

 <https://doi.org/10.56238/alookdevelopv1-166>

E-mail: pimenta@ufpa.br

Karina Lucia Pires Cardoso

Master's student in Science and Mathematics Education (IEMCI-UFPA), Specialist in Portuguese Language Teaching-Learning: An Interactional Approach (UFPA).
Orcid: <https://orcid.org/0000-0002-7625-4846>
E-mail: karinaa_jesus@hotmail.com

Elenton Oliveira de Souza

PhD student in Education (UFJF), Master in Education in Science and Mathematics (UFPA), Specialist in Geosciences for the training of Teachers (UFPA).
Orcid: <https://orcid.org/0000-0001-8961-6175>
E-mail: [E-mail: elentonlicgrada@gmail.com](mailto:elentonlicgrada@gmail.com)

Elizabeth Cardoso Gerhardt Manfredo

PhD in Education in Science and Mathematics (PPGECM-UFPA). Professor of the Graduate Program in Teaching in Education in Science and Mathematics (PPGDOC-UFPA).
Orcid: <https://orcid.org/0000-0002-5391-0097>
E-mail: bethma@ufpa.br

Emilia Pimenta Oliveira

PhD in Letters: Applied Linguistics (PUC-RS), Master in Letters: Linguistics (UFPA). Full Professor at IEMCI-UFPA.
Orcid: <https://orcid.org/0000-0001-8631-4307>

ABSTRACT

This article aims to report an experience of methodological intervention, with the purpose of linguistic and mathematical literacy, from the textual genre supermarket insert, in response to the following concern: how to alphabetize and mathematically literate children from the 1st to the 5th grade of elementary school, through the textual genres that circulate in the various social environments? The interventions took place under the project "Practices of mathematical and scientific literacy in classes from 1st to 5th grade of public schools in Belem-PA", part of the Support Program for Methodological Intervention Projects (PAPIM) of the Pro-Rector of Graduation of the Federal University of Pará - UFPA. The interventions object of this report was developed with students of the 2nd year of elementary school I, from one of the two public schools of Belem-PA participating in the project. The results obtained indicate possibilities of realization of literacy and mathematical literacy, in an integrated way, having as a teaching instrument the textual genres and, in particular, the supermarket insert.

Keywords: Literacy, textual genres, mathematics.

1 INTRODUCTION

This work deals with literacy and mathematical literacy, from a textual genre, in this case, the supermarket booklet. We assume the concept of Marcushi (2010), for whom textual genres are materialized texts found in everyday life and that present sociocommunicative characteristics defined by contents, functional properties, style and characteristic composition.

The genres are countless and diverse and some of them are: phone call, sermon, business letter, personal letter, novel, note, journalistic report, expository class, condominium meeting, journalistic news, horoscope, culinary recipe, medicine leaflet, shopping list, restaurant menu, instructions for use, billboard, police investigation, review, contest notice, joke, spontaneous conversation, conference, electronic letter, computer chat and virtual classes.

In the same way, we take the thought of Soares (2004), to understand literacy as the process of appropriation of the writing system, that is, its technology, within the alphabetic and orthographic

principles, which enables the student to read and write with autonomy. Inseparably, literacy is understood as the process of insertion and participation in literate culture, using the learning of the code assimilated in various social practices.

In this same perspective, we defend the gradual conquest of the concepts and procedures of the formal mathematical system, involving symbols, conventions, rules and algorithms, which enable the student to read, write and solve problems in this field, with autonomy and ownership.

In an interconnected way, mathematical literacy is understood, by us, as the process of insertion and participation in the written mathematical culture, using the learning of its code and the mastery of its system, in diverse social practices.

In this sense, the experience reported here occurred in the context of a proposal for methodological intervention carried out within the scope of the project entitled "Practices of mathematical and scientific literacy in classes from 1st to 5th grade of public schools in Belém-PA", linked to the Support Program for Methodological Intervention Projects (PAPIM), of the Pro-Rectorate of Undergraduate Education of the Federal University of Pará (PROEG-UFPA), and executed by the Faculty of Mathematics and Scientific Education (FEMCI), of the Institute of Mathematics and Scientific Education (IEMCI), of the Federal University of Pará (UFPA).

The intervention reported consisted of the development of activities with the purpose of literacy and literacy, concomitantly, students of the 2nd year of Elementary School, from public schools previously selected within the proposal.

The main focus was to introduce children to mathematical codes and teach them to read and interpret them, solving everyday problems from the perspective of literacy. For this, they needed to make use of both mathematics and the Portuguese language. The material used as a teaching tool was the textual genre supermarket insert.

The purpose was to bring into the classroom a text that circulated in society and that was part of the sociocultural universe of the students. This would allow the practices envisioned to develop in a contextualized and meaningful way.

The work started from the global inquiry of how to mathematically and scientifically literate children from the 1st to the 5th grade, from various textual genres present in the reality and social practice of the students.

The project sought to develop interventions in science and mathematics classes related to the Portuguese language. Regarding this text, we present experiences of interventions made during classes directed specifically to mathematics, in integration with the Portuguese language.

Thus, we report the interventions made during didactic sequences of mathematics classes, using the supermarket booklet genre, with students of the 2nd year of Elementary School I, from one of the

two public schools where the project was carried out, both located in neighborhoods located on the outskirts of Belem-PA. The actions of the project took place during the first semester of 2015, having been socialized results in scientific events in the area of Mathematics Education.

In this article, we point out reflections about the possibilities of working with textual genres, seeking to minimize difficulties presented by students of the 1st cycle of literacy.

To this end, we bring clarifications about the PAPIM Project - which guided the intervention practice reported. Next, we present the methodology of development of the project and the experience in question and conclude with the report and reflections about what was experienced in the intervention, particularly with the textual genre supermarket insert.

2 INTRODUCING PAPIM: THE PROJECT AND ITS OBJECTIVES

PAPIM was a program that sought to promote projects of innovative actions at various levels of educational performance. The project he fostered and in which we participate is entitled "Practices of mathematical and scientific literacy in classes from 1st to 5th grade of public schools in Belem-PA".

This project was based on the formative link between undergraduate undergraduate students and students and teachers of elementary school in the initial years (1st to 5th grade).

It provided for interventions, with the use of several textual genres, in order to enable improvement in literacy practices in Portuguese language and mathematics, in public schools in the municipality of Belém/PA.

For its execution in schools, some criteria were taken as a basis, such as the public character of the participating schools and the Basic Education Development Index (IDEB), presented by them (IDEB less than 3). Thus, the main objectives of the project follow:

- Develop actions that achieve improvements in literacy and literacy practices in science and mathematics, through the direct action of undergraduate students in public schools, under the guidance of a teacher trainer;
- Promote teacher learning in the initial years of undergraduate students with integrated degrees, through targeted interventions in the school environment;
- Contribute to the learning in science and mathematics of students of the initial years in public schools;
- Socialize proposals for actions and methodological materials for teaching mathematics and science with teachers of the Early Years of public schools in Belem.

3 METHODOLOGIES: PROJECT DEVELOPMENT

The project was developed throughout the first and second half of 2015. Before starting the practices in the schools, the scholarship holders and the guiding teachers of the project held, weekly, meetings in which they discussed the problem of mathematical and scientific literacy, contextualized to the teaching of the Martern language.

In each meeting, the intention was to seek solutions that could favor literacy in public schools. The fellows prepared presentations of texts indicated by the advisors, which contained ideas from different authors about the theme in question (MARCUSHI, 2010; Smith, 2004; SMOLE and DINIZ, 2008; RABELO, 2004; LUVISON and GRANDO, 2012).

Such presentations were organized into slides for better understanding of the participants. Each scholarship holder was given the task of selecting two schools with IDEB below 3 to develop the PAPIM actions – one for the first semester and the other for the second.

After the selection, visits were made to the selected schools to publicize the project to the school team. After the project was accepted by the chosen institutions, methodological interventions began in classes from 1st to 5th grade of elementary school.

Following the schedule, each scholarship holder planned and applied, under the guidance of the teacher trainers, didactic sequences containing innovative activities that articulated science, mathematics and mother tongue contents.

Each scholarship holder carried out their planning, following the recommendations given in the study and planning guidelines, as well as the teacher of the class where they worked, with the planning of classes happening weekly or daily.

In addition, the fellows had the task of recording daily in the notebook what happened during the classes taught, making reflections about the children's learning, as well as describing the attitudes, behaviors and strategies used in solving each of the problems encountered. Before finishing the semester, each scholar constructed an account of their experience at the school, from their records.

4 THE EXPERIENCE WITH THE TEXTUAL GENRE SUPERMARKET BOOKLET IN THE TEACHING OF MATHEMATICS ARTICULATED TO THE MOTHER TONGUE

The main motivation of the project, which mobilized methodological interventions in the school context, was the literacy and literacy of children in the learning phase of reading and writing in connection with mathematical literacy.

In the school selected for this report, interventions were carried out in a 2nd year class (1st cycle of literacy), in which the students approached contents of teaching the mother tongue, as well as studies of the meaning of number and quantity, with exploration of the monetary system and the study

of two of the four mathematical operations (addition and subtraction), Using concrete material to perform the calculations, providing students with the experience of buying and selling in practice, making use of the supermarket insert.

The objective was to achieve success in the development of students' reading and writing, based on the selected textual genre, awakening their critical sense and understanding of the mathematical concepts involved.

For this, playful activities were developed, compatible with the school year in which they were, and from which their interaction with the subjects treated was sought, combining guidelines from the PCN of mathematics (BRASIL, 1997) and the other materials available in the project.

In order to teach mathematical contents articulated to the mother tongue, for the students of the 2nd year, an activity with the textual genre supermarket insert was proposed.

The activity consisted of simulating a purchase in a supermarket, applying operations of sum and subtraction, at the time when the products were "marketed", in situations of purchase and sale.

First, the class was introduced to the textual genre. Next, the students were asked if they already knew that genre. After that, the characteristics of the text, medium of circulation and its reading were explored – product names, title and prices.

After the reading, the students, in the classroom, performed a group activity, in which a booklet containing several products was made available to each team, whose prices were represented only by positive integers.

It should be noted that the original prices have been changed to make it easier for students to perform the calculations, because it is the 2nd year.

It is important to note that during the activity, they simulated being in a supermarket, shopping, with joke money.

The purpose was that they, during the purchase, could make mental counts and perform two basic operations (addition and subtraction), making use of the monetary system.

The children, even though they did not have a great command of the writing of the mother tongue, already had mathematical knowledge, brought from home.

Although they did not know all the letters of the alphabet, they were able to reflect on differences between graphemes and phonemes. They also observed that it was not written in school with those letters present in the booklet.

Then they made collage and paintings, related to the tasks, and performed mental calculations, performing basic operations. It has been verified by them that it is only possible to buy what money allows.

They realized this by manipulating the toy money, as well as observing and reflecting on the offers in the booklet, as shown in figure 01.

Figure 1 - Student observing and perceiving the characteristics and information of the booklet



Source - personal archive of the authors.

Next, in Figure 02, we show another moment in which the food images were arranged on the floor, representing a supermarket for each group. Each team was then given a different number of banknotes and toy coins.

Then, they simulated the purchases, chose the products, analyzed the prices and made the calculations to know if it was possible to buy them. They were able to record in the notebook the name of the products, the value and, when possible, the calculations or strategies used at the time of purchase. As they added products to their list, they also performed the calculations – one part could calculate mentally, another calculated in the notebook – and so they always moved the money they had on hand.

Figure 2 - Students simulating shopping at the supermarket



Source - personal archive of the authors.

To help them at the time of the calculation, they were provided with pet bottle caps, so that they could calculate, performing the representation through a concrete material (Figure 3). The goal was that they could, during the purchase, correctly perform the mental calculations, perform operations of addition and subtraction, making use of the monetary value they had.

Figure 3 - Students solving mathematical calculations with concrete material



Source - personal archive of the authors.

As soon as the simulation ended, there was the socialization of the purchases made. At that moment, it was discussed about the strategy used by each group to make its purchase, with the money it was given. At this moment, there was a significant participation of all students of the groups, who were eager to report the strategy adopted.

The class ended with the preparation of two inserts – one per group. Students pasted images of products and wrote down their names and prices.

They added a title and made the "propaganda" to the teachers. It is worth mentioning here the posture of one of the students, at the time of making the "propaganda". He simulated the attitudes of a salesman, both in speech and in the way he expressed himself.

He advised a colleague, who thought he was acting incorrectly as a salesman, when advertising the products of his pharmacy to a teacher: "No, this is not how it is done! Look how it is: good morning, ma'am! We have here some products from our pharmacy..."

Reflecting on this passage and on the activities evidenced, it is observed the possible relationship between the practices experienced by students in real situations and their manifestation in moments of literacy and literacy in the school context, clearly made possible by the activity involving the textual genre.

5 RESULTS

It is important to emphasize that the simulation of shopping in the supermarket, with the booklet genre, was not adopted in order to distract the children, but to teach them or enable them to develop basic notions of addition and subtraction, while exercising reading.

At the moment when they had to buy some product, they needed to make the calculation of how much they would spend on the acquisition, to know if the money would allow them to buy and how much change would be left over, if there was any leftover.

It was noticed, at the beginning, that few children were able to perform the calculation correctly, that many of them felt difficulties in dealing with the situation, because they did not yet know certain numerals and because they did not know how to solve problems involving sum and subtraction.

However, as the class progressed, questions were asked, answers were compared and those who knew how to solve helped others who did not know how to calculate, moving the lids, removing and adding when necessary, resorting to reading the information in the booklet. In this way, the class proceeded and the students advanced in their obstacles.

The activities carried out by the students were closely observed and the mediation occurred at the same time that they expressed doubts or requested help. The use of caps was of crucial importance, as it helped a lot at the time of the operations.

At the end of the class, there were still difficulties to be overcome, however, the children were more self-confident and already understood better the mathematical operations of addition and subtraction.

6 FINAL CONSIDERATIONS

By preparing the didactic sequence, from the textual genre supermarket insert, to teach mathematics to students of the 1st cycle of literacy (2nd year of elementary school), it was expected to obtain, among other results, that the children would be able to solve mathematical problems that arose at the time of the activity "simulation of shopping in the supermarket", thus developing critical reading and mathematical operations, in the context of literacy.

With the methodological interventions reported, it was possible to achieve satisfactory results, although only a part of the class was successful in the proposed resolutions.

However, even those who presented difficulties inherent to the school level were able to learn with meaning, when trying to solve the calculations, letting it appear that they had entered the process of literacy and mathematical literacy.

It is notorious that there are many challenges to be faced in the learning of the participating students who still demonstrated difficulties. However, the methodology adopted to promote the

teaching of mathematics, combining the textual genre present in the daily lives of the students, demonstrated that the interventions resulted in significant learning for them.

It requires emphasizing that the advances occurred both for the students and for the scholarship teachers of the project, which corroborates the effectiveness of using the booklet genre – not deprecating other texts – in the promotion of motivating classes, making authentic texts become usual in literacy classes, in the approach to mathematics.

Teachers, by using the textual genres in their classes, will be able to promote differentiated, interdisciplinary and interesting classes, during which the student will not only be able to better understand the contents taught, but will also want to actively participate in all the proposed activities, with which he will achieve a better school performance.

In addition, practices in this model make the classroom a pleasant environment for all, generating exchange of knowledge between students and teacher(s), who dialogue, experiment, raise hypotheses and relate to each other, producing a lot of knowledge.

Therefore, with this experience, we concluded that the textual genre supermarket booklet was important in the students' learning, allowing them to practice orality, writing, reading, socialization of knowledge and apprehend mathematical knowledge, in a contextualized and, therefore, significant way.

REFERENCES

Brasil, secretaria de educação fundamental. Parâmetros curriculares nacionais: matemática. Secretaria de educação fundamental. Brasília: Mec/sef, 142 p, 1997.

Luvison, c. C; grando, r. C. Gêneros textuais e a matemática: uma articulação possível no contexto da sala de aula. Reflexão e ação, v.20, n2, p.154-185. Santa Cruz do sul, 2012.

Marcuschi, l. A. Gêneros textuais: definição e funcionalidade. In: machado, a. R.; Dionísio, a.; bezerra, m. A. Gêneros textuais e ensino. São Paulo: parábola, 2010.

Rabelo, e. H. Textos matemáticos: produção, interpretação e resolução de problemas. (4ªed.). Petrópolis-RJ: vozes, 2004.

Smole, k.; Diniz, m. I. (org.) Ler, escrever e resolver problemas: habilidades básicas para aprender matemática. Porto alegre: Artmed, 2008

Soares, m. Alfabetização e letramento. São Paulo: contexto, 2004.