






Culinary workshop as an interdisciplinary didactic-pedagogic strategy in the training of nutritionists

Bruna Paes Lemes Freitas¹ , Camila Cremonesi Japur² , Ana Flávia de Sousa Silva² , Fernanda Rodrigues de Oliveira Penaforte³ , Ana Elisa Madalena Rinaldi¹ 

ABSTRACT

The objectives of this study were to report the experience of using culinary workshops as a didactic-pedagogical strategy in the nutrition education discipline, and analyze the students' perceptions regarding interdisciplinarity and applicability in their professional practices through thematic-content analysis. This is an experience report on the use of culinary workshops during the nutritional education discipline in the nutrition course of a public university. The types of recipes selected and their respective dietetic/diet therapy principles were quantified. We found that 80% of the selected recipes were based on the nutritional composition of foods and only 20% considered sensory and cultural aspects. In the qualitative analysis, 3 thematic axes were identified: (1) The student's perception of the culinary workshop; (2) The learning in the culinary workshop for their professional practice; (3) The rationalization of food. The workshop was considered an innovative and enriching experience for academic training, mainly due to its interdisciplinarity. It is concluded that the use of culinary workshops as an interdisciplinary didactic-pedagogical strategy in Nutrition courses can bring benefits to the training of future nutritionists.

Keywords: Food and nutrition education, Cooking, Interdisciplinary placement, Teaching, Students health occupations.

INTRODUCTION

The Food and Nutrition Education Framework for Public Policies published in 2012 brings the food and nutrition education and transdisciplinarity concepts, the promotion of autonomous and voluntary eating habits and highlights the need to use problematizing, dialogic and active educational approaches and resources¹.

The nutritionist's training as an educator during the graduation course is performed with a greater emphasis on the nutrition education discipline², predominantly worked in the traditional teaching method through the transmission of knowledge with little stimulus to the student's active participation³. Additionally, the development of cognitive objectives during the nutrition education discipline is prioritized in comparison to the affective and active ones⁴. Technical knowledge is relevant, but it is necessary to come in contact with real situations for the students to develop capabilities and attitudes that help them deal with individuals'

and the populations' dietetic difficulties in their future educational practices⁵.

This challenging teaching-learning scenario in the nutrition education discipline may possibly contribute to the nutritionists' difficulties in bringing the promotion of health and of education together in their professional activities. The students' most active didactic-pedagogic strategy experiences during graduation, as well as getting to know the permanent-education concept, may yield to the students a new meaning to education and stimulate them to reproduce the active methods learned in the health services⁶. Innovating strategies with the use of active methodologies have been implemented in the nutrition education discipline at some universities⁷. Nevertheless, the pedagogic result analyses of implementing such strategies in the nutrition education discipline are not available in the literature yet.

The culinary workshop is a didactic-pedagogic strategy capable of improving scientific knowledge and enables the integration between

¹ Universidade Federal de Uberlândia (UFU), Uberlândia, (MG), Brasil.

² Universidade de São Paulo, Faculdade de Medicina de Ribeirão Preto, (SP), Brasil.

³ Universidade Federal do Triângulo Mineiro (UFTM), Uberaba, (MG), Brasil.



the different disciplines studied in the nutrition course⁸. This strategy promotes the dialogue and exchange of experiences taking into account the participants' previous knowledge, besides placing the student as the main character in the teaching-learning process⁹.

Thus, the objective of this study was to report the experience of applying the culinary workshops in the nutritionists' training process as a didactic-pedagogic strategy and analyze the students' perceptions regarding its interdisciplinarity and applicability in their professional experiences.

METHOD

This is an experience report with a qualitative and quantitative approach. The study was approved by the Ethics Committee for Research Involving Human Beings (CAAE: 99827318.7.0000.5152).

Culinary Workshop

The culinary workshop was implemented in the Nutrition Education discipline of the Nutrition Course at the Federal University of Uberlândia (UFU) in the second semester of 2015. The report contained in this study refers to the experience lived from 2015 (2nd semester) to 2018 (1st semester) by all the students enrolled in the discipline during this period, with the participation of 147 students. Starting in 2019, some changes to the workshop format were made, which made the comparison to the previous years more difficult. For the workshop, a class was organized into four groups of five to six students that had the responsibility of selecting and drafting recipes for one of the following specific groups: (a) babies with complementary diets, (b) children with diabetes mellitus, (c) adolescents with obesity, (d) elders with systemic arterial hypertension.

One of the workshop's objectives was to promote the interdisciplinarity with the different contents studied throughout the undergrad course, namely: (a) Nutrition Food and Nutrients II (3rd period), which approaches basic technique concepts and indicators in the preparation of the food; (b) Nutrition in the different life cycles I and II (6th and 7th periods, respectively), which exposes issues about metabolism, nutritional needs and recommendations during the different life cycles, including the beginning of the complementary diet

for babies; (c) Clinical Nutrition II (6th period), whose contents approach the pathophysiologic changes and nutritional therapy in chronic diseases like diabetes mellitus and systemic arterial hypertension; (d) Food Technology (6th period), which includes the sensorial analysis content; and (e) Nutrition in Food and Nutrition Units I (7th period), which approaches menu planning, supply management, the drafting of technical sheets for preparations and cost management.

The culinary workshop was developed in 3 phases:

1st phase: Reflections on cooking and its use as a didactic-pedagogic strategy in food and nutrition education

A discussion was held in the classroom on the culinary theme with the objective of making the students reflect about the culinary concept, its importance for the development of autonomy in the preparation of the meals and the development of culinary capabilities, besides its close relationship with the culture, themes emphasized in the Food Guide for the Brazilian Population¹⁰ and in the Food and Nutrition Education Framework for Public Policies¹. Later, the students were shown the video "Cooking, health and pleasure," which illustrates a dietetic and nutritional education program using culinary as a structuring axis¹¹, followed by a discussion of its possible applications in their future professional activities and of the students' opinion about this program.

2nd phase: Culinary workshop proposal

In this phase, the students planned and applied the activity, which involved the definition of the preparations, the justification for picking the preparations, in accordance with the dietetic/diet therapy principle for each specific group, and the selection and preparation of their recipes per group (one sweet and one savory) at the dietetic Technique Lab. The students were responsible for organizing the bench, selecting the food, utensils and equipment, weighing the food (gross and net weight), drafting the food preparation technical sheet for the pre-prepare and preparation of the food and weighing the yield. This phase was wrapped up with the tasting of the preparations and their sensorial analysis by the students and professors, as well as a debate among the students and professors responsible for the discipline.

3rd phase: Presentation and discussion of the workshop results

In the last phase of the workshop the students would present the entire content experienced and debated in the culinary workshop, including an introduction to culinary as an educational method; the objective, with the guiding idea for the selection and preparation of the recipes; the methods, with the description of the complete process performed in the workshop, from the selection to the final preparation of the recipes, including the justification for the choice of ingredients; and the results and discussion, containing the recipe's technical sheet, discussion on the nutritional composition of the established serving and the sensorial analysis, besides the evaluation of the level of difficulty to execute each phase of the culinary workshop. To wrap it up, the students reported their experience of participating in the culinary workshop, establishing an interface of how to apply it in their professional activities.

Quantitative Analysis

Forty-one preparations were made, 10 for each life cycle, with the exception of the adolescent group, which counted on 11 preparations. The quantitative analysis was based on the description of the selected recipes and the relative frequency of dietetic/diet therapy principles adopted in selecting the culinary preparations. These data were extracted from the written reports handed in by the students one week after the end of the culinary workshop. With regards specifically to dietetic/diet therapy principles, the students had to describe them in the selection of the culinary recipe prepared, which was linked to the theme proposed (ex. 1: recipes for babies in complementary diets, the principle could be the stimulus to chew, since the recipe should not be

presented in the blended form, ex. 2: in recipes for people with high blood pressure – the diet therapy principle could be the smaller amount of salt, for example).

Qualitative Analysis

Participants and the qualitative research instrument

This phase counted on the participation of 11 students that had already finished their graduation, of both genders, participating in the previously-described culinary workshop. The evaluation instrument was comprised of 4 questions, which are described in Chart 1.

PROCEDURES – DATA COLLECTION

The drafted questionnaire was included in *Google Forms* to be filled out online. The students' invitations were sent by e-mail containing clarifications on the objectives and procedures concerning the study and the page address for the data collection. The participants agreed with the Informed Consent Form and answered questions online. All answers were read in full, composing the study's analytic *corpus*.

Data analysis

The qualitative data analysis was based on Braun & Clarke's content thematic analysis¹², in the perspective of reflexively assessing the students' perception in relation to the practical applicability and interdisciplinarity of the culinary workshop; which includes the following phases: pre-analysis; exploring the material; treatment and interpretation

Chart 1

Evaluation questionnaire on the students' perceptions regarding the practical applicability and interdisciplinarity of the culinary workshop experienced.

Questions

How was it to participate in the culinary workshop?

How do you think the culinary workshop experienced in the Nutrition Education discipline can help you in your present professional activities? Why?

Can you recall interdisciplinary activities performed throughout your graduation? If so, please give examples.

Do you consider this culinary workshop an interdisciplinary activity? Why?

of the data obtained. In the pre-analysis, all questionnaire answers were read exhaustively ("floating reading"), aiming at ensuring the authors' familiarity with and immersion into the content brought by the data, allowing for the emergence of the first impressions and hypotheses related to the theme. Following this phase, the entire dataset was manually coded; such code described the data's common characteristics. Then, all codes were grouped into three thematic axes, defined below. By condensation, this organization supplied a simplified representation of the raw data, aiming at facilitating the understanding of the students' narratives. During this process, the first author worked with the third and fourth authors, who have experience in conducting qualitative researches. Later, all authors got together to discuss the coding of the themes. Subsequently, the messages were grouped with common characteristics into categories based on this

organized content. To support the discussion and interpretation of the results, the scientific literature was used from the area pertaining to the theme approached, such as food and nutrition education², culinary in the promotion of a healthy diet¹¹ and the training of nutritionists in Brazil¹⁵.

Once the exploitation of the research corpus was over, the content analyzed was categorized into three final thematic axes: (1) The student's perception of the culinary workshop; (2) The learning in the culinary workshop for their professional practice; (3) The rationalization of food.

RESULTS

The technical names given by the students to the 41 culinary preparations made, categorized by life cycle and/or clinical condition, are described in Table 1.

Table 1

Description of the culinary preparations according to the life cycles and/or clinical conditions.

Life cycle and/or clinical condition	Technical name of the culinary preparations	
	Savory	Sweet
Baby with complementary diet	<ul style="list-style-type: none"> -Savory purée. -Preparation with potato, carrot and ground beef. -Legume risotto. -Savory purée. -Savory purée with carrots, baroa potato, ground beef and kale. 	<ul style="list-style-type: none"> -Sweet purée. -Fruit salad. -Banana pancake roll. -Sweet purée. -Strawberry and yam purée.
Children with diabetes mellitus	<ul style="list-style-type: none"> -Home-made nuggets. -Mini whole-wheat chicken and home-made sauce pizza. -Chicken pie. -Lasagna made with zucchini dough and meat sauce. -Zucchini paddies. 	<ul style="list-style-type: none"> -Fruit salad with fruits. -Whole-wheat banana cake with a diet ganache frosting. -Apple and banana dumplings. -Banana sorbet with cocoa and coconut milk syrup. -Green-banana-wheat cake.
Adolescents with obesity	<ul style="list-style-type: none"> -Legume pie. -Spinach pancake rolls stuffed with meat and legumes. -Chicken-breast dumpling breaded with eggs and oats. -Open chicken tapioca. -Vegetable and legume omelet. -Roasted chickpea. 	<ul style="list-style-type: none"> -Banana ice cream with plain yogurt, honey and nuts. -Whole-wheat apple and banana cake. -Sweet banana, oats, honey and cinnamon cookies. -Egg and banana pancake roll with chia. -Cocoa and strawberry pancake.
Elders with high blood pressure	<ul style="list-style-type: none"> -Beat soufflé. -Legume pie. -Spinach pancake roll stuffed with shredded chicken and tomato sauce. -Chicken pancake roll. -Legume and chicken shepherd's pie. 	<ul style="list-style-type: none"> -Whole-wheat banana cake. -Banana and strawberry ice cream. -Banana and granola probiotic gelato. -Banana cake. -Traditional condensed milk pudding.

The analysis of the dietetic/diet therapy principles used by the students to pick the preparations (Table 2) showed that half the recipes prepared by the groups (80%) were selected for the nutritional composition of the recipe ingredients. A smaller percentage of the selected recipes had as selection criteria the specific conditions of the life cycle, such as stimulus for the baby to chew, the lack of teeth or difficulties for the elderly to chew, the stimulus for adolescents with obesity to chew (30%); and the clinical objectives, such as the focus on the stimulus to satiety as well as the glycemic content of the food (30%). The principles less used were for easy-to-make recipes (25%) and the sensorial characteristics of each preparation (25%). We point out that for a few recipes, more than one dietetic/diet therapy principle was reported.

In the qualitative analysis of the students' perceptions of the practical applicability and interdisciplinarity of the culinary workshop, three thematic axes were identified: (1) The student's perception of the culinary workshop; (2) The learning in the culinary workshop for their professional practice; (3) The rationalization of food. Table 3 contains a few passages of the participant's reports

obtained in the interviews referring to each thematic axis.

In thematic axis 1, most students reported how the culinary practice of the nutrition education discipline was important for their academic training due to its innovating and multidisciplinary character, helping them recognize or learn how the act of cooking involves multiple fields of knowledge. In thematic axis 2, which covers the students' views of the nutritionist's activities, points toward the predominantly technical character of these activities, in which the main concern is in elaborating nutritionally rich and adequate recipes, and the prescription of dietetic plans that are well accepted and that improve the patient's compliance with the diet therapy prescription. A minority of the students mentioned it was important to consider other aspects that transcend the diet, like pleasure, flavor and socialization, besides the physiological aspect.

Analyzing thematic axis 3, it becomes evident how the students are concerned, almost exclusively, with the nutritional aspects of the food, only considering the patients/clients' nutritional restrictions.

Table 2

Description of dietetic/diet therapy principles presented by the students as justifications for picking the recipes.

Dietetic/diet therapy principles	Reports
Based on the nutrient content (33 recipes - 80%)	"The priority was to formulate a recipe with a high content of fibers, vitamins, minerals and low caloric density, which allows individuals with obesity to maintain satiety for longer." "The preparation is rich in high-quality proteins that help maintain lean mass during the weight-loss treatment and the vegetables added are sources of vitamins and minerals."
Based on specific life-cycle conditions (stimulus for the baby to chew, lack of teeth or difficulties for the elderly to chew, stimulus for the adolescent with obesity to chew) (12 recipes - 30%)	"Besides having a pleasant taste and stimulating chew due to its texture, it contains..." "A highly-nutritious, easy-to-make recipe that stimulates the baby's chewing and the establishment of a balanced diet." "The need to adapt some foods according to the group's limitations, with the hindered mastication in mind." "Its a carbohydrate dish with a low glycemic index." "Recipe with a high content of fibers, vitamins, minerals and low caloric density, since this allows individuals with obesity to feel considerably sated for a longer period..." "...high content of fibers, vitamins, minerals and low caloric density, which allows individuals with obesity maintain satiety for longer."
Based on clinical objectives (12 recipes - 30%)	"Offer a tasty savory and sweet diet that transmits palatal pleasure for children with diabetes..." "The fruit salad is colorful, which awakens interest in the babies."
Based on sensorial characteristics (10 recipes - 25%)	"Because it's an easy-to-make recipe..." "It's a low-cost, easy-to-make, nutritious recipe with a soft texture."
Easy to make (10 recipes - 25%)	

Table 3

Thematic axes and passages selected from the students' reports.

Thematic axes and sub themes	Passages
1) The student's perception of the culinary workshop.	(1) "[...] It was a great experience where we had the opportunity to learn hands-on about some of the culinary issues related to nutrition"; (2) "Very interesting. It added a lot of knowledge and was a different activity within the course"; (3) "[...] It touches on subjects studied in other disciplines such as complementary diets, which we study in Life Cycles, as well as Diabetes Mellitus and Hypertension that are studied in Clinical Nutrition 2".
2) The learning in the culinary workshop for their professional practice.	(1) "The workshop gives the professional a new view of the patient's palatal needs, and through it I was able to understand the difficulties faced by the patients and think about new solutions that can improve health without letting go of the pleasure to eat"; (2) "I think it helped me be more creative with the dietetic plan. To me, the dietetic plan must be attractive to my patient and the class inspired me to test recipes and create new things[...]" ; (3) "[...] When we see the patients that always seek new recipes that are useful, practical and rich in nutrients".
3) The rationalization of food.	(1) "[...] The most practical part of the classes sticks to our minds much more and we think about issues that sometimes haven't appeared yet. Like what is the value of 1 serving, how do we stipulate the size, and to pay attention to the real value of the nutrients in a serving consumed"; (2) "In the issue of explaining to the patient that it's important for him or her to cook to generate autonomy and results [...]" The alteration and addition of some ingredients, either to increase or reduce the caloric and/or nutritional value (substituting, or reducing, the salt for natural seasonings, sugar reduction, include oats, flaxseed); (3) "[...] show the patient there are several preparations and dishes to be inserted in the ordinary daily diet, respecting the restrictions that the disease may cause (celiac disease, lactose intolerance.)"

DISCUSSION

The present study showed that 80% of the selected recipes prioritized the nutrient content of the ingredients as a dietetic/diet therapy principle, in detriment of the specific life cycle conditions, clinical objectives and sensorial aspects. Additionally, through the students' reports it was possible to identify that they considered the culinary workshop to be an innovating experience in the course and important for the professional training and practice.

The culinary workshop experiment applied to the nutrition students showed that most of them reproduced predominantly technical content, worked during the course, which can be seen in the students' justifications for the choices of the preparations and reports. This prioritization of the food's nutritional content as a justification for selecting the culinary preparations is related to the fact that historically, the nutritionist is trained to be a diet and nutrition technician, with the predominance of curricular components turned toward the biological content (for example, about the nutritional composition of

the food and treatment based on diets that supply the individual's nutritional needs), disregarding other aspects of food, such as the emotional, cultural and social aspects¹³.

A previous study showed that most Nutrition graduation courses offered by Brazilian universities have disciplines with content fragmentation and a high theoretic hour load⁶. The fragmented conception of the contents hinders the development of a critical opinion regarding the broader dietetic context¹⁴. In a literature review on nutrition training, Valverde et al.¹⁵ observed that, in general, the training is done through the traditional teaching method, with an emphasis on biologism and technicism, with scarce dialogues with human sciences and incipient articulation between theory and practice. In the case of the nutrition education discipline, studies show a reduced hour load with few practical activities that works punctually, not transversely as defended by the Food and Nutrition Education Framework for Public Policies^{1,16}. Moreover, in this relevant document, it is pointed out that food and nutrition educative actions must be performed

based on problematization activities that stimulate the protagonism and autonomy of those involved in the educative process. The culinary workshops have these characteristics proposed by the Food and Nutrition Education Framework for Public Policies, and its application since graduation may be an opportunity for the students to experience a problematization method during their training and apply it in the future as professionals.

Based on the participants' reports, it was possible to verify that the pioneering culinary workshop experience can be an interdisciplinary activity in the Nutrition graduation course at the researched institution. It was also possible to identify that to them, the act of cooking is an interdisciplinary activity involving different areas of knowledge capable of improving the nutritional-counseling capabilities, bringing more confidence to the clinical practice. Besides, performing activities like this allows the students to develop culinary capabilities during the course. In a recent randomized clinical trial performed with university students, it was identified that the Nutrition and Culinary in the Kitchen Program proved to be efficient in the development of culinary capabilities and the self-efficacy of the students in preparing their own meals¹⁷. The development of cooking capabilities is mentioned in the Food Guide for the Brazilian population as an important tool for the development of autonomy in preparing the food and to reach a healthy diet¹⁰. Additionally, one of the Food and Nutrition Education Framework for Public Policies principles is the valuing of cooking as an emancipation practice¹.

Some authors have discussed and worked culinary as an educational method within different contexts with university students^{8,17,18}, professors and public-school students, as well as school food handlers¹¹ and patients¹⁹. Here, we point out the study performed by Castro et al.¹¹ with elementary-school food handlers and teachers, adolescents and health professionals from the basic healthcare units that used the culinary workshop strategy as a structuring axis and as a new educational method to promote healthy eating. This method proved to be effective and applicable of promoting healthy eating to increase the opportunity of the participants to be the protagonists and involve them in the construction process of this concept. The participation in the culinary workshop during the graduation course may be a viable approach and consequently a way of preparing students to apply it in their professional lives.

Our results also bring to surface the discussion on the importance of including humanistic curricular components in the curricular matrix of the nutrition course; as well as a greater integration with other professions, multidisciplinary discussions, and implementation of didactic-pedagogic strategies that allow for the integration of the biological and social contents studied to improve this professional's humanistic training²⁰.

Our study presents a few limitations. The first was the difficulty to contact the students that have graduated to participate in the qualitative phase of the study. Another limitation was the fact that it was not proposed to the students the integration with disciplines from the humanities area studied during the course, as well as the fact that the students did not apply the workshop in the population, which could have made it more difficult to broaden the perspective to a multidimensionality of the diet.

Thus, it is concluded that the culinary workshop practice with students from the nutrition course is a didactic-pedagogic strategy capable of integrating several contents studied throughout the graduation course, besides stimulating the student's protagonism in the teaching-learning process, which allows for a better consolidation of the knowledge. Additionally, the reports on the culinary workshop showed that it's an activity different from what is usually applied in the disciplines, and that allows for the development of culinary capabilities, being well accepted by the students.

REFLEXIONS AND FUTURE APPLICATIONS

For future applications, it is suggested that the culinary workshop be applied to the target public ensuring a greater relationship between the chosen preparations with social-cultural and emotional issues from each specific group, besides feedback regarding the sensorial analysis of the preparations. Moreover, it would be interesting to stimulate the development of recipes that approach the adequate and healthy-diet concept involving other aspects such as sustainability, culture and seasonality. Another reflexion that came up considering the results is the need to review the disciplinary matrix of Nutrition courses due to the excessive fragmentation of the contents, which leads the students to find difficulties

in bringing them together and applying them in their professional practices, besides the scarcity of disciplines from the humanities area.

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Authorship requirements:

- 1 - Substantial contribution in the study design or data analysis: B.P.L.F; C.C.J.; A.F.S.S.; A.E.M.R.
- 2 - Participation in the drafting of the preliminary version: B.P.L.F; C.C.J.; A.F.S.S.; A.E.M.R.
- 3 - Participation in the review and approval of the final version: B.P.L.F; C.C.J.; A.F.S.S.; F.R.O.P; A.E.M.R.
- 4 - Compliance to be responsible for the accuracy or integrity of any part of the study: B.P.L.F; C.C.J; A.E.M.R.

Corresponding Author:

Bruna Paes Lemes Freitas
bruninhapfreitas@hotmail.com

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