

Promotion of health in the school environment: development of teaching materials
Promoção da saúde no ambiente escolar: desenvolvimento de materiais didáticos
Promoción de la salud en el ambiente escolar: desarrollo de materiales didáticos

Received: 07/06/2017
Approved: 20/11/2017
Published: 07/05/2018

Milene Morais Lannes¹
Fúlvia Fabíola Franks²
Evellin Damerie Venâncio Müller³
Márcia Cristina Teixeira Martins⁴

This article aims to present the development of didactic materials for the promotion of healthy eating habits, valuing the use of *natural* green food for primary school I students. A multidisciplinary team was organized to develop and implement pedagogical projects and materials over four years. During this period, seven educational weeks were held at nine Adventist schools in the Vale do Paraíba region of São Paulo, SP, Brazil. In all 303 students from the 1st to the 5th year participated in all educational weeks. Five didactic materials were explored: *banners*, aprons, a contest, a sticker album, inflatable mascots, and circuit of activities. Such educational projects and tools served as the basis for future food and nutrition education interventions in the Adventist education network and other public and private schools.

Descriptors: Food and nutrition education; Health education; Primary and secondary education; Educational technology.

Este artigo tem como objetivo apresentar o desenvolvimento de materiais didáticos para a promoção de hábitos alimentares saudáveis valorizando o uso de alimentos *in natura* e de origem vegetal em escolares do ensino fundamental I. Foi organizada uma equipe multidisciplinar que elaborou e implementou projetos e materiais pedagógicos ao longo de quatro anos. Nesse período sete semanas educativas foram realizadas em nove escolas da rede adventista de ensino da região do Vale do Paraíba, SP. Ao todo 303 escolares do 1º ao 5º ano participaram de todas as semanas educativas. Cinco materiais didáticos foram explorados: *banners*, aventais, concurso, o álbum de figurinhas, mascotes infláveis e o circuito de atividades. Tais projetos e ferramentas educativas poderão servir de base para futuras intervenções de educação alimentar e nutricional na rede adventista de educação e, de outras escolas da rede pública e privada.

Descritores: Educação alimentar e nutricional; Educação em saúde; Ensino fundamental e médio; Tecnologia educacional.

Este artículo tiene como objetivo presentar el desarrollo de materiales didáticos para la promoción de hábitos alimentarios saludables valorizando el uso de alimentos *in natura* y de origen vegetal en escolares de enseñanza primaria. Fue organizado un equipo multidisciplinario que elaboró e implementó proyectos y materiales pedagógicos a lo largo de cuatro años. En ese periodo fueron realizadas siete semanas educativas en nueve escuelas de la red adventista de enseñanza de la región del Vale do Paraíba, SP, Brasil. En total 303 escolares del 1º al 5º año participaron de todas las semanas educativas. Cinco materiales didáticos fueron explorados: *banners*, delantales, concurso, o álbum de figuritas, mascotas inflables y el circuito de actividades. Tales proyectos y herramientas educativas podrán servir de base para futuras intervenciones de educación alimentaria y nutricional en la red adventista de educación y, de otras escuelas de la red pública y privada.

Descritores: Educación alimentaria y nutricional; Educación en salud; Educación primaria y secundaria; Tecnología educacional.

1 Nutritionist. Master in Health Promotion. Adventist University Center of São Paulo (UNASP-SP), SP, Brazil. ORCID: 0000-0001-5233-3729 E-mail: milenelannes@hotmail.com

2 Pedagogue. Master student in Education at UNASP-Campus Engenheiro Coelho, SP, Brazil. ORCID: 0000-0003-0824-4416 E-mail: fulvia.franks@ucb.org.br

3 Nutritionist. Master in Nutrition in Public Health. Professor at the Nutrition Course of UNASP-SP, SP, Brazil. ORCID: 0000-0003-3815-5174 E-mail: evellinutri@gmail.com

4 Pharmacist-Biochemist. Nutritionist. Master in Pharmacy. PhD in Food Science. Professor in the Professional Master Program in Health Promotion and Coordinator of the Nutrition course, UNASP-SP, SP, Brazil. ORCID: 0000-0002-9565-954X E-mail: marciactm@yahoo.com.br

INTRODUCTION

As the interest of society in a healthy diet and the search for resources to adequate nutrition grow as a way of safer access to health, children's diet is a priority in the context of collective health. The earlier correct eating habits are introduced, the healthier is the adolescent and adult population in a society¹.

The UNESCO and UNICEF recognize that the integration between health and education is an indispensable tool to improve the quality of life, achieving greater and better results when promoted in childhood. For this reason, the school stands out as a favorable and environment for health promotion and with prospect of great repercussions²⁻⁴.

Moreover, when children leave the family life to enter the school context, such transition favors the experimentation of new foods and preparations, promoting changes in eating habits under the influences of social groups and the stimuli present in the educational system⁵.

Schools that promote health constantly seek to promote a style of life, learning and work conducive to health development, striving to improve the health of students and of the community where they are inserted⁶. This concept finds support in the National Curricular Parameters (NCP) that consider schools as an institutions that can become a genuine space for health promotion⁷.

The Declaration of Bogotá encourages the participation of the educational community in the construction of knowledge that favors a healthy lifestyle. With the relevance of this concept in mind, nutritional education in the school environment should develop pedagogical strategies to provide discussions, reflections and decision making².

Health promotion programs consist of active, playful and interactive processes that favor changes in attitudes and eating practices⁸⁻¹⁰.

By using different teaching strategies, the educator becomes a facilitator in the construction of knowledge to promote healthy habits, thus ensuring the

sustainability of actions inside and outside the classroom¹¹.

Food and Nutrition Education (FNE) is a field of action for Food and Nutrition Security (FNS) and health promotion¹².

FNE is an instrument that promote healthy eating habits and, in Brazil, it represents a strategy advocated by public policies on food and nutrition such as:

*National Food and Nutrition Policy (NFNP), Zero Hunger Strategy, National Policy on Health Promotion, National Policy on Food and Nutrition Security (NPFNS), Framework for Food and Nutrition Education for Public Policies, Interministerial Ordinance n^o 1,010 of May 8, 2006, Health at School Program (NSP) and the National School Feeding Program (NSFP)*¹³.

Despite these advances in public policies, there is still a lack of theoretical-methodological references and educational technologies that favor active learning and provide a basis for FNE practices in the school context^{13,14}.

With more than 450 schools in Brazil and more than 5300 primary schools around the world, the Adventist education network has as ideological work proposal the recommendation of healthy lifestyle habits, including the eating of food rich in vegetable products. Among the pillars of the Adventist approach to Christian education are concern for the integral and harmonious development of individuals.

However, there are still strategies integrated with pedagogical resources and systematized according to the stages of child development to promote health and, in particular, healthy eating habits in this educational network.

Thus, this article aims to present the development of didactic materials for the promotion of healthy eating habits emphasizing the use of *natural* vegetable food for primary school I students.

METHOD

This is a descriptive and cross-sectional study carried out in the years 2011 to 2014, when educational actions were developed to promote healthy eating habits directed at primary school students (1st to 5th grade) of nine private Adventist schools in the Vale do

Paraíba region (SP) and run by a Seventh-day Adventist church maintainer (Associação Paulista do Vale).

The team responsible for planning the project was composed of six professionals: a nutritionist who was the leader of the project, and who was assisted by three pedagogues, one graphic *designer* and an information technology professional.

During the four years, seven weeks of nutritional education were carried out in each school, addressing one theme per semester. The program was held in two schools simultaneously in each week, totaling about 5 weeks to cover the set of nine schools per semester.

In each educational week, a project was developed including: theme, target audience, interdisciplinarity, duration, objective and educational strategies. The educational projects are described in detail by Lannes¹⁵. The interdisciplinary team created different audiovisual resources and varied pedagogical resources, initially addressed only to children (2011 and 2012) and later also to their parents (2013 and 2014).

Five different proposals were explored: the Nutribrinca Project¹⁶, the program *MyPlate*¹⁷, the Adventist Philosophy on Health^{18,19}, the "5 a Day" Program²⁰⁻²³ and current recommendations for avoiding ultra-processed foods²⁴.

The Nutribrinca Project, conceived in Portugal by the Catholic University's School of Biotechnology, aims to awaken in the educational community the attention to nutritional guidance¹⁶. It is a project structured with several materials and guides, covering five themes: "What is the function of food?", "Food and its nutrients", "How the body uses food", "The food wheel" and "The red-card foods".

Among these topics, the last one, represented in the figure of a "Food traffic light" was chosen to be approached in the first week of nutritional education held in the first half of 2011, titled "Follow the Colors".

The program *MyPlate*¹⁷ was published in 2011 by the *Center of Nutrition and Promotion* (CNPP) of the US Department of

Agriculture (*United States Department of Agriculture, USDA*).

The program is a nutritional guide for the US population that portrays the image of a dish divided into 5 groups (fruits, vegetables, grains, protein and dairy products) and aims to help consumers make healthy choices at mealtimes. The material also offers a guiding approach for school age publics and conveys the concepts in a didactic and interactive way. Therefore, we chose to translate and adapt this theoretical framework to be used in the nutritional education week held in the 2nd semester of 2011, with the theme "My healthy dish".

From 2012 through 2014, for pedagogical and ideological reasons, the team sought a solid theoretical framework that at the same time presented an identity with the Adventist food philosophy that emphasizes the consumption of *natural* food of vegetable origin^{18,19}. This reference was found in the "5 a day" Program^{20,21}, idealized by the American institution *The National Cancer Institute*, with wide worldwide dissemination.

The "5 a Day" program is based on the protective effect of fruit, vegetables and legumes consumption (FVL) against some cancers²² and is a tool that encourages the selection of these foods through colors, translating the concepts of bioactive compounds into guidelines for the public²³.

The program promotes the consumption of at least 5 portions of FVL per day, by choosing foods of different colors, and it is compatible with the development of playful and interactive material suitable for use with school-age children. The idea was for Adventist schools to be associated with promoting the consumption of foods of plant origin.

In 2013, education strategies also included recommendations to combat obesity and the advancement of chronic diseases in Brazil, that is, to avoid ultraprocessed foods (such as stuffed cookies, prepackaged snacks, soft drinks and instant noodles), since such foods have high energy density, and high contents of refined carbohydrates, sugars, fats or salt and high

glycemic index. They are often sold in large portions, have high palatability and the potential to create dependence, and are promoted through aggressive advertising campaigns²⁴.

The theme "5 a Day" was initially explored in the years 2012 and 2013 in order to ensure the understanding of its content. In 2014, its practical application was reinforced with the theme "5 a Day lunchbox".

For the themes "Follow the colors" and "My healthy dish", the illustrations used in the educational resources were adapted from their theoretical reference¹⁶⁻¹⁷. For the themes related to the "5 a Day" project, educational, musical and interactive educational resources created by the team were developed. In addition, from 2014 onwards, two health promotion educational technologies validated for the development of skills of students¹⁴ were also used, namely: the "The senses box" and the "Minute Cinema".

RESULTS

The methodology employed allowed the organization of the multidisciplinary team and the development of projects and educational materials and audiovisual resources aimed at valuing the use of *natural* food and of vegetable origin. A total of 303 students from the 1st to the 5th year participated in all educational weeks.

As shown in Table 1, for the execution of the activities, the project counted on the participation of undergraduate trainees in nutrition, teachers and pedagogical managers of the schools, who were properly trained and supervised by the nutritionist who idealized the project. In the first two weeks (1st and 2nd semester of 2011), the project was implemented with the help of the teachers of each class. The project was

presented to the pedagogical coordinators and, in turn, they trained the teachers.

In the third and fourth weeks (1st and 2nd semester of 2012) the activities were conducted by two undergraduate trainees in Nutrition trained and supervised by the nutritionist. From the fifth week onwards (1st semester of 2013), the team was composed of two nutritionists, besides the trainees. At these times, teachers did not approach the content, but were present in the classroom, supporting the project and assisting in keeping the order in the class. In the seventh week (2nd semester of 2014), the participation of the teacher who had the responsibility to reinforce the topics discussed in the week given in the 1st semester was resumed.

For this, the teachers received educational materials prepared by the nutrition team and were trained by the pedagogical coordinators, as occurred in the first two weeks of the project.

The *banner* with the traffic light entitled "Follow the colors" (Figure 1A) presented three categories of food, relating them to traffic light colors and their meaning in traffic laws. Thus green meant go on (eat freely: food that should be consumed daily); yellow meant attention (careful: foods that should be consumed occasionally or daily but in moderation); and red meant stop (don't go ahead: foods that should only be consumed on special occasions).

The *banner* "My healthy dish" (Figure 1B) contained the division of each food group and food wrapped with plastic material (grapes, banana, apple, eggplant, carrot, lettuce, tomato, brown bread, brown rice, water and salt wafer, morning cereal, oats, beans, chicken, egg, nuts, white cheese, yogurt).

Table 1. Evolution of the participation of the team involved in the application of the nutritional education weeks carried out with primary school I students in schools of Vale do Paraíba, SP.

	2011 (1st and 2nd week)	2012 (3rd and 4th week)	2013 (5th week)	2014 (6th week) (7th week)	
Nutritionist	1 (supervision)	1 (execution)	2 (execution)	2 (execution)	2 (supervision)
Trainees Nutrition Teacher	0	2 (execution) Support	2 (execution)	6 (execution)	2 (execution)
Pedagogical coordination	All (execution) All (guidance)	----	Support ----	Support ----	Execution All (guidance)

After the presentation of the theoretical class included in each food group, the banner was used for an interactive class where the students had to identify the foods that belonged to each category and to address a discussion about the amount of portions that should be consumed in each group. The students stucked the foods in the *banner*.

The *banner* and the "5 a day" apron (Figure 1C and 1D, respectively) are part of the same theoretical framework; the first one is a visual and interactive instrument, with five pockets in the colors of the project (green, yellow/orange, red, purple, brown/white). Each pocket contains 3 food figures made out of rubber and representing the color in question and a figure illustrating one of the benefits of eating these foods.

In the contest "Mini-chef", it was intended to stimulate the interest of schoolchildren to eat healthy food through the culinary preparations. The participants could enroll by sending a video demonstrating the preparation of their innovative recipe, obeying the rules of the contest. The judging team, composed of two teachers and a nutritionist, selected fifteen recipes for the final round in which the student would present his/her preparation for tasting and competing for the title of best recipe.

The winner of the contest won a chef's hat (*toque blanche*) personalized with his/her name to continue creating fresh and tasty preparations at home and also had his/her recipe sold in the school cafeteria for a month.

The album "Collect Health" (Figure 1E) is a visual tool to encourage the consumption of FLV. It has the days of the week and five spaces each day for the schoolchildren to stick the cards according to the variety of colors consumed in the previous day. At the end of that week, the student could take the album home. The goal was to complete the album with all the cards.

The song "5 a day" has a verse for each color of the "5 a day" program, facilitating the memorization of the content and creating a link with the activities developed.

The structure of the music is divided into the following stages: (1) five verses, each mentioning a color of the program and some foods that are part of this color, emphasizing the relationship between the consumption of these foods and a health benefit, (2) a refrain where all program colors are mentioned to reinforce the information of the project.

On each day of the week, one verse and the chorus were taught. The parody used the melody of a popular song familiar to the public in question: "Easter Bunny" by Olga Bhering Pohlmann.

Picture 1 shows to the structure of the projects carried through in the schools between 2011 the 2014.

Box 1. Structure of the projects of nutritional education weeks carried out with primary school students in nine schools in Vale do Paraíba, SP.

Year		2011		2012		2013	2014	
Theme		Follow the colors	My healthy dish	5 a day		Choose 5 a day	5 a day lunchbox	
Objective (for the student)		To understand that food should be varied, however each food group should be consumed in adequate quantities.	To identify the different food groups and know their portions per meal.	Promote the daily consumption of at least five servings of fruits, legumes and vegetables of varied colors.		To teach the children to put together a healthy lunchbox according to the objectives of the five a day project.		
Educational strategies aimed at students	Audiovisual resources	Banner with the traffic light titled "Follow the colors". Dynamics with foods in traffic light colors	"My healthy dish" banner Panel for assembly of the healthy dish Panel for assembly of the one-day menu	1st semester "Five a day" banner "5 a day" apron "Collect Health" sticker album "Mini-chef" contest	2nd Semester Same as the 1st semester/2012 "5 a day" song	"Choose 5 a day" apron Inflatable mascots "Tico chuchu" and "Tati apple"	1st semester "5 a day" circuit lunchbox with 4 stages of playful and interactive activities: minute cinema, senses box, pool of balls, and assembly of the healthy lunchbox	2nd Semester "5 a day Lunchbox" sticker album
	Supplementary activities	Standardized guidance for complementary activities (SGCA) *	SGCA, eight healthy and fun meal tips (2 per day)	SGCA	SGCA	SGCA	SGCA	SGCA
Pedagogical strategies directed to parents		—	—	—	—	Folder on healthy food choices	"Five a day" lunchbox handbook	Suggestions for healthy lunchbox assembly
Theoretical background		Nutribrinca Project ¹⁶	"MyPlate" food guide ¹⁷	Adventist Philosophy on Health and Food ^{18,19} "5 a Day" project ²⁰⁻²³		"5 a Day" project ²⁰⁻²³ and recommendation to avoid ultraprocessed foods ²⁴		

* Text production, physical education class directed to the theme of the week, artistic activities, research, readings and healthy cooking.



Figure 1. Educational materials and resources produced during four years of actions of food and nutritional education for students from 1st to 5th grade. (A) traffic light banner "Follow the colors"; (B) "My Healthy Plate" banner; (C) "5 a day" banner; (D) "5 a day" apron; (E) "Collect Health" album; (F) "Choose 5 a day" apron; (G) inflatable mascots; (H) "5 a day lunchbox" circuit.

The "Choose 5 a day" apron (Figure 1F) uses the same theoretical concept and reference of the "5 a day" apron, plus a sixth group of foods: the ones which should be avoided, i.e. ultraprocessed foods. Thus the apron has 3 pockets, one of which is the "5 a day" pocket (it has images of healthy foods representing each color of the project: apple, papaya, beet, cabbage, garlic).

The other pocket in gray has images of ultra-processed foods, such as: stuffed cookies, *ketchup*, soda, chips, and instant noodles. The third pocket has pictures that represent the parts of the body affected by the consumption of these foods.

The "Inflatable Mascots" (Figure 1G) are two large inflatable dolls created to promote interaction with schoolchildren and to create a stronger link with daily activities. Through election, the students chose the following names for the dolls: Tico Chuchu and Tati Maça. As part of the interaction with students, the dolls remained in the school yard at snack time as a reminder of the importance of eating 5 FLV per day.

The "5 a day lunchbox" circuit (Figure 1H) was composed of a metal frame and canvas forming a fence with partitions on the central axis dividing the space in 4 stages where playful and interactive activities were carried out. At each stage, it was possible to entertain 15 children and each activity lasted 5 minutes on average. The activities were:

- Minute Cinema: first stage of the circuit, where an introduction was made about the activities that would take place in the circuit and presented a video about the importance of the consumption of vegetables for the appropriate development of children. This audiovisual resource belongs to the "Cultural Backyard" program of the Cultura television network and is available on the Youtube® channel at the following electronic address: <https://www.youtube.com/watch?v=M1-Bb10mY6A>

- Box of Senses: this strategy consisted of a box made of cardboard paper with two openings in the front face so that the student could place his hands inside the box and guess by touch what fruit or vegetable was inside the box. In this second stage of the circuit, students were encouraged to become familiar with fruits and vegetables and

recognize the importance of the senses in food consumption.

- Pool of balls: this was third part of the circuit and in this activity the five colors of the "5 a day" project and their importance for health was reminded. Two volunteers were chosen to enter the pool and find plastic food that was hidden among the balls. At the end of 10 seconds, students should show the foods they found and speak at least one benefit that the consumption of foods of such color brings to health.

- Assembling the healthy lunchbox: this last stage of the circuit consisted in the demonstration of two types of lunchboxes with examples of varied foods that could compose the group. The first was a healthy lunchbox composed of fruits, natural sandwiches, nuts, and natural juice. The second was an unhealthy lunchbox with soda, stuffed muffins, salty snacks and candies. Through the presentation of these two lunchboxes, students were invited to discuss about which lunchbox would bring health benefits and why the items in the unhealthy lunchbox should be avoided.

DISCUSSION

Several educational materials and strategies have been created in various parts of the world for food and nutritional education actions in the school environment reported in scientific articles²⁵⁻³⁰.

However, most of these publications do not describe in detail the materials or how they were applied. Thus, the present work shows the complete description of the development of methods and technologies for food and nutritional education aimed at the promotion of consumption of *natural* food and with emphasis on foods of plant origin.

A review on FNE in schoolchildren in Brazil¹³ found only one study with educational methods and technologies³¹. The educational action was based on Paulo Freire's proposal for problematizing education in which the diagnosis of consumption practices, values and representations subsidized the elaboration of the technologies. The theme addressed in the

daily life of the community was contextualized and valued the work, history, and cultural identity, strengthening the families' self-esteem.

The work involved the schoolchildren and their families, the teachers and the local community³¹. Likewise, in the present study the observation of the local context, the institutional ideology, and local needs were essential for guiding the development of educational strategies and the pedagogical resources.

Another review on FNE in the school environment from 2002 to 2013¹² showed that from 2009 onwards the theme received more emphasis. Among the 17 articles analyzed, 9 used intervention methodologies. However, the actions were considered to be less participative, critical and problematizing, predominantly based on the transmission of information. Different from this, the actions developed in the present study stimulated the critical-reflexive participation by the students.

Chinese study²⁹ showed that simultaneous educational actions including parents, teachers and students with a frequency of once every six weeks, for three years, had significant results in reducing the prevalence of obesity and overweight of schoolchildren when compared to students from control schools who did not receive the action.

One of the tools used was the Food traffic light²⁹, also used in the present study, which proved to be an interesting educational strategy to call attention of children about foods and their effects on health. This tool has had good results in programs aimed at combating obesity and overweight.

Other work was developed with educational sessions²⁸ in classrooms with 205 high school students in rural schools in the state of Mississippi for four months. The themes of the sessions were developed by a multiprofessional team composed of physicians, pharmacists, nutritionists and physical education professionals. Several materials and educational strategies were developed by teachers. Among these, the

strategy of a contest of posters was applied. In this strategy, students should explore the theme "Ways to make your school healthier for the heart", and the selected posters were awarded. The study resulted in increased knowledge about health and improvement of certain eating behaviors.

Several strategies and resources adopted in the present study were also interactive. These pedagogical resources favor the learning of the concepts worked and the adoption of healthier eating habits.

Furthermore, there was an interdisciplinary interaction in the present work, where professionals from different areas (nutrition, pedagogy, graphic design and information technology) contributed with their professional experience, something that was indispensable for the development of educational materials.

Another study²⁷ used educational methods such as games, puppet theaters, posters, jokes, songs and children's stories to present the content. In a research³² where 23 different nutrition education strategies were described in 13 schools in the city of Guarulhos showed that despite the diversity of strategies, the most frequent were "class" and "informal guidelines during feeding". It is noteworthy that playful activities are not valued, and this may have a negative impact on the success of the actions³².

An evaluation of the main strategies adopted in FNE intervention studies¹³ shows that a diversity of methods, including lectures, discussions, presentations, dynamics, children's stories, and comic stories associated with playful activities have been used, especially puppet theater and educational games. In fact, the ludic activities and the interactive pedagogical resources explored in the present work favored the participation and the involvement of the children.

Guidance to prefer *natural* or minimally processed food and preferably vegetables, as well as, to avoid the ultraprocessed foods present in this work has scientific support³³ and is in line with the recommendations of the current Food Guide for the Brazilian Population³⁴.

CONCLUSION

Educational tools and pedagogical resources were created and can guide future food and nutrition education interventions in the Adventist education network and other public and private schools.

Educational strategies in food and nutrition education in the school environment should be an initiative supported and backed by higher spheres of school administration, from the department of education and presidency of the association, teaching superintendence, teaching board and managers in the municipal, state and federal spheres.

Finally, such strategies should be planned and executed by a multiprofessional team including nutritionist, educators, managers, cooks, among other actors in the school environment.

Furthermore, such strategies should be grounded on theoretical references with scientific support, use appropriate pedagogical resources, and be in harmony with the philosophy and mission of each educational institution.

REFERENCES

1. Sociedade Brasileira de Pediatria. Manual de orientação para a alimentação do lactente, do pré-escolar, do escolar, do adolescente na escola [Internet]. Rio de Janeiro: SBP; 2012 [cited in Jan 05, 2017]. Available from: <https://www.sbp.com.br/pdfs/14617a-PDManualNutrologia-Alimentacao.pdf>
2. Gonçalves FD, Catrib AMF, Vieira NFC, Vieira LJS. Promoção da saúde na educação infantil. Interface Comun Saúde Educ. 2008; 12(24):181-92.
3. Fernandes FM. Alimentação e nutrição entre escolares: caso dos alunos de uma escola do município. [monografia]. Vitória (ES): Universidade Veiga de Almeida; 2006. 49p.
4. Presidência da República (Brasil). Decreto nº 6.286, de 5 de dezembro de 2007. Institui o Programa Saúde na Escola – PSE, e dá outras providências [Internet]. D.O.U, Brasília, DF, 6 dec 2007 [cited in Jan 06, 2017]. Available from: http://www.planalto.gov.br/ccivil_03/_ato2007-2010/2007/decreto/d6286.htm
5. Domene SMA. A escola como ambiente de promoção da saúde e educação nutricional. Psicol USP. 2008; 19(4):505-17.

6. Gomes JP. As escolas promotoras de saúde: uma via para promover a saúde e a educação para a saúde da comunidade escolar. *Educação* (Porto Alegre). 2009; 32(1):84-91.
7. Ministério da Educação (Br). Secretaria de Educação Fundamental. Parâmetros Curriculares Nacionais 1ª a 4ª séries: Saúde, Livro 2 [Internet]. Brasília: MEC/SEF; 1997 [cited in Feb 05, 2017]. Available from: http://portal.mec.gov.br/seb/arquivos/pdf/livro_092.pdf
8. Ribeiro JM, Glória SP, Silva KLF, Seibert CS. Jogo vitamínico: uma ferramenta no ensino sobre alimentação saudável. *Rev Prod Acad.* 2016; 2(2):184-92.
9. Schimtz BAS, Recine E, Cardoso GT, Silva JRM, Amorim NFA, Bernardon R, et al. A escola promovendo hábitos alimentares saudáveis: uma proposta metodológica de capacitação para educadores e donos de cantina escolar. *Cad Saúde Pública.* 2008; 24(2):S312-S322.
10. Yokota RTC, Vasconcelos TF, Pinheiro ARO, Schmitz BAS, Coitinho DC, Rodrigues MLF. Projeto “a escola promovendo hábitos alimentares saudáveis”: comparação de duas estratégias e educação nutricional no Distrito Federal, Brasil. *Rev Nutr.* [Internet]. feb 2010 [cited in Jan 16, 2017]; 23(1):37-47. Available from: <http://www.scielo.br/pdf/rn/v23n1/a05v23n1.pdf>
11. Piccoli L, Johann R, Correa EM. A educação nutricional nas séries iniciais de escolas públicas estaduais de dois municípios do oeste de Santa Catarina. *Nutrire Rev Soc Bras Aliment Nutr.* 2010; 35(3):1-15.
12. Borsoi AT, Arruda CRP, Mussio BR. Educação alimentar e nutricional no ambiente escolar: uma revisão integrativa. *Rev Ibero-Am Estud Educ.* 2016; 11(3):1441-60.
13. Ramos FP, Santos LAS, Reis ABC. Educação alimentar e nutricional em escolares: uma revisão de literatura. *Cad Saúde Pública.* 2013; 29(11):2147-2161.
14. Maia ER, Junior JFL, Pereira JS, Eloi AC, Gomes CC, Nobre MMF. Validação de metodologias ativas de ensino-aprendizagem na promoção da saúde alimentar infantil. *Rev Nutr.* [Internet]. 2012 [cited in Mar 12, 2017]; 25(1):79-88. Available from: <http://www.scielo.br/pdf/rn/v25n1/a08v25n1.pdf>
15. Lannes MM. Promoção de hábitos alimentares saudáveis entre alunos do ensino fundamental da rede adventista do Vale do Paraíba: lições aprendidas em quatro anos de intervenção. [dissertação]. São Paulo (SP): Centro Universitário Adventista de São Paulo/UNASP; 2016. 147 p.
16. O semáforo dos alimentos: guia para o professor. In: *Nutribrinca: nutrição na escola.* Unidade 5: Os alimentos com cartão vermelho - alimentos a evitar [Internet]. Porto: Escola Superior de Biotecnologia da Universidade Católica; 2008 [cited in Mar 05, 2017]. Available from: http://www.esb.ucp.pt/nutribrinca/docs/Unidade_5_0_semaforo_dos_alimentos.pdf
17. United States Department of Agriculture, Center for Nutrition Policy and Promotion. Development of 2010 dietary guidelines for Americans, consumer messages and new food icon [Internet]. [Virginia]; 2011 [cited in Feb 11, 2017]. Available from: <https://choosemyplate-prod.azureedge.net/sites/default/files/printable-materials/ExecutiveSummaryOfFormativeResearch.pdf>
18. Sulston S. The Seventh-day adventist position statement on vegetarian diets. In: *Christian Living & Health* [Internet]. 2012 dec [cited in Feb 07, 2017]. Available from: <http://www.adventistonline.com/forum/topics/the-seventh-day-adventist-position-statement-on-vegetarian-diets>.
19. Fraser GE. Diet, life expectancy and chronic disease: studies of seventh-day adventists and other vegetarians. *Am J Clin Nutr.* 2004; 79(3):525-6.
20. Centers for Disease Control and Prevention. 5 A Day Works! [Internet]. Atlanta: U.S. Department of Health and Human Services; 2005 [cited in Apr 06, 2017]. Available from: https://www.cdc.gov/nccdphp/dnpa/nutrition/health_professionals/programs/5aday_works.pdf
21. World Health Organization. Fruit and vegetable promotion initiative. Gegeva; 2003.
22. Havas S, Hermendinger J, Damron D, Nicklas TA, Cowan A, Beresford SAAB, et al. 5 a day for better health – nine community research projects to increase fruit and vegetable consumption. *Public Health Rep.* 1995; 110(169):68-79.
23. Heber D, Bowerman S. Applying science to changing dietary patterns. *J Nutr.* 2001; 131(11):3078S-3081S.
24. Monteiro CA. The big issue is ultra-processing. *World Nutrition, Journal of the World Public Health Nutrition Association* 2010; 1(6):237-69.
25. Guerra PH, Silveira JAC, Salvador EP. Physical activity and nutrition education at the school environment aimed at preventing childhood obesity: evidence from systematic reviews. *J Pediatr.* (Rio J.) [internet]. 2016 [cited in Apr 05,

- 2017]; 92(1): 15-23. Available from: <http://www.scielo.br/pdf/jped/v92n1/1678-4782-jped-92-01-00015.pdf>
26. Díaz XM, Mena CP, Valdivia-Moral P, Rodríguez A, Cachón J. Eficacia de un programa de actividad física y alimentación saludable en escolares chilenos. *Hacia Promoc Salud*. [Internet]. 2015 [cited in Apr 05, 2017]; 20(1):83-95. Available from: <http://www.scielo.org.co/pdf/hpsal/v20n1/v20n1a06.pdf>. DOI: 10.17151/hpsal.2015.20.1.6
27. Fernandes PS, Bernardo CO, Campos RMMB, Vasconcelos FAG. Avaliação do efeito da educação nutricional na prevalência de sobrepeso/obesidade e no consumo alimentar de escolares do ensino fundamental. *J Pediatr. (Rio J.)* [Internet]. 2009 [cited in Apr 05, 2017]; 85 (4): 315-21. Available from: <http://www.scielo.br/pdf/jped/v85n4/v85n4a08.pdf>
28. Harrell TK, Davy BM, Stewart JL, King DS. Effectiveness of a school-based intervention to increase health knowledge of cardiovascular disease risk factors among rural Mississippi middle school children. *South Med J*. 2005; 98(12):1173-80.
29. Jiang J, Xia X, Greiner T, Wu G, Lian G, Rosenqvist U. The effects of a 3-year. obesity intervention in schoolchildren in Beijing. *Child Care Health Dev*. 2007 Sept; 33(5):641-6.
30. Manios Y, Moschandreas J, Hatzis C, Kafatos A. Health and nutrition education in primary schools of Crete: changes in chronic disease risk factors following a 6-year intervention programme. *Br J Nutr*. 2002; 88:315-24.
31. Boog MCF. Programa de educação nutricional em escola de ensino fundamental de zona rural. *Rev Nutr*. [Internet]. 2010 [cited in Apr 05, 2017]; 23(6):1005-1017. Available from: <http://www.scielo.br/pdf/rn/v23n6/07.pdf>
32. Iuliano BA, Mancuso AMC, Gambardella AMD. Educação nutricional em escolas de ensino fundamental do município de Guarulhos-SP. *Mundo Saúde* 2009; 33(3): 264-72.
33. Monteiro CA, Cannon G, Moubarac J-C, Levy RB, Louzada MLC, Jaime PC. The UN Decade of Nutrition, the NOVA food classification and the trouble with ultra-processing. *Public Health Nutrition* 2017; 21: 1-13.
34. Ministério da Saúde (Br). Secretaria de Atenção à Saúde. Departamento de Atenção Básica. Guia Alimentar para a População Brasileira. 2. ed., Brasília: Ministério da Saúde, 2014. 156p. Available from: http://bvsms.saude.gov.br/bvs/publicacoes/guia_alimentar_populacao_brasileira_2ed.pdf

CONTRIBUTIONS

Milene Moraes Lannes participated in the planning, execution and writing. **Fábio Fabíola Franks** developed the educational resources and collaborated in the writing. **Evellin Damerie Venâncio Müller** collaborated in the writing and critical analysis. **Márcia Cristina Teixeira Martins** participated in the planning, execution and writing.

How to cite this article (Vancouver)

Lannes MM, Franks FF, Müller EDV, Martins MCT. Promotion of health in the school environment: development of teaching materials. *REFACS* [Internet]. 2018 [cited in *insert day, month and year of access*]; 6 (Suppl. 1): 375-385. Available from: *insert access link*. DOI: *insert DOI link*.

How to cite this article (ABNT)

LANNES, M. M.; FRANKS, F. F.; MÜLLER, E. D. V.; MARTINS, M. C. T. Promotion of health in the school environment: development of teaching materials **REFACS**, Uberaba, v. 6, p. 375-385, 2018. Suppl. 1. Available from: < access link>. Accessed in: *insert day, month and year of access*. DOI: *insert DOI link*.

How to cite this article (APA)

Lannes, M. M., Franks, F. F., Müller, E. D. V., Martins, M. C. T. (2018). Promotion of health in the school environment: development of teaching materials. *REFACS*, 6(Suppl 1), 375-385. Retrieved from: *enter day, month and year of access at insert access link*.