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## Syllabus and bibliographic references for the course of Food and Nutrition Education: document analysis

### Conteúdo programático e referencial bibliográfico da disciplina de Educação Alimentar e Nutricional: uma análise documental

#### Abstract

**Introduction:** Food and Nutrition Education (FNE) is considered strategic to address the current challenges in the fields of Health, Food and Nutrition. It is a required course in the curricula of undergraduate programs in Nutrition, as it must be part of the practice of nutritionists in all fields of activity. **Objective:** To analyze the syllabus and the respective bibliographic references contained in the plans of FNE courses taught in Brazilian higher education institutions (HEIs). **Methods:** This is a qualitative, exploratory, and descriptive documentary study. The analysis of documents was based on content analysis, as proposed by Bardin (2016). **Results:** After reading the programs, we identified 14 themes explored throughout the course, for example: Methodologies, techniques, teaching practices and resources to teach FNE; FNE to different audiences/environments; Theoretical and pedagogical thinking in Education; History of Food and Nutrition Education; Planning, development, and assessment of educational projects; Eating Behavior; Anthropology and Food. A total of 203 works were cited, and the main bibliographical references include "Nutrição e Metabolismo: Mudanças Alimentares e Educação Nutricional" and "Educação alimentar e nutricional: algumas ferramentas de ensino", which appeared in 70% and 67% of the course plans, respectively. **Conclusion:** The course is focused on methodologies, techniques, teaching practices and resources; in addition; educational projects are highly appreciated. The course contents were found to be consistent with the proposed references. Although themes related to nutrition education and anthropology of food appeared quite frequently in the course plans, few bibliographical references mentioned such themes.

**Keywords:** Nutritionists. Food and Nutrition Education. Education and training.

#### Resumo

**Introdução:** A Educação Alimentar e Nutricional (EAN) é considerada estratégica para enfrentar os atuais desafios nos campos da Saúde, Alimentação e Nutrição. Integra o currículo obrigatório nos cursos de graduação em Nutrição, pois deve fazer parte das ações do nutricionista em todos os campos de atuação. **Objetivo:** Analisar o conteúdo programático e as respectivas referências bibliográficas contidas nos planos de ensino da disciplina de EAN das instituições de ensino superior (IES) do Brasil. **Métodos:** Trata-se de um estudo qualitativo, exploratório e descritivo, de base documental. Para análise dos documentos, foi utilizada a Análise de Conteúdo proposta por Bardin (2016). **Resultados:** A partir da leitura dos programas, identificaram-se 14 temas trabalhados ao longo da disciplina, dentre os quais:

Metodologias, técnicas, didáticas e recursos para trabalhar a EAN; EAN para diferentes públicos/ambientes; Correntes teóricas e pedagógicas da Educação; Histórico da Educação Alimentar e Nutricional; Planejamento, desenvolvimento e avaliação de projetos educativos; Comportamento alimentar e Antropologia e alimentação. Foram citadas 203 obras, e dentre as principais bibliografias estão “Nutrição e Metabolismo: Mudanças Alimentares e Educação Nutricional” e “Educação alimentar e nutricional: algumas ferramentas de ensino”, que apareceram em 70% e 67% dos planos de ensino, respectivamente. **Conclusão:** Na disciplina, existe um olhar voltado para trabalhar as metodologias, técnicas, didáticas e recursos, além de uma grande valorização dos projetos educativos. Observou-se coerência entre esses conteúdos com as referências propostas. Apesar da boa frequência com que os temas relacionados a educação e antropologia da alimentação apareceram, foram poucas as bibliografias que tratavam dessas temáticas.

**Palavras-chave:** Nutricionistas. Educação Alimentar e Nutricional. Formação.

## INTRODUCTION

Food and Nutrition Education (FNE), in the context of health promotion and food and nutrition security, is considered an important strategy to address the new challenges in the fields of Health, Food and Nutrition. According to the reference framework for food and nutrition education for public policies, FNE is a field of practice, a process that involves reflection on the act of eating, eating behavior, awareness of the importance of food for having good health, changing eating habits or re-engaging in healthy eating habits, culture, sustainability, and food system, among other principles.<sup>1</sup> Therefore, in addition to being a required course in undergraduate programs in Nutrition, FNE must be part of the professional practice of nutritionists in all fields of activity.<sup>2,3</sup>

The first studies recorded on the so-called Food Education date back to the 1930s, when research was carried out by several authors, e.g., Josué de Castro and Gilberto Freyre.<sup>4</sup> Josué de Castro exposed the situation of inequality and hunger in Brazil, while Gilberto Freyre published the first and most complete sociological essay on the pattern and eating habits of Brazilian society.<sup>1,5</sup>

Between the 1960s and 1970s, Nutrition Education had a prominently technical character and was aimed at teaching lower income groups how to eat food based on biological parameters, focusing on actions that only valued the nutritional dimension of food but disregarded its cultural and sensory aspects.<sup>1</sup> As of the 1990s, educational activities began to be called Food and Nutrition Education, and it was a theme for debate in academic conferences, with new perspectives of action, placing emphasis on individuals, the democratization of knowledge, culture, ethics, and citizenship.<sup>6</sup>

The National Curriculum Guidelines (DCNs) of 2001, still in force today, describe the profile of graduates as professionals that are educated to have a generalist and humanist background, and well-developed critical thinking.<sup>7</sup> There has been ongoing debate over the reformulation of DCNs, as recommended by Resolution No. 704, of October 20, 2022, with ideas contributed by the National Health Council. It is worth mentioning one of the principles of the profile of graduates described in this document: “technical-scientific, investigative, ethical, political, humanist, reflective, entrepreneurial, innovative, and democratic education, in an emancipatory and critical-transforming perspective”.<sup>8</sup>

The way in which FNE courses are structured and contents are addressed will generate the basic elements of higher education in nutrition. Based on textual analysis,<sup>9</sup> Recine et al.<sup>10</sup> analyzed course plans of 46 public and private Brazilian universities, adopting the Social Representation Theory as a theoretical framework. The study demonstrated the need to restructure teaching-learning plans with a view to increasing integration between theory and practice, and expanding the theoretical and conceptual basis in the context of the multiple dimensions of eating behavior. The authors also found the need for greater integration between the course and the rest of the program, since the skills and competencies developed in class need to be adopted in all fields of professional practice.

The basic constituent elements of a teaching-learning plan are: course description, objectives, syllabus, methodology, assessment, basic and complementary bibliography.<sup>11</sup> The syllabus refers to the structures in the format of sections (or modules) that provide a detailed description of the general and specific subjects to be addressed, and which really need to be included the course description. As with the syllabus, the bibliography is very important because it supports the theoretical framework, which is crucial to the structure of the course. Additionally, the bibliographic references will provide students with the opportunity to seek more information about the subjects of the course and the ones that catch their interest.<sup>12,13</sup>

Therefore, to foster deep reflection on the academic education of nutritionists as regards FNE, this nationwide study aims to analyze the syllabus and the bibliographic references included in the teaching plan of FNE courses taught in undergraduate programs in Brazilian HEIs

## METHOD

This is a qualitative, exploratory, and descriptive documentary study, derived from a major study entitled *Formação do Nutricionista no campo da Educação Alimentar e Nutricional na perspectiva da Promoção da Saúde e Segurança Alimentar e Nutricional* ("Education of nutritionists in the field of Food and Nutrition Education from the perspective of Health Promotion and Food and Nutrition Security"), which investigated the education and professional performance of nutritionists in the field of FNE in Brazil. The object of this study corresponds to the analysis of the teaching-learning plans of the Food and Nutrition Education course.

To have access to the plans, the teachers responsible for the NFE course were invited to participate in the major study and send these documents. The sample was composed of 381 government-funded and private Brazilian HEIs that offered an undergraduate program in Nutrition that had been recognized and authorized by the Ministry of Education and Culture (MEC) no later than December 2016. Data were collected between May and September 2017, and analyzed from April to July 2018.

Data analysis was based on content analysis, proposed by Bardin,<sup>14</sup> as "set of techniques of analysis of communications aiming to obtain by systematic procedures and objectives of description of message content, indicators (quantitative or not) that allow the inference knowledge of the conditions of production / reception (inferred variables) of these messages" (Bardin, 2016, p. 50). Among the different types of techniques that can be adopted for developing content analysis, we chose thematic or categorical analysis.

Documentary analysis is organized around three stages: pre-analysis; exploration of the material; and treatment of results, inference, and interpretation. Pre-analysis consists of the floating reading of the documents in question; it is the stage of organization and systematization of ideas from the documents that will be analyzed, formulation and reformulation of the hypotheses and initial objectives of the study in relation to the collected material.<sup>14</sup>

The second phase consists essentially of encoding, decomposition, or enumeration operations, depending on previously formulated rules. The coding organization comprises three choices (in the case of a quantitative and categorical analysis): selection (choice of recording and context units); enumeration (choice of counting rules); classification and aggregation (choice of categories). The third phase identifies the significant contents in all the teaching plans analyzed.<sup>14</sup>

The variables of interest in this study permeate the analysis of the syllabus of the course and the respective bibliographic references. The objective was to learn about the topics and contents covered, proposed references for the subjects described, main authors, years of publication of the documents, and number of references in the "basic" and "complementary" structures.

The research project was approved by the Research Ethics Committee of the School of Health Sciences (CEP/FS) of the Universidade de Brasília (University of Brasilia), Protocol no. 1.830.946.

## RESULTS E DISCUSSION

The participants of the major study were 104 teachers; 34 of them sent their teaching-learning plan. Table 1 shows the regional distribution and the nature – government-funded or private – of the higher education institutions that sent teaching plans. Most of the study HEIs are government-funded (=n 20) and are in the Southeast region (n= 12).

**Table 1.** Regional distribution of undergraduate degree programs in Nutrition of government-funded and private higher education institutions. Brazil, 2018.

Type of institution	North (n=3)		Northeast (n=8)		Southeast (n=12)		South (n=8)		Central-West (n=3)		Brazil (n=34)	
	N	%	N	%	N	%	N	%	N	%	N	%
Government-funded	2	66.7	6	75.0	5	41.7	5	62.5	2	66.7	20	58.8
Private	1	33.3	2	25.0	7	58.3	3	37.5	1	33.3	14	41.2

Although 34 institutions made their plans available, 37 teaching plans were analyzed, because 9.0% (n=3) of them offered the course in two semesters, thus producing two different documents. A similar event was reported by Franco,<sup>15</sup> when she analyzed the organization of the Food and Nutrition Education course in undergraduate programs in Nutrition in Brazil. The author found that of the 12 government-funded and private HEIs that sent their course teaching plans for analysis, the course was taught in only one semester in 83.3% (=n 10) of them, while it was taught in two semesters in 16.7% of the HEIs.

To identify the recording units, every theme described in the syllabus of the course was considered, and they may be a whole sentence or separate terms, with a specific and complete meaning. It is worth noting that the data were organized so that an element could not be included in more than one category, adhering to the principle of mutual exclusion.<sup>14</sup> Table 2 shows 14 themes that were identified after all the programs thoroughly read.

**Table 2.** Recording units for the content of the teaching-learning plans of the Food and Nutrition Education course. Brazil, 2018.

Themes	Frequency of occurrence
Methodologies, techniques, teaching practices, and resources to address FNE	74
FNE for different audiences/environments	52
Theoretical and pedagogical thinking in Education	48
History of Food and Nutrition Education	48
Planning, development, and assessment of educational projects	45
Eating behavior	40
Anthropology and food	31
Health education	23
FNE in the working field of nutritionists	18
EAN for public policies	17
Dietary guidelines	14
Communication	12
FNE and sustainability	10
Media, publicity, and advertising	8

The most frequent recording unit was “Methodologies, techniques, teaching practices, and resources to address FNE”; in the study teaching plans, this content appeared 74 times. The context of this theme involves the learning of active and participatory methodological strategies, such as group dynamics, conversation circles, demonstration, thematic workshops, debate sessions, games, among other individual and collective techniques.

A study conducted by Recine et al.<sup>16</sup> investigated the contents of the teaching plans of courses in the field of Nutrition in Collective Health. The author found a set of words that may be associated with the educational process, for example, tools, materials, planning, audiovisual, pyramid. Most of the materials referred to have teaching purposes and relate to pedagogical practices.

The theme “Planning, development, and assessment of educational projects” (n=45) refers to the steps for planning educational projects or programs, seeking to develop critical-reflective educational proposals.

Some of the principles of the reference framework for FNE are planning, assessment, and monitoring of actions. The framework considers planning an essential step to ensure effective and sustainable FNE actions. It consists of steps such as diagnosis, definition of goals and strategies, allocation of resources, and establishment of indicators. In addition, it emphasizes the importance of people’s participation in decision-making processes, to ensure legitimate and successful initiatives.<sup>1</sup>

In learning environments, one seeks to increasingly provide critical and dialogic education, which breaks with the model of knowledge transmission and is committed to the construction of knowledge as instruments of social transformation, in which there are interactive situations of teaching and learning between educators and students. Instead of passive reproduction, the exchange of information of those involved in the educational process and the stimulation of creativity are increasingly valued.<sup>4,17,18</sup>

The context of the theme “FNE for different audiences/environment” (n=52) addresses the orientation or nutritional counseling in the different areas of activity of nutritionists (offices, clinics, food and nutrition units, primary care), as well as in schools, community spaces, for different socioeconomic levels and cultural realities, in the different stages of the course of life.

In this perspective, Boog<sup>19</sup> proposes four steps for counseling: bond building, dialogical interaction, and initial diagnosis; in-depth exploration; planning and implementation of actions; and integration. By means of listening and dialog, these stages can shed light on the origin of dietary problems, help identify eating patterns and behaviors, raise awareness of the need for change, and enable the development of autonomy for food choices, taking into account the different audiences and contexts.

The recording unit “Theoretical and pedagogical thinking in Education” (n=48) was related to the study of the thinkers of education, the teaching-learning process in different pedagogical approaches, and the student-teacher relationship. Freirean education and his problem-posing pedagogy emerged with evidence.

A study conducted in São Paulo, Brazil, analyzed the perception of teachers, pedagogical coordinators, and nutritionists working in the School Food Department about their role in the process of food and nutrition education. Nutritionists were asked about their undergraduate education and reported that pedagogical aspects were not given much prominence in the course. Educational theories, theoretical foundations of the social sciences, and other fields of knowledge were not mentioned as part of the course contents. They also emphasized that the specific actions guided by the hegemonic biomedical and traditional model prevailed to the detriment of problem-posing and permanent educational resources.<sup>4</sup>

This reality differs, at least in part, from the findings of the present study, in which this theme appeared quite frequently in the syllabuses. One should be aware of how these contents are being dealt with in the classroom, since the mere mention in the teaching plan does not enable an analysis of how the theme is developed.

“History of Food and Nutrition Education” (n=48) involves, in addition to the history of FNE in Brazil and in the world, the concepts, fundamentals, and objectives of FNE. Although related, the themes “Eating Behavior” (n=40) and “Anthropology and Food” (n=31) were dealt with separately in this study. The former was focused on the fundamentals of eating behavior (cognitive, affective, and situational components), the psychosocial determinants of food selection, and the stages of change in eating behavior of the Transtheoretical Model.

Another study analyzed the specific teaching-learning plans for the FNE course in 46 HEIs. The authors refer to the approach to food behavior and its determinants, based on the understanding of the formulation of habits, and highlight how essential it is for successful planning, implementation, and progress of educational actions. They also argue that the presence of this theme indicates an improvement in terms of change in undergraduate education over the decades, which can progressively affect professional practice.<sup>10</sup> According to Bertolin and Slater,<sup>20</sup> several methods and approaches are used for promoting change in eating behavior, for example, the Transtheoretical Model. In this model, the process of behavior change is dynamic and predicts moments of progress and setbacks.

The theme “Anthropology and Food” addressed the social and cultural value of food and its influence on food choices, considerations about body image in contemporary society, advertising, and eating practices. It also covered prejudice, beliefs, taboos, myths, and rituals related to food and eating, the meanings of eating, and food identity.

The presence of this theme in the analyzed documents reinforces the importance of the area of social sciences in the environment of Nutrition. Franco and Boog<sup>21</sup> argue that disciplines such as Anthropology, Sociology, Philosophy, Geography and Psychology are hardly present in the curricula of undergraduate programs in Nutrition. An approach integrated with different fields of knowledge enables FNE to delve into meanings, symbolic aspects, and the multiple dimensions of food and eating.

For Rodrigues and Boog,<sup>22</sup> Food and Nutrition Education should consider the knowledge of Anthropology of Food and the theoretical foundations of the field of Education. This way, it can be set in a political-social context of health promotion and quality of life. The interaction between FNE and social and human sciences is promising to provide further insights into eating habits, practices, and behaviors.<sup>1,4</sup>

In the present study, the theme “Communication” (n=12) appeared in the plans with the purpose of fostering debate on the application of communication and transmission of messages in nutrition and health, the various forms of communication, and public speaking techniques. However, such content was not presented with satisfactory frequency, that is, the plans did not prioritize this subject.

A study conducted by Alves and Martinez<sup>23</sup> sought to identify general and specific competences, according to the National Curriculum Guidelines, based on course descriptions of the pedagogical project of an undergraduate program in Nutrition of a government-funded educational institution. One of the analyzed competences highlighted by the authors is “Communication”; as a content record in the course descriptions, it appeared in only three courses: two of the first year of the program and in the Food and Nutrition Education course, in the 7th academic semester.

This competence can be integrated into Food and Nutrition Education, which is of paramount importance to educate nutritionists to become health workers and work in all fields of activity. For this reason, "Communication", as a competence, should be more emphasized and be present throughout undergraduate education. According to Boog,<sup>3</sup> new competences require nutritionists to be educated to work as health educators. Thus, undergraduate programs in Nutrition need to take new paths because most of them still have a largely biological character. To become educators, students need much more than one course only, but the responsibility rests with the programs and all their faculty.<sup>23</sup>

Still on this subject, Recine et al.<sup>16</sup> found a relationship between the class "Food and Nutrition Education and Communication", characterized by words related to the educational process, and the classes "Education for professional performance" and "Culture and social sciences". Terms such as "communication", "behavior", "foundation", "cognitive" and "habit" complemented the meaning of the category. The word "communication" relates both to technique and theory, making the connection also with the term "education", usually approached with regard to FNE.

One last theme was noteworthy: "Media, publicity and advertising" (n=8). Although it is increasingly important and should be discussed in greater depth, it appeared very infrequently. The context mentioned in the plans was: influence of the media on eating habits, education as a social process (media and social media of education), nutritional marketing and advertising materials – pros and cons.

Regarding the importance of this theme, Fischer,<sup>24</sup> when discussing the concept of pedagogical apparatus of the media and the way of educating through television, stressed that the media are sources of information which produce a wide range of values and representations, usually related to what we should do to our body, how we should eat, which lifestyle we should adopt, among other examples. This author concluded that it is nearly impossible to avoid talking about the human body in the media, because the issues related to beauty, youth and longevity are prevalent today, stimulating the search for a mode of "... being beautiful, lean, athletic, healthy, immortal..." [our translation].

In the present study, data on the basic and complementary bibliographical references were also analyzed. Of the 37 study documents, 10% (n=4) did not include references. It is worth noting that five plans did not distinguish between basic and complementary bibliography – in such case, all items were considered basic bibliography.

Teaching-learning plans have a space reserved for the bibliography, in which the teacher lists a set of works related to the contents developed in the course. In general, the bibliography refers to a consolidated body of research literature, and the main thinkers of the field; this way, teachers can advise students to study the contents in detail. That is why this space is important, and it becomes a problem when it is not used.<sup>13</sup>

When exploring the basic bibliography in the teaching plans, there were 108 citations, of which 31 appeared more than once, that is, with the same author and the same publication, while 77 appeared only once. As for the complementary bibliography, 121 works were cited: 94 only once and 27 more than once.

Table 3 shows the references that appeared most frequently. The percentage was calculated based on the occurrence of these works in the 37 teaching-learning plans analyzed in the present study.



**Table 3.** Basic and complementary bibliography included in the teaching-learning plans. Brazil, 2018.

Bibliography	Basic		Complementary		Total	
	n	%	n	%	n	%
Diez-Garcia RW, Cervato-Mancuso AM. <i>Nutrição e Metabolismo: Mudanças Alimentares e Educação Nutricional</i> . Rio de Janeiro: Guanabara Koogan, 2011.	20	54	6	16	26	70
Linden S. <i>Educação alimentar e nutricional: algumas ferramentas de ensino</i> . 2. ed. rev. São Paulo: Varela, 2011.	20	54	5	13	25	67
Fagioli D, Nasser LA. <i>Educação nutricional na infância e na adolescência: planejamento, intervenção, avaliação, dinâmicas</i> . São Paulo: RCN Editora, 2006.	12	32	5	13	17	45
Brasil. Ministério do Desenvolvimento Social e Combate à Fome. <i>Marco de referência de educação alimentar e nutricional para as políticas públicas</i> . Brasília: MDS; 2012.	7	18	10	27	17	45
Freire P. <i>Pedagogia da autonomia – saberes necessários à prática educativa</i> . 43a ed. Paz e Terra, 2011.	6	16	10	27	16	43
Brasil. Ministério da Saúde. <i>Guia alimentar para a população brasileira</i> . 2. ed. Brasília, DF: Ministério da Saúde, 2014.	5	13	9	24	14	37
Galisa MS. <i>Educação alimentar e nutricional da teoria à prática</i> . São Paulo: Roca, 2014.	10	27	3	8	13	35
Boog MCF. <i>Educação em Nutrição: Integrando Experiência</i> . Campinas – SP: Komedi, p. 151-231, 2013.	6	16	4	10	10	26

The main references present in the complementary bibliography had already been included in the basic one. Among them, the following works stand out: *Nutrição e Metabolismo: mudanças alimentares e Educação Nutricional* (“Nutrition and Metabolism: Dietary Changes and Nutrition Education”) and *Educação Alimentar e Nutricional: algumas ferramentas de ensino* (“Food and Nutrition Education: some teaching tools”), which appeared in 70% and 67% of the teaching plans, respectively. The first three titles were assessed through the analysis of their respective table of contents, i.e., these works were not fully read.

The first work has some chapters dedicated to the discussion of contents such as eating habits and the meaning of eating, reflections on contemporary eating, the body, advertising. Such contents were analyzed on the basis of the socio-anthropological perspective, the history of FNE in Brazil, report of experiences of

FNE programs and initiatives, as well as techniques, strategies, and technologies for the practice of nutrition education.<sup>25</sup>

Linden's book<sup>26</sup> has an exclusive chapter for the theme of Education, addressing concepts, the teaching-learning process, and the relationship between teaching and learning. It also contains what the author considers to be the set of components of the teaching process (the student, the teacher, the course, motivation, educational objectives, the environment – classroom, day care centers, outpatient clinic – , methods and techniques, teaching materials, and assessment). It also presents the didactic moments of the teaching process: acknowledgment and needs assessment; motivation and/or awareness; action and assessment.

In most of the work of Fagioli & Nasser,<sup>27</sup> the contents are related to dietary recommendations, nutritional status assessment, and consumption assessment. The other part, which may be of greater interest to the course of FNE, is about planning educational interventions and communication and food reeducation programs; additionally, it presents some playful and pedagogical dynamics.

Next, it presents two references that appeared in less than half of the teaching plans, considering both the basic and complementary bibliographic references, namely *Marco de referência de educação alimentar e nutricional para as políticas públicas* ("Reference Framework for Food and Nutrition Education for Public Policies"), with 45% of citations; and Paulo Freire's work *Pedagogy of Autonomy* ("Pedagogy of Autonomy"), with 43%. A higher frequency of citations was expected for both works because they are great references in the field.

The Reference Framework is a document that conceptualizes FNE as a field of continuous, permanent, transdisciplinary, intersectoral, and multidisciplinary knowledge, with the aim of promoting healthy, autonomous, and voluntary eating habits. It also frames an expanded concept of what FNE is and defines principles for practice.<sup>1</sup>

The Framework determines that, given the intersectoral and multidisciplinary character of this field, other professionals may participate and engage in activities and have access to training and continuing education programs that address this issue. Some examples of this fact are the inclusion of this field of knowledge in the school community for the purpose of social development and health.<sup>1</sup> This interaction with other fields demonstrates the importance of educating nutritionists to develop practices that are in line with public policies.

Also according to this document, the practice of FNE should make use of problem-posing and active educational approaches and resources that favor dialog with individuals and population groups, considering all stages of the course of life, stages of the food system and the interactions and meanings that make up eating behavior.<sup>1</sup>

The work of Paulo Freire is important in the teaching-learning process, considering that the application of Freirean principles can stimulate the ability of Nutrition students to critically understand the complex interrelations between food, health, society, and the environment.

In general, it can be said that the most discussed content is coherent with the most recurrent bibliographies. This inference is the opposite of the finding of another study that also evaluated FNE teaching plans: there was a weak association between the theoretical framework proposed in the references and the main contents taught in the course.<sup>10</sup>

A limitation of the present study is that data were collected and analyzed more than five years ago. Ever since, the undergraduate programs that were analyzed may have undergone some modification, after the

implementation of a curriculum reform. However, this debate remains important, since the Curricular Guidelines of Nutrition Undergraduate Programs remain the same. Another limitation was the fact that the assessment of the course was not analyzed; thus, one cannot make inferences about the way the contents are being taught. For this reason, further research should make an in-depth analysis of the relation between contents and references, and a thorough assessment of the referenced works, since this study analyzed their table of contents.

A strength of this study was to identify the topics covered, helping the professors of the course to analyze it, detect gaps, and assist in the assessment and improvement of the quality of FNE teaching.

## CONCLUSION

The syllabus of the course on Food and Nutrition Education is focused on working the methodologies, techniques, teaching practices, and resources. Also, educational projects are highly appreciated. There was a consistency between these contents and the proposed references.

Although it is a positive point that the themes related to Education and Anthropology of Food appeared frequently in the teaching plans, few bibliographical references addressed such themes. A weakness is that the theme of media, advertising and propaganda was hardly addressed; however, it needs to be thoroughly discussed in undergraduate programs.

The findings of this study are expected to encourage reflection on the impact of FNE teaching on the professional profile of nutritionists. It is a strategic measure to highlight the importance of FNE as one of the pillars to organize the education of the workforce in the field of Nutrition, and its integrated approach can enable the development of skills to help nutritionists to take contextualized, transformative action. Therefore, curricular changes are necessary to strengthen the construction of the FNE course and its descriptions, as well as indicate the prominence of the internal integration of different areas of kn

Finally, we emphasize the importance of studying these plans, since it is a document intended to support the teaching-learning process.

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### Contributors

Moraes IC and Almeida GM participated in the study design, collection, analysis, and interpretation of the data, writing of the manuscript, and final review and approval of the manuscript for submission. Recine E participated in the study design, analysis and interpretation of data, final review and approval of the manuscript for submission.

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