and on the human health status*”, “*The biological active compounds of foods and their implication in health*”, “*The risks of chemical substances in food consumption*”, “*The biological risks in food consumption*”, “*Chemical and biological risks and their prevention*”, “*Food label - how to understand and use it*”, “*The concept of RDA - Recommended Dietary Allowance*”, “*Health Logos*”, “*Food Hygiene*”.

At the primary level, the formation and development of the following specific competencies were taken into account: to use the proper strategy and tools required to support a healthy eating behaviour; to intervene effectively in the case of health problems; to identify the factors that influence physical and mental development of the individuals (like diet, dietary behaviours of modern people, food additives etc.); to develop strategies supporting a healthy, balanced eating and lifestyle; to recognise healthy and risky behaviours, to correctly use the notions about a balanced diet, body function and health status; to properly use the hygiene norms and rules; to identify types of diseases related to unbalanced / unhealthy diet and potential problems on health; to describe effects of healthy food, physical activities and repose on human body.

At the secondary level, there were targeted the following specific competences: to apply the rules of personal hygiene and environmental hygiene; to make responsible decisions in situations of health-threats; to engage learners in activities in order to prevent and control health risk factors; to assess the short- and long-term effects of exposure to health risks (like eating nutritional unbalanced diet); to support the students to express their own ideas in accordance with the principles of Health Education; to identify the strengths and weaknesses of their health status; to analyse the effects of inadequate health behaviours taking the age into consideration.

The didactic strategy followed the same design at both levels, with the mention that the used pedagogical methods and resources, respectively the manner of organizing the classroom, were different, depending on the level of students' education and the specific competencies to be acquired. The proposed stages of the lesson involved: (a) raising the motivation for the activity; (b) involving students in the learning process / learning experience (intuition / perception / discovery of the trained information - in a practical / concrete form); (c) reflecting on / analysing the experience; (d) conceptualising of the experience / abstractization; (e) performing practical applications / validating the conceptualised model / idea.

The following sections aim to identify the *factors* which affected the implementation of the learning units in classroom, taking into account both levels of education: primary and secondary.

3. RESEARCH QUESTIONS / AIMS OF THE RESEARCH

According to the aim of the research, the following specific objectives were established: identification of the learning units' frequency during the implementation process dedicated to *Education for Healthy Eating*; identification of the teachers' perception regarding the limits imposed by the implementation of some learning units at primary and secondary levels.

The *frequency of the learning units' implementation* was operationalised function the number of the classroom interventions, made by the teachers on a certain topic. The analysis

of the *didactic design limits* had in view the identification of the factors that sustained or blocked the achievement of the objectives of some learning units.

4. RESEARCH METHODS

The research made in the abovementioned context was designed as a *qualitative*-type one. The research method was basically relied on performing case studies on the teachers' portfolios, completed with the semi-structured interview. The analysed issues were: the group of the teachers who participated to the implementation of the learning units at primary and secondary levels and the teachers' portfolios designed in the frame of the training program. 64 portfolios were analysed, considering the recommended 10 learning units. All the teachers who participated to the training program and implemented the units in their own classrooms were also introduced in interviews - 42 teachers came from the urban area, while 22 from the rural one; 24 teachers were enrolled in primary education, while the rest were teachers in secondary education (lower and upper levels).

5. FINDINGS

By analysing the teachers' portfolios - in relation to their didactic activities -, it was noticed that not all the 10 learning units were implemented in classrooms (Fig. 1).

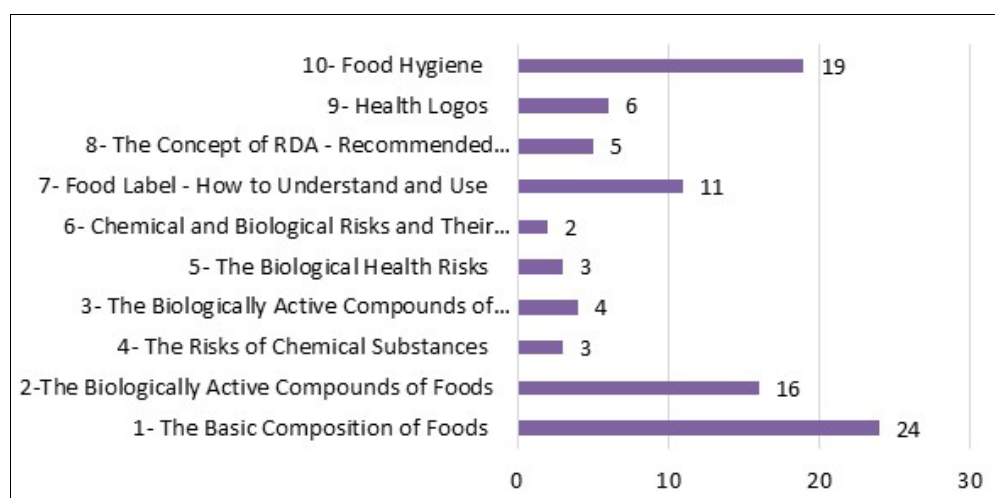


Figure 1. Distribution of the didactic projects implemented in classrooms.

From the analysis of the statistical data related to the learning units' implementation frequency, the value of the median is 5.50 (as resultant of the representative indicators of the eighth learning unit - "*The concept of RDA - Recommended Dietary Allowance*", and the indicator specific to the ninth learning unit - "*Health Logos*"). This indicates that, from the total number of 10 learning units, 6 of them are implemented by all the teachers from the target group, both at primary and secondary levels. According to recorded hierarchy related to the learning units' implementation frequency, a distribution is illustrated in Fig. 2.



Figure 2. The primary ranking of the didactic projects implemented in classrooms.

6. DISCUSSIONS

Analysing the data, it can be seen easily the teachers' availability to design lesson plans dedicated to "*Education for Healthy Eating*" topics, in most cases, for the modules linked to the aspects concerning the behaviour related to food in the everyday life. It is obvious that the teachers considered as very important the need to extend the students' knowledge concerning the food composition and how to recognize the main groups of food. The first topic ("*The basic composition of foods*") is appreciated as easy to be implemented in classroom, at each level. At the same time, the needed didactic resources are easily to be acquired.

Within the hierarchy of the topics, the next place is occupied by "*Food Hygiene*", which clearly demonstrates the recognition of the importance of that subject for the people wellbeing. This learning unit is implemented at all levels of education, from the perspective of the role of food hygiene on the human health. The teachers considered that the role of the didactic resources (educational videoclips, laboratory tools, different images and media in general) is essential on accomplishing the objectives of the "*Education for Healthy Eating*" lesson.

The topic "*Biological active compounds of food*" raised the interest of both teachers and students. It is considered that is important to correlate the presence of certain chemical constituents (e.g. vitamin C, dietary fibers, iron and antioxidants) in foods, with major impact on human health.

According to the teachers' opinions, reading and understanding the *food labels* is very important, although the related topic wasn't implemented in an extensive way. The given explanation is logic: at the primary level, the students cannot understand some aspects related to the chemical composition of foods. Only the traffic light system of labelling is considered useful in selection of the healthy foods. The colours code can represent an accessible language, both for primary level students and less trained people. The teachers considered that this topic can be implemented with parents in the frame of the lectures dedicated for parents and students together.

Concluding, it is observed that the training proposed for "*Education for Healthy Eating*" related topics was accomplished in the context in which the analysed ones are perceived by teachers as very important on developing learners' attitudes, behaviours and skills for a healthy life. Also, for the students from the primary level of education, the training of parents - together with their children - can be identified as a new perspective of approaching knowledge concerning *Education for Health*. It is also observed that the formation and development of specific competencies are ensured, in special, by a rigorous didactic strategy. As example, the concept of the didactic design highlights that the use of the virtual laboratories - digital stories and digital card games -, together with real direct experiences, raise the students' interest and stimulate their actively participation in lessons.

The didactic activity was organized in a frontal manner, involving all the children, in group activities, but also in individual activities. The teacher has the possibility to choose the proper strategy, according to classroom environment, number of children in the class, students' age etc. For pre-primary and early years of primary education, the frontal and group activities are recommended. The training techniques were evaluated as efficient, being strongly based on collaborative learning.

Related to the second group of topics, with a lower frequency of implementation in classrooms, the distribution is illustrated in Fig. 3.

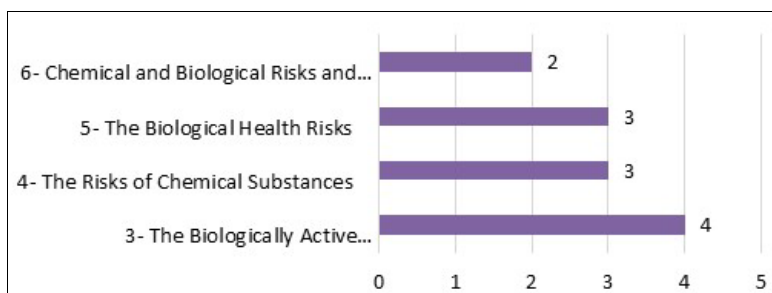


Figure 3. The secondary ranking of the didactic projects implemented in classrooms.

Analysing the topics belonging to the second group, it can be observed that those ones are focused on the biological and chemical risks associated to food consumption. In the frame of the training program, those topics are not even very easy to be operationalized, a complementary training process of the teachers being absolutely needed. The digital laboratories can sustain the training process in the abovementioned scope. The information to be delivered is pretty advanced (from the viewpoint of student' knowledge) at the initial moment of training. This makes some teachers to have restraints related to the students' background before the implementation of those topics. At the same time, it is considered that this kind of lessons are difficult to be implemented at the primary level of education, due to the students' particularities related to understanding of the proposed contents.

7. CONCLUSIONS

“Education for Healthy Eating” represents a group of topics absolutely necessary within the compulsory curriculum dedicated to *“Education for Health”* for pre-primary, primary and secondary levels of education. The early education towards this direction can diminish, on a long term, the worrying figures related to: infantile overweight, infantile obesity, morbid obesity, diseases associated with food deficiencies. The training process associated to the proposed topic compels the teachers to participate to continuous professional development programs, the correct understanding of the aspects related to nutrition and food safety being absolutely necessary. The access to the modern training resources successfully facilitates the didactic design and raises the students' interest towards the development of the skills for maintaining a healthy life, through a healthy diet.

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