

Nutrition sciences as part of school education on secondary level

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Abstract

Background: The following article focuses on nutrition related topics that had been implemented in the curricula of secondary level schools in Saxony, Germany, during their reorganisation. The overall aim was to make children and adolescents more sensitive to nutrition related topics in their daily lives. Thus, the lesson plans that have been created for the teachers will be introduced and a preview of further steps will be given.

Methods: For the subject economics-technology-household exemplary lesson plans within the framework of the Saxon curricula were created for secondary level schools from grades eight to ten. Furthermore, conceptions for project days and different kinds of courses were prepared for nutrition related topics. After the lesson plans were tested and three teachers were consulted, feedback from all of the subject teachers was obtained via interview for qualitative analysis. Fifty-two pupils were asked to answer a questionnaire. The responses according to the lessons were taken partially standardised and were evaluated.

Results: Teachers as well as pupils appreciated the complex lesson plans and materials on scientific basis. The consulted subject teachers emphasised that the lesson plans can be regarded as a fundamental preparation for their further work. If necessary they need to be adapted to the teacher's ideas and special circumstances in school.

Conclusions: With the preparation of the lesson plans important steps were realised within the restructuring process of Saxon curricula. Thus, the implementation of nutrition related topics in school curricula could be achieved.

Key words: nutrition education, school, children, adolescents

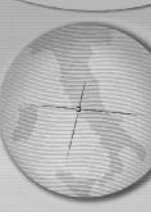
Background

Curricula have to be regarded as a systematic combination of educational goals and their corresponding contents. Besides their political function, they play an important role in pedagogical and informational fields. Any changes at national, international and global level lead to new requirements in fields of school literacy and education which have to be reflected in new curricula [1].

As the federal government has only a minor role for education in Germany, the responsibility lies within the Bundesländer. After attending kindergarten, from ages three up to six years, children have to attend school. In Saxony, school starts at a primary level with the Grundschule (grade 1 - 4). At the secondary level pupils get the chance to attend either the Mittelschule (grade 5 - 9/10) or, for the most gifted pupils, in preparation for university, the Gymnasium (grade

5 - 12). Revisions and restructurings of the Saxon curricula are almost completed for all school forms. New, lightened, and rebalanced curricula give teachers more freedom to offer individual assistance to every pupil [2]. The implementation of all of the innovations started within the school year 2003/2004. Changes are affecting previous content as well as actual subjects. With regard to the results of the research "nutrition in school" [3] it was recommended to integrate nutrition and consumer education in schooling [4]. As nutrition education is predominantly integrated constantly at the primary level, it is suggested to have a deep-seated part of nutrition-related curricula in all grades [5]. With the research project REVIS support within further development of nutrition-related curricula were given. Several recommendations based on current and international frameworks were worked out [6].

Collaborators of the Research Association Public



Health Saxony and Saxony-Anhalt were involved in the implementation of learning targets considering nutrition related contents since 2002. Recommendations were worked out for the schools on primary and secondary level. Therefore, the attention was particularly drawn to the aspect of interdisciplinary schooling. Several ways for the methodological implementation were given as well as the classification into demands on education and literacy: acquisition of knowledge, development of competences and esteem [7]. All activities were always carried out in close cooperation with assistants of the Saxon State Institute for Agriculture, who gave basic preliminary support along with colleagues of the Comenius Institute, Saxony.

Aims of the work

As the main focus was put on curricula for secondary level schools, according to the basic standards for the subject economics-technology-household at Mittelschulen in Saxony the aim of the existing work was to create exemplary lesson plans for all teachers working in the mentioned subject. Furthermore, lesson plans for project days and different kinds of courses were prepared.

Main topics of the conceptions

After consulting experts on education of the Comenius Institute Radebeul, Saxony, who were involved in the restructuring process, six topics of interest for different grades were exemplarily selected according to the curriculum for which the lesson plans were created. These topics were:

- eating disorders (8th grade, pupils aged 13 to 14),
- eating habits (8th grade),
- consumer protection (8th grade),
- genetically modified food (10th grade, pupils aged 15 to 16),
- trends in nutrition (10th grade) and
- life cycle of a product (10th grade).

Additionally, curricula for two adapted courses were created. These ones were:

- biotechnology in agriculture and food industry and
- modern agriculture.

Target groups for both adapted courses are pupils of the 9th grade at Mittelschulen in Saxony. On the basis of the curricula and the basic contents that are needed to treat the topics, all courses were designed for groups at the same age. Each course including detailed planning of the lessons, relevant materials and continuative references was handed out to Saxon network coordinators. These coordinators were responsible for the implementing process of the

prepared lesson plans on regional level. Furthermore, all of them are main contact persons for the subject teachers of each region. They are able to give advices and answer special questions concerning content and methods.

Lesson plans for pupils of 8th grade

In the context of a diploma thesis, on nutrition sciences, selected topics were tested in three project classes. After consultation the subject teachers were interviewed for a qualitative analysis. In addition all pupils were asked to answer a comprehensive questionnaire.

Following topics were tested in school classes of 3 different schools:

- eating disorders,
- eating habits and
- consumer protection.

Aims and contents

According to the general frameworks that were given, only the lesson plans for the 8th grade were proved. In the following paragraph several lesson plans are presented to give a short overview of the work.

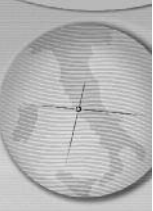
Conception 1 - Consumer protection

The curriculum on consumer protection focuses on:

- laws and regulations and
- institutions of consumer protection and food safety.

For all pupils the following questions are being researched: "Who should be addressed if I have problems with spoiled food?" "Am I able to contact experts regarding to my mobile telephone rates?" "What are the results when consuming dietary supplements?" "What may I eat concerning the numerous food scandals?"

Pupils have an insight into functions of the institutions of consumer protection on national as well as on regional levels. Furthermore, it is important to point out their part as a consumer and to clarify pupils' chances concerning the use of consumer associations. For this, in the field of national and supranational areas a general overview is given. In the further process national parts of food monitoring are focused on. Pupils are asked to do some research by using the internet as an important medium of school lessons. Moreover, activities of the Federal Institute for Risk Assessment Berlin, Germany, the Federal Ministry of Food, Agriculture and Consumer Protection Berlin/Bonn, Germany and Federal Office of Consumer Protection and Food Safety Berlin/Braunschweig, Germany, will be worked out and presented. In case that there are



no opportunities using general frameworks (e. g. computer centre, internet) it is advised for the teacher to collect all of the necessary information and to instruct pupils to fulfil tasks on the basis of standard texts. Next the German Act on Food and Feeding Stuff will be introduced, elementary definitions will be defined and on the basis of present food packaging principles of food labelling are discussed. In addition learned skills can be reinforced by a visitation of a consumer advice centre or a food supervisory board and gives chance for answering several questions.

Conception 2 - Forming one's own opinions concerning eating habits in comparison with a balanced diet

Following contextual main focuses were determined in the curricula:

- trends in nutrition, regulation of hunger and satiety and
- nutritional and energy requirements, 10 rules of the German nutrition society, writing of daily menus.

During the lessons all pupils should learn how to combine basic knowledge with current information in the field of nutrition and nutritional habits after that they are supposed to critically deal with one's own eating habits. Discussing definitions like regulation of hunger and satiety are as important as terms of nutritional and energy requirement. On the basis of this information it is possible to calculate with the basic metabolic rate. Moreover, further information will be taught concerning the composition of the 10 rules of the German Nutrition Society as well as the campaign "5 a day" and the latest published standards of the German Nutrition Society for catering [8]. It is vitally important to develop an understanding concerning a balanced diet in daily life. To strengthen one's learnt skills all pupils have to prepare a nutrition plan for a period of one week which they have to analyse regarding the following questions: "Am I able to manage the 10 rules in my everyday life?" "Will I succeed in consuming 5 servings of fruit and vegetable?"

Conception 3 - Understanding and managing eating-disorders

Regarding the implementation of the obligatory topic following main focuses were specified in the following curricula:

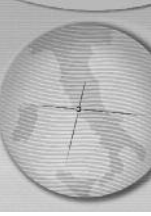
- giving an overview about bulimia, anorexia and adipositas,
- identifying and realizing physical and mental causes and consequences,
- using the internet and
- accepting the help of different institutions.

"I am too thick." - "The others call me hideous." "Men are just fond of graceful women." "Women only hold very attractive trained male bodies." These expressions describe thoughts existing in most girls and women but nowadays increasingly also in boys and men. Diets and everyday training is listed on one's personal day's program. The majority of adolescents follow the example of idols printed in magazines and appearing on television. Working prematurely against a wrong ideal in the child's and adolescent's development it is vitally important providing information to pupils and to sensitize them.

The overall aim of the curricula was intended to give an overview of the three manifestations of eating disorders. At the beginning, reports of affected persons are useful to catch the pupils' interest. These may be presented in the form of a video or a DVD. Furthermore, a following "fantasy trip" shall activate the next tasks. Two questionnaires regarding body attitude and body perception may answer questions on self assessment, external assessment and desires. If pupils are open-minded a discussion within the class concerning the expectations and attitudes can be started. In order to let pupils of other classes have access to the topic as well and stimulate them to reflect and to act, the whole class is asked to create posters related to the mentioned topic "eating disorders". These shall be advisers and if possible used as exhibit in classrooms as well as in the schoolhouse. The topic of eating disorders ends with a "letter to myself". This represents a suitable method for reflection and shall encourage all pupils to reflect on previous lessons on the one hand and to think about one's own behaviour and attitude. It is optional for the pupils if or how they put their impressions and perceptions on paper. Sufficient time is given during the work to relax and to look back. It is not intended to discuss the letter. The letter is sealed and will be opened only by the writer some weeks later. It would be informative and exciting for pupils and for the teacher, if an expert (e. g. a physician, a psychologist) or a formerly affected person could accompany the lesson. Thus, special questions can be answered through field reports which explain the course of the disease and its problems more convincingly.

Qualitative evaluation

The responses of the teachers and pupils according to the lessons were taken partial standardized and were evaluated. As the implementation of new curricula has just started lesson plans could only be tested in grade 8. Thus,



only three classes were selected for testing of the lesson plans. Altogether 52 pupils were asked after the lessons took place regarding their perceptions, suggestions and ideas for further steps. Additionally, three teachers were asked to give their feedback.

It became clear that teachers regard the lesson plans as a basis for future work. They looked upon the lesson plans favourably because now, the complex research of materials is no longer necessary. In this context, they emphasized that they trusted on the scientifically correct research of the lesson plans. The lesson plans themselves were assessed as well elaborated. However, for example the topic of consumer protection was difficult to understand and to get through for some pupils. The pupils themselves reported that they appreciated the variety of methods represented in the lessons. Furthermore, they emphasized that the reference to life and work lightened the access to the topics and increased the motivation. Lots of pupils required detailed processing of single subjects such as eating disorders.

Perspectives

The underlying article describes the work that was carried out up to now and shall further be updated and analyzed. As already mentioned, the making of the lesson plans constantly took place in close cooperation and regular coordination with collaborators of the Saxon State Institute for Agriculture and the Comenius Institute. A continuation of the mentioned analysis concerning content and technical issues for the several lessons is necessary in the future time. On the one hand it is relevant due to qualitative requirements on the lesson plans with regard to topicality, variety in methods and framework conditions. And on the other hand it has to be taken account of formulations of suggestions for further school types (e. g. grammar schools, special schools, vocational schools). During preparation of the conceptions it was always important to establish a comprehensive and integral nutrition and consumer education in the lessons. With the implementation of the mentioned topics for the subject economics-technology-household important steps were already realised to the informed and conscious consumer. Currently, it is necessary and indispensable that all in the process of education involved target groups point out within conversations, presentations and publications that multidisciplinary and connecting-lessons contain numerous possibilities to put the topic across to the pupils. Above all, a better understanding

regarding the complex linking to health, well-being, nutrition and physical activity, relaxing is necessary for all involved people in order to cause a positive sensibility for the topics of nutrition. To achieve the integration of nutrition related topics and learning targets in everyday's school life developed materials were provided to all teachers. The precise planning for the lessons was wished by all teachers and was assessed meaningfully. It is required to accompany the teachers with continuative materials and state-approved further training being able to offer support really relieving and to further realise nutrition education in an appropriate style. Folders should include precise planning for every lesson regarding further topics and diverse situations within the lessons. In the context of a seminar, teachers could furthermore learn how to handle independently with the materials but also to prepare courses, project days in teamwork. As the required sensibility exists on the part of the teachers as a result of the materials and the participation in such courses they sooner will integrate the suggestions in their lessons. Thus, the aim of implementing nutrition related topic comprehensively in schools would have been realised.

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