

The Mathematics of Healthy Food: the Insertion of Interdisciplinary Food and Nutritional Education Activities in the School Curriculum

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Abstract: Policies to promote healthy eating recognize the school as a privileged space due to its contribution to the achievement of individual autonomy and the promotion of healthy habits. The teaching dynamics, through mathematics, are strong strategies to carry out creative and effective approaches with students in community spaces, engaging the family, education and health professionals regarding self-care with their food. The objective of this study is to contextualize the teaching of mathematics through topics related to nutrition and healthy eating, emphasizing their contributions to health promotion, improvement in quality of life, facilitation of learning exact sciences and the formation of a critical subject. Methods: This is a descriptive study of the experience report type, with a quantitative and qualitative approach, carried out in a state school in the city of Patos-PB. Results: According to the evaluation of the students and teachers, it was noticed that the activities carried out in the classroom, involving Nutrition and Mathematics, were satisfactory, highlighting that it is necessary to rethink the training of elementary school teachers regarding the multiple dimensions of the act of eating, overcoming the view centered on biological aspects, reassessing the teaching-learning strategies used and, with that, promoting dynamic and innovative classes. Conclusions: Combining curriculum content with food and nutrition education in the school environment proved to be very positive in the case studied in this experience report, contributing positively to a better understanding of the mathematics discipline and a change of perspective in relation to the subjects of food and nutrition for students that presents itself in a multi and interdisciplinary way. Thus, food and nutrition education acts as an important tool in promoting healthy eating and preventing overweight and obesity. It is extremely important to rethink the act of teaching, promoting an integrated curriculum starting from the resolution of problem situations that address new themes, emphasizing the possibility of rearranging classes, with contextualizing themes, games and collective dynamics.

Keywords: School feeding; Food and nutrition education; Curriculum; Mathematics teaching.

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I. Introduction

A study published by the Lancet Magazine, which followed 186 countries from 1975 to 2014, places Brazil among the most obese countries in the world, in the second position for men with 17% (11.9 million) and among women in the fifth, 3% of them, or 18 million, was obese in 2014. The study also indicates that the prevalence rate of overweight in Brazil has been increasing in recent decades in children and adolescents aged 5 to 19 years, with a global rate equivalent to 16.2% in girls and 14.4% in boys and the obesity rate is 9.2% and 9.0% respectively (FERREIRA *et al.*, 2021).

In 2022, until the beginning of October, the Food and Nutrition Surveillance System of the Ministry of Health monitored more than 4.4 million adolescents between 10 and 19 years of age, and identified that almost 1.4 million were diagnosed with overweight, obesity or severe obesity. The data are discrepant in all regions, with the South region having the highest rate in the country, with 13.13% of the adolescents monitored,

followed by the Southeast, with 11.48%; Midwest, with 10.91%; Northeast, with 8.25%; and North, with 7.4% (BRAZIL, 2022).

Food and Nutrition Education (EAN) is the field of knowledge and continuous and permanent practice, transdisciplinary, intersectional and multidisciplinary that aims to promote the autonomous and voluntary practice of healthy eating habits, contributing to ensure the Right to Adequate and Healthy Food (DHAA) (BRAZIL, 2012, p. 13).

EAN is also foreseen in the Article. 15 of Law 11,947 of June 16, 2009, on providing school meals and announces the competence of the Ministry of Education to propose educational actions that runs through the school curriculum, addressing the theme of food and nutrition and the development of healthy life practices, from the perspective of food and nutritional security (BRAZIL, 2009).

Recently, Law 9,394, of 13,666 of May 16, 2018, amends law no School. The justification for including EAN in the school curriculum is the high rates of childhood obesity and inadequate eating habits. Among the cross-cutting themes are: human rights and prevention of violence against children and adolescents, study of Afro-Brazilian and indigenous history and culture (BRAZIL, 2018).

The National Curriculum Parameters (PCN) express that Brazil, as a nation, has major obstacles in teaching Mathematics, especially in basic education. Results of assessments carried out at national and state levels point out that one of the greatest difficulties encountered by students is in applying the presented theory to solve a mathematical situation (PCN, 1998).

At the same time, issues related to health in Brazil are very broad and health education is one of the pillars for the prevention of diseases and morbidities in the general population (SAINTS *et al.*, 2021). Thus, the National Curriculum Parameters suggest that aspects of human physical development (weight, height, percentage of muscle and fat mass, etc.) and dietary information on food can function as contextualizing themes and forms of practical application of the content, with the aim of providing a more creative, instigating and dynamic work in relation to mathematical teaching (BRAZIL, 1998).

In addition, the decision to work across nutrition and mathematics, focusing on the consumption of healthy foods and anthropometric data, was due to the fact that it is something routine and intrinsic to the students' reality. It should be noted that, often, diets and food preferences are developed under the influence of several factors, such as the social context, cultural traditions and inhabited region, not only being a rational act, but also a social construction (SILVA, 2019).

Therefore, in view of the need to transform food and nutrition education in line with the teaching of mathematics in a contextualized way, the present study aims to present a teaching and learning process that links classroom contents with practices that promote health, in particular the principles of human nutrition, as a foundation for promoting healthy eating habits to combat malnutrition, overweight and obesity.

II. Material And Methods

This is a descriptive research, with a quantitative and qualitative approach in the collection, treatment and analysis of data, carried out in a state school in the municipality of Patos-PB. The descriptive research seeks to raise the opinion, attitudes and beliefs of a population. Usually of a quantitative nature, this type of research identifies and describes aspects of a collective and phenomena (GIL, 2017).

The work developed here was also of a qualitative nature, since it provided a direct contact between the researcher and the researched subject, allowing portraying the perspective of the participants and understanding their visions of the multidimensionality of society (CUSATI, *et. al.*, 2021).

A focus group was held, it is pointed out that the focus group was adopted because it is a qualitative data collection technique capable of identifying attitudes and opinions on the proposed theme from the group's interaction. In this process, participants expose their experiences, making it possible to reveal not only what they think, but also how and why they think and act with regard to school feeding (OLIVEIRA, *et. al.*, 2020).

This work consists of an Experience Report of an excerpt from the Extension Project Pedagogical Practices of Nutrition in Collective Health: Food and Nutrition Education in the School Curriculum, developed with academics from the Bachelor of Nutrition course at a university center in the city of Patos in the state da Paraíba, in the second half of 2018, targeting students from the 6th to the 9th grade of elementary school.

The activities were carried out fortnightly in the classroom and were previously planned by the professor responsible for the Mathematics axis, students and professor of the Nutrition course. The actions were planned seeking to promote pedagogical practices aligned with the content of the mathematics discipline, addressing themes related to food and nutrition in the students' daily lives, which would provide stimulus and aptitude for the promotion of healthy eating.

At first, the project and activities planned for the 8th and 9th grade classes were presented, addressing the importance of healthy eating, the risks of chronic diseases and the care needed to have a quality of life. In the second moment, a notebook of questions involving nutrition themes was elaborated, where the questions

were in accordance with the contents experienced in the classroom, such as: the four operations, fractions, percentage, problem situations, equations, interpretation of graphs and tables.

Therefore, the activities carried out were divided into the following stages:

1. **Step 1:** Presentation of the project to directors, teachers;
2. **Step 2:** Elaboration of a notebook of Nutrition-Mathematics activities;
3. **Step 3:** Calculation of the students' Body Mass Index (BMI), relating contents of the four operations, proportion, fractions and percentages;
4. **Step 4:** Conducting the Healthy Eating Trail activity, relating the four operations and data interpretation;
5. **Step 5:** Socialization with the classes and the teacher about the activities experienced, identifying the perception and contribution of the project to the classes of mathematics and changing habits.

III. Results e Discussion

The activities were carried out in the two classes, which totaled 48 students and 02 Mathematics teachers. Each of the steps was carried out following a plan provided in the thematic notebook, with objectives, methodology, development and conclusion of the teaching and learning processes using the tools and pedagogical strategies for teaching Mathematics in order to contribute to the understanding of the principles of Mathematics Nutrition, which comprise steps 1 and 2 of this experience report.

In step 3, each class was divided into groups of five students, where their weight and height were measured and recorded on a spreadsheet. Soon after, each student was asked to calculate their BMI. BMI is calculated by the ratio of weight divided by the square of the individual's height, as expressed by the formula below:

$$\text{BMI} = \frac{\text{Weight (Kg)}}{\text{Height (m)}^2}$$

Thus, the unit of measurement for this indicator is Kg/m² (BRAZIL, 2011). According to the Primary Care Notebook n° 39, the Ministry of Health's guidance is the classification with cut-off points in percentiles and z-score, according to the table below:

Figure 1: Critical values and anthropometric indices for classifying the nutritional status of adolescents.

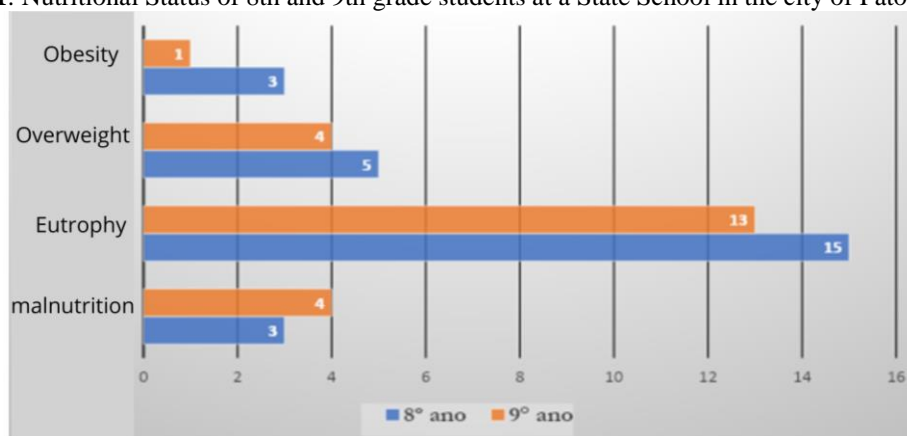
Indicators of nutritional status	Boys	Girls	<i>t</i>	df	<i>p</i> -value
	Mean (SD)				
Height ^a	-0.47 (0.98)	-0.50 (0.85)	0.30	277	0.768
BMI ^a	-0.57 (1.10)	-0.32 (0.92)	2.01	277	<0.05
Categories of nutritional status	<i>n</i> (%)		χ^2	df	<i>p</i> -value
Severe underweight/underweight	8 (7.5)	5 (2.9)	7.87	3	<0.05
Normal weight	87 (82.1)	159 (92.4)			
Overweight	10 (9.4)	6 (3.5)			
Obesity	1 (0.9)	2 (1.2)			

^a Mean z-scores; WHO (2007a).

Source: <https://www.cambridge.org/core/journals/journal-of-biosocial-science/article/abs/nutritional-status-of-adolescents-in-the-context-of-the-moroccan-nutritional-transition-the-role-of-parental-education/70450B78A7A7C3E336691EB86352AF44>.

Each student identified and classified their nutritional status, according to the classification of the World Health Organization (WHO, 2007), shown in graph 1.

Graphic 1: Nutritional Status of 8th and 9th grade students at a State School in the city of Patos-PB, 2018.



Source: Research data (2018).

OBMI is an easy and inexpensive way to track weight categories that can lead to health problems. For children and adolescents, BMI is age- and sex-specific and is often referred to as BMI-for-age and is expressed as a percentile obtained from charts for boys and girls ages 2-20.(CDC, 2022).

In addition, BMI is a widespread measure in several population studies for the assessment and classification of overweight and obesity in children and adolescents, as it is an anthropometric technique that is easy to interpret, accessible and inexpensive.*et al.*,2019).

Thus, there is a prevalence of 27% of excess weight among the 48 students analyzed, with 58.3% (28) eutrophic; 18.7% (9) are overweight; 8.3% (4) with obesity; 14.6% (7) malnourished. The results of this study are similar to those found in a survey carried out in 2016, where it was found that overweight affects practically ¼ of the school users of the PNAE (National School Feeding Program) in the municipality of Canoinhas, southern Brazil. A reality similar to the data observed in the dynamics of this study. Since, after disclosing the data, there was a need to study and propose measures to combat the school's problem, adopting, mainly, long-term educational measures, the institution was able to significantly reduce the number of overweight students, demonstrating that food education at school has significant results (GRILO *et al.*, 2016).

In the fourth stage, the Healthy Eating Trail game was played, where the two groups were divided into 4 teams, carried out in the form of a competition, where the winning team had the highest number of correct answers in questions related to the content of the four operations with data interpretation. The questions were elaborated from the themes: eating habits, chronic diseases, macronutrients, micronutrients, energy balance, physical activity, practice of sports and food pyramid.

It is common to hear that mathematics is a difficult subject to understand. Some authors emphasize that students are increasingly unmotivated in relation to this science, which ends up resulting in low learning effectiveness and school demotivation. It is also considered that this demotivation is caused by the way the discipline is worked, where, many times, teaching is done only using the textbook, without contextualization or application of information in their daily lives (ZANELLA; ROCHA, 2020).

The purpose of using resources that help the educational process is to awaken the student's interest in the proposed theme and, at the same time, motivate him to promote changes in his behavior according to what was taught; that is, to improve their relationship with mathematics, develop different forms of reasoning, facilitate the understanding of subjects and promote aspects of the contextualizing theme, which in this case was healthy eating.

Healthy eating should be understood as synonymous with quality of life, which consists of food harmony, combining variety and adequate quantity. Knowing that a balanced diet is important at any stage of life, however, in childhood it is indispensable, in which the child has nutritional needs that reflect on their growth rate (CONCEICAO, 2021).

The games provided new possibilities for a fun and interdimensional education, promoting logical reasoning and articulating the areas of knowledge. This field of knowledge was baptized by scholars as ludology, which is characterized by understanding the game by its systemic structure, such as rules, actions and logic (ANTUNES, *et al.*,2022).

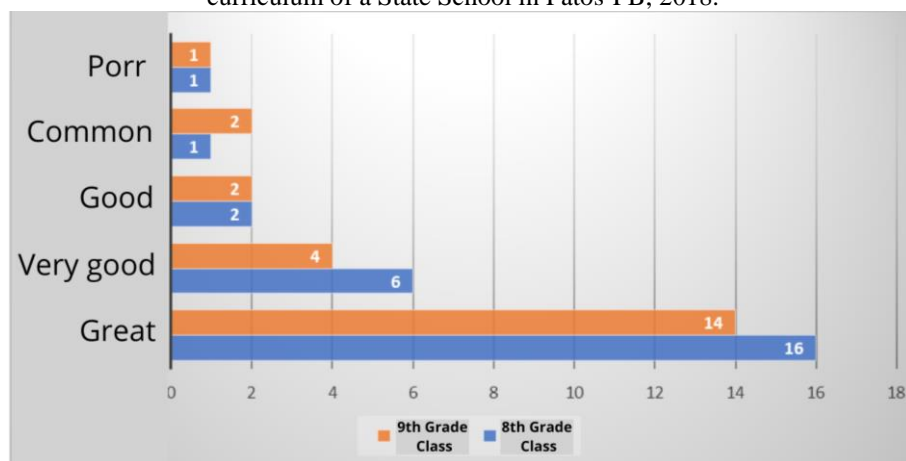
From the study of the methodology of the games, it becomes possible to associate it as a ludic tool and playing, in addition to an entertainment activity, can be adapted and added educational possibilities. The use of strategies and resources that promote student participation in the discussion of the proposed content are indispensable tools in the process of building knowledge, especially when knowledge in the area of food and nutrition is emphasized (SANTOS, 2020).

The last stage of the process was characterized by the sharing of perspectives through a dialogue circle (focal group) with the classes and the teacher about the activities experienced, explaining the contributions of the classes to the students' learning. Thus, the project was evaluated as follows: 1-Excellent; 2-Very Good; 3-Good; 4- Regular; 5- Bad, achieving the results shown in graph 2.

According to the evaluation of students and teachers, it is clear that the activities carried out in the classroom involving Nutrition and Mathematics were satisfactory. Thus, it is emphasized that it is necessary to rethink the sharing of knowledge by the teacher, especially with regard to the intersectionality of knowledge and the promotion of dynamic and innovative classes (JUNGLOS *et al.*, 2022).

In order to carry out the pedagogical mediation, the teacher needs to observe the singularities of the learning process of each student, that is, to understand their path, their cognitive and affective universe, as well as their culture, history and life context. In addition, it is essential that educators are clear about their pedagogical intentions in order to be aware when intervening in the learning process, ensuring that the concepts used, intuitively or not in carrying out the action, are understood, systematized and formalized by their students (BARBOSA, 2020).

Graphic 2: Evaluation of the Project Pedagogical Practices of Nutrition in Health: EAN in the school curriculum of a State School in Patos-PB, 2018.



Source: Research data (2018).

The traditional teaching methodology is hardly able to promote a practice that correlates scientific knowledge and the students' daily lives. For this reason, it is also rare to find educators who are concerned with the issue of everyday life, as they are trained in a system that does not give due importance to this aspect of education. In this way, the reality of teaching structures is usually perceived by students as demotivating, boring and long-winded (LOUREIRO, 2021).

Contextualization can be seen as a principle of curricular organization of any discipline, enabling the approximation of contents to students' daily lives. This proposal can generate engagement, provide attention and promote collective participation in the construction of knowledge, as it places the student and their reality at the center of the discussion (OLIVEIRA, 2022).

Thus, educating in the field of nutrition is not simply giving lectures to transmit scientific information adapted to the local context. There must be a combination between scientific knowledge and the cultural values of each individual's food, analyzing the attitudes and behaviors that meet what would be nutritionally desirable, so that they can make conscious and responsible choices, within what is feasible (SOUZA; RODRIGUES, 2020).

The school, as a place where many people spend a good part of their time, represents a special place and time to promote health. By integrating students, family members, teachers, employees and health professionals, the school becomes an ideal environment to carry out educational activities, reinforcing its role of becoming a favorable environment for healthy coexistence, psycho-affective development, learning and work of everyone who relates there (MAGALHÃES; PORTE, 2019).

Furthermore, it is also sought that the teacher feels encouraged to invest in an integrative curriculum, which is based on the students' routine and contexts, which also proposes new themes and pedagogical tools that encourage the integration and participation of all. It is important to point out that the teacher has the ability to adapt the themes to be developed based on problem situations experienced on a daily basis, encouraging his students to create more critical and reflective postures, obesity and malnutrition being a multifactorial problem that needs to be faced by the whole of society (SILVA, 2019).

IV. Conclusion

As discussed in the study, it is extremely important to rethink food and nutrition education activities in the school curriculum, rethinking the act of teaching and working on health education in the classroom, making the contents meaningful and starting from the resolution of everyday situations in the students' lives and that address new integrated themes, emphasizing the possibility of rearranging classes, with contextualizing themes, games and collective dynamics, bringing an opportunity to renew the teaching-learning process with a focus on food, nutrition and health.

It is believed that the school is a place that influences healthy eating habits, as students spend most of their time, appropriate their realities and develop their communicative and reflective capacity. When this phenomenon is integrated with the contents taught, it is perceived that there is a greater synergy, for being able to make these connections between the areas of knowledge, which I often thought to be separate or totally disconnected. To that extent, food and nutrition education becomes part of the learning process, as it relates to the students' day-to-day contexts, since knowledge must permeate all areas of knowledge, being knowledge of area of mathematics and its technologies, a potentiating tool in the promotion of healthy eating habits.

References

- [1]. ANTUNES, J.; RODRIGUES, ESJ Analysis of the thematic development of studies on games in education. Accessed on: 16 Jan. 2023.
- [2]. BARBOSA, ES Affectivity in the learning process. Public Education Magazine - Affectivity in the learning process. 2020. DOI: 10-18264/REP. Accessed on: 12 Jan. 2023.
- [3]. BRAZIL. Provides for providing school meals to basic education students within the scope of the National School Meals Program - PNAE. Resolution/CD/FNDE no. 26, July 17, 2013 Brasilia: Ministry of Education; 2013. Accessed on: 03 Jan. 2023.
- [4]. BRAZIL. Law No. 11,947, of June 16, 2009. Provides for the provision of school meals and the Direct Money at School Program. Brasilia DF. 2009. Accessed on: 02 Feb. 2023.
- [5]. BRAZIL. Law nº 13.666, of May 18, 2018. Amends Law nº 9.394, of December 20, 1996 (Law of Guidelines and Bases of National Education), to include the cross-cutting theme of food and nutrition education in the school curriculum. Brasilia DF. 2018. Accessed on: 02 Feb. 2023.
- [6]. BRAZIL. Ministry of Health. Health and Health Surveillance. SUS diagnosed overweight and obesity in almost 1.4 million adolescents. Accessed 25 Feb. 2023
- [7]. BRAZIL. Ministry of Health. Secretary of Health Care. Department of Primary Care. Strategies for the care of people with chronic diseases: obesity / Ministry of Health. Secretary of Health Care, Department of Primary Care. – Brasília: Ministry of Health, 2014. 212 p. : il. – (Primary Care Notebooks, n. 38). Accessed 25 Feb. 2023
- [8]. BRAZIL. Ministry of Health. Secretary of Health Care. Department of Primary Care. Guidelines for the collection and analysis of anthropometric data in health services: Technical Standard of the Food and Nutrition Surveillance System - SISVAN / Ministry of Health. Secretary of Health Care, Department of Primary Care. – Brasília: Ministry of Health, 2011. 76 p. : il. Accessed 26 Feb. 2023
- [9]. BRAZIL. Ministry of Social Development and Fight Against Hunger. Reference framework for food and nutrition education for public policies. - Brasília DF. National Secretariat for Food and Nutritional Security, 2012. Accessed 26 Feb. 2023
- [10]. BRAZIL. National curriculum parameters: third and fourth cycles of fundamental education: introduction to national curriculum parameters. Secretariat of Elementary Education. – Brasília: MEC/SEF, 1998. Accessed on: 23 Dec. 2022.
- [11]. BRAZIL. Federal Senate. Agência Senado Lei includes the theme of food and nutrition education in the school curriculum. Brasília: 2018. Accessed on: 15 Jan. 2023
- [12]. CONCEICAO, JSS Habits of reading and understanding food labels: an evaluation with consumers in the city of São desiderio-BA. Course completion work presented to the Nutrition course at Unirb College in Barreiras-BA. 2021. Accessed on: 28 Jan. 2023.
- [13]. CORRÊA, MM; FACCHINI, LA; THUMÉ, E.; OLIVEIRA WAS; TOMASI E. Ability of waist-to-height ratio in identifying health risk. Rev Public Health. 2019; 53:66. Accessed on: 15 Jan. 2023.
- [14]. CUSATI, I.; SANTOS, NEP; CUSATI, RC Qualitative methodology in research in Education: an essay based on studies on Teacher Training and Professional Development. Conjectures. 2021. Accessed on: 20 Jan. 2023
- [15]. CDC, CENTERS FOR DISEASE CONTROL AND PREVENTION. Division of Nutrition, Physical Activity and Obesity. About Child & Teen BMI. 2022. Accessed 25 Jan. 2023
- [16]. Ferreira, BR; COSTA, E. de M.; FONSECA MERM; SAINTS. B. Factors associated with childhood obesity: a literature review. Electronic Magazine Scientific Collection, 25, p. 6955. 2021. Access 29 Jan. 2023

- [17]. SOURCES, PG; RAZUCK, RCR; RAZUCK, FB The teacher as an influencer of healthy habits at school. Teaching, health and Environment - V 14, N.2, P.895 -912. 2021. Access 26 Jan. 2023
- [18]. GIL, Carlos, A. How to design research projects, 6th edition. Sao Paulo, Atlas. 2017. Accessed 13 Feb. 2023
- [19]. GRILLO, LP; CONCEIÇÃO, M.; HENSCHER, MC; LYNCE VALLE DE LACERDA, L. Nutritional status and nutritional education practices in schoolchildren: DOI: 10.15343/0104-7809.20164002230238. The World of Health, 40(2), 230-238. 2016. Accessed on: 06 Feb. 2023.
- [20]. JUNGLOS, FGG; HASS, MA; VARGAS, D.M; AZEVEDO, LC Pedagogical garden: an interprofessional and intersectoral health education proposal. Open Path: IFSC Extension Magazine, 16, 1–9. Accessed on: 25 Jan. 2023.
- [21]. LOUREIRO, DCP The perspectives of children from 10 to 15 years old about their school demotivation and disaffection towards studying: internship experience in a TEIP primary school. Report presented to the Faculty of Psychology and Educational Sciences of the University of Porto (FPCEUP). 2021. Accessed on: 03 Feb. 2023.
- [22]. MAGALHÃES, HHSR; PORTE, LHM Perception of early childhood educators on food and nutrition education. Graduate Program in Education for Science, São Paulo State University (UNESP), Faculty of Sciences, Bauru campus. Science & Education (Bauru), vol. 25, no. 1, pp. 131-144. 2019. Accessed on: 06 Feb. 2023.
- [23]. OLIVEIRA, GS; CUNHA, AMC; CORDEIRO, IN; SAAD, NS Focus group: a data collection technique in a qualitative investigation? Cadernos da FUCAMP, v.19, n.41. 2020. Accessed on: 20 Jan. 2023.
- [24]. SANTOS, CC PLAYFUL ACTIVITIES IN THE TEACHING-LEARNING PROCESS: Playful Experience in Public Schools in the Municipality of Alcântara, Maranhão - Brazil. João de Deus School of Education. Master in Education Science. Accessed on: 16 Jan. 2023.
- [25]. SANTOS, OP; SILVA, J. DOS S.; GONÇALVES, M.; OLIVEIRA, MA; SANTOS, JB Health education in the prevention of childhood morbidity: experience report/ Health education in the prevention of children's morbidity: experience report. Brazilian Journal of Development. 2021. Accessed on: 20 Jan. 2023.
- [26]. SILVA, RL Food and nutrition education in elementary school: a freirean problematizing approach. Dissertation presented to the graduate program in teaching natural sciences and mathematics at the Federal University of Rio Grande do Norte (UFRN). 2019. Accessed on: 06 Feb. 2023.
- [27]. SILVIA, MFGS The subjective dimension of school food and nutrition education: building subsidies for teacher training. Thesis presented to the examining board of the Pontifical Catholic Church of São Paulo. 2019. Accessed on: 03 Feb. 2023.
- [28]. SOUZA, JCB; RODRIGUES, MS Nutritional and food education at school. Monograph presented as a final exam for the Course Completion Work (TCC) discipline of the Nutrition Course at Faculdade Regional da Bahia. 2020. Accessed on: 28 Jan. 2023.
- [29]. ZANELLA, ACS; ROCHA, SM Difficulties in mathematics learning. Intersaberes Notebook - v. 9, no. 22 – 2020. Accessed on: 27 Dec. 2022.