

Stories from a Greek Reception Class: An Integrated Curriculum Approach

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1. Context/Theoretical framework

The program described here is based on action research data drawn from teaching language minority children in reception classes. Reception classes are support or transitional classes for language minority students that operate in mainstream schools parallel to regular classes. Students in these classes are children of repatriate, refugee or immigrant families mostly from the former USSR and Albania who have settled in Greece in the last fifteen years.

The policy for language minority children is informed by a deficit model. In official terms, “these children lack the necessary proficiency in the Greek language...so evidently they must acquire from the very first weeks of their attendance in the Greek school readiness for linguistic communication in their new environment.”¹ Consequently, the main function of reception classes is to develop the children’s second language proficiency alone, since proficiency in the school language is considered a necessary but also sufficient condition for the children’s academic performance. Other content areas are not developed.

In this framework, despite the professed intention of the ministry to offer first language maintenance classes “if the appropriate teacher is secured and after the mutual decision of the prefecture and the appropriate member of the local educational authorities as it is sanctioned by the Ministry of Education,”² in real life, no provision is made for maintenance of the children’s mother tongue, at least at an official level.³ However, research studies on second language acquisition have confirmed the significance of the first language for the acquisition of the second. The higher cognitive and language level children have reached in their first language, the better are their prospects for success in the second language and in the host country (Collier, Thomas, 1989; Cummins, 1981; 1991; Skutnabb-Kangas, Toukoma, 1976). Indeed research studies suggest that children who come to the second language acquisition experience equipped with school experience in their mother tongue are generally better prepared to meet the academic challenges in their new school than children who go to school in the host country for the first time (Bialystok, 1991; Collier, 1987; 1992; 1995; Cummins, 1980; 1981; 1984; Genesee, 1994). In the secondary years, in particular, where the content of instruction becomes more abstract and thus cognitively more challenging, the children’s gains through their mother tongue sustain their continuous learning (Thomas, Collier, 1997). The official policy for the education of language minority children, however, does not nurture the children’s continuous first language acquisition. Even worse, it does not build on the children’s knowledge and experience in their first language thus disrupting their linguistic and cognitive growth.

Another flawed perception that prevails in the education of language minority children is that they face no major problems in mathematics, as mathematics is a universal language. According to research studies, however, children of poor and socially excluded groups and children of linguistic minorities perform equally poorly in mathematics (Secada, 1992; Tressou, Mitakidou, 1997). This theoretical and

¹ Government Document Number 2/354/T1/731/27-11-1995

² *ibid*

³ Several minority communities have undertaken and carry out first language maintenance classes on a private basis.

research knowledge is also ignored when planning and implementing support classes for language minority children.

In reception classes, children receive instruction in Greek as a second language for two to three hours a day—the very first hours of the timetable—and attend the regular classes they are enrolled in for the rest of the school day, i.e., for another two to three hours. As language instruction occupies the first two hours of the timetable in every public school in the country,⁴ language minority children attend language lessons in the reception classes only, where language is taught formally as a subject, in a structured, sequenced way that leaves very little initiative to the teacher or the learner. Moreover, reception classes function without a specific program or specially designed materials for the needs of the particular children and teachers assigned to them are rarely equipped with the necessary experience and knowledge.

Officially, children can remain in these classes for a maximum of two years. This, however, is rarely the case because there is a tendency to integrate language minority students in mainstream classes as soon as possible. The usual arguments for this approach are that children probably feel segregated in reception classes and that they would benefit more from interactions with a variety of natural speakers of Greek. However, studies of minority children's second language acquisition demonstrate that language minority children could benefit from their integration in mainstream classes only if these classes changed their structure, goals and methods to accommodate the complex needs of their mixed student population (Levine, 1990; Carrasquillo, Rodriguez, 1996). Nevertheless, Greek schools have not incorporated such changes yet.

Moreover, the hasty integration of language minority children means that children join mainstream classes from the moment they show *basic interpersonal communicative skills* even though school success can only be guaranteed through acquisition of *cognitive academic language proficiency* (Cummins, 1994). Research studies have shown that *basic interpersonal communicative skills* are developed in a short time (from several months up to two years) while *cognitive academic language proficiency* takes much longer, at times up to ten years depending on the child's personal learning style, his or her previous school experience as well as the family's social, economic and cultural contexts (Collier, 1992; Thomas, Collier, 1997). This is why language minority children often have difficulties in attending regular classes and their performance deteriorates as they advance in grades. They usually fail to complete the nine years of compulsory education at much larger percentages than majority children, which often leads to their social, political and cultural marginalisation as adults (Tressou, Mitakidou, 1997).

Despite the fact that reception classes have operated on an erroneous basis, the inadequacy of mainstream classrooms for mixed student populations makes reception classes a much needed transitional stage for language minority children. Change appears as a more realistic goal for reception rather than for mainstream classes because they function within a more flexible operational framework. Since there is no specific curriculum for reception classes, teachers are usually left to their own resources and are free to experiment with programs and materials as they see fit.

2. Teaching language and mathematics through literature: A suggestion for alternative praxis in reception classes

Overwhelming evidence provided by research data has helped to change the profession's understanding about specific aspects of the processes involved in teaching and learning. Intellectual traditions, such as the sociopsycholinguistic (Goodman, 1986; Goodman, Altwerger, 1981; Halliday, 1975; 1978), the sociocultural (Vygotsky, 1962; 1978) and the sociopolitical (Freire, 1970; 1973; Freire, Macedo, 1987) have provided the basis of our knowledge. Exploration of this theoretical knowledge in research studies has proven the significance of an enriched language learning program where children are actively involved in their own learning, for example, where language is used for authentic communication within social contexts (Flores, Garcia, 1984; Flores, 1990). Implementing

⁴ The Greek educational system is a highly centralized one and there is a uniform implementation of the same curriculum in every school in the country. Most schools dedicate the first two hours of the timetable for language instruction.

these theories in action can cause a paradigm shift with significant pedagogical implications for learning and teaching and may generate learning contexts where language is not taught formally as yet another cognitive area but is acquired through usage as part of the students' exploration of academic content.

Thus traditional approaches to schooling based on the transmission model of knowledge will shift in favor of an active learning process. Within this process, instead of passively taking in information and reproducing it as faithfully as possible, children are encouraged to create or construct knowledge based not only on the information provided by teachers and books but also on their personal experiences and previous knowledge that they can bring in the social context of the classroom. In this sense, learning is a socially and culturally mediated process, a social production of meaning, in that, as Chapman (1993) puts it, "all meanings are made, they do not exist as objects or concrete facts" (p. 35).

If we consider the two curricular "basics" language and mathematics, they are both semiotic systems. They are also resource systems of meaning and systems for the construction of meaning (Chapman, 1993).

According to the National Council of Teachers of Mathematics (NCTM), the goal of mathematics education is to involve students in

learning the signs, symbols, and terms of mathematics. This is best accomplished in problem solving situations in which students have an opportunity to read, write and discuss ideas in which the language of mathematics becomes natural. As students communicate their ideas, they learn to clarify, refine, and consolidate their thinking (NCTM, 1989, p.6).

Similarly, language activities may be forms of a "generative process" in that the child uses language, experience and context in order "to make connections, generate hypotheses, raise questions and this way make sense of the text" (Siegel, Borasi, 1992). Thus the two curricular "basics" have parallel functions and if integrated in new, creative ways in an active process of constructing meaning they can enhance children's cognitive and linguistic growth while developing high order thinking skills and problem-solving abilities (Collier, 1995; Freeman, Freeman, 1992; Genesee, 1994).

The creative combination of language and mathematics may contribute to redefining and upgrading school learning. Problem solving is a process that can be used not only for acquiring knowledge in both content areas but also for acquiring knowledge through them. Problem solving encourages the members of a learning community to use language, their experiences and the social context of the classroom to make associations, formulate hypotheses, pose questions, experiment with strategies, and come up with solutions so that a deeper understanding of the transaction can be achieved or understood. In other words, the creative dialogue between language and mathematics can turn any class, including a reception class, into a "class of proximal development"⁵ (Tressou, Mitakidou, 2002), a class, that is, that holds promise for school success for every child.

Based on these theoretical premises, we designed and implemented a program we titled "Teaching Language and Mathematics through Literature," an alternative teaching approach for reception classes that provided a cognitively rich learning context for language minority students.

2.1 Objectives, design and methodology of the study

The program we developed used literature as the vehicle for language and mathematics acquisition in reception classes. It was a program, which aimed at the children's continuous and balanced cognitive and linguistic development by:

- enhancing children's language and mathematics knowledge, as well as self-confidence and self-respect through cooperation, dialogue, negotiation within rich, meaningful contexts,
- unblocking children's potential skills by building on their strengths instead of on their weaknesses,
- empowering children as it made use of their linguistic and cultural capital,
- empowering teachers as it encouraged reflecting, reorganizing and redefining the content and the methods of the teaching praxis.

⁵ To borrow from Vygotsky's (1962) "zone of proximal development."

In order to achieve these objectives, the program sought to

- actively involve children in their own learning,
- teach Greek as a second language through a rich content,
- focus on the development of thinking and problem solving skills,
- combine language and mathematics creatively and thus allow the natural development of language through problem solving activities and of mathematical register through mathematics activities developed in rich language contexts. Mathematics and language, two subjects traditionally taught independently, emerged from stories to be negotiated by teachers and their students in a collaborative process.

We will describe the implementation of the program in two reception classes. In the first class, the program was implemented by the reception class teacher and in the second class, it was implemented by a teacher-researcher, in close collaboration with the two researchers in both classes. Since there was no provision for first language maintenance instruction, our concern was to encourage the children's use of their mother tongue to achieve understanding. Understanding was further enhanced through nonverbal communication means and the story offered a challenging and rich content, the meaningful framework the children needed, for the acquisition of second language and mathematics language and skills. The paper will include characteristic examples of the program's application and the teachers' and children's reactions to it.

2.2 Implementation with the first group

2.2.1 The story

At the first stage of the program, we turned to traditional literature and in particular *Ali Baba and the Forty Thieves* (n.d.).

It is the well-known story of poor Ali Baba who accidentally discovered a huge fortune when he hid and saw forty thieves entering their hideaway. Ali Baba used the newly acquired secret to get a small portion of the loot for himself. When his brother heard of this unexpected luck, he was possessed with greed and met his death in his effort to get as many of the riches as possible. The story continues with the thieves' efforts to uncover the intruders and Ali Baba's efforts to protect his family and himself from the thieves' revenge. Ali Baba's clever and beautiful slave Morgiana, was a key actor in the development of the plot. In the end, Ali Baba and his family usurped the fortune and the forty thieves were destroyed.

We thought that the universal character of the folktale would create a warm, familiar atmosphere, where children could connect with their past and enhance their awareness of the present. Furthermore, folktales could serve as a bridge with their future, but also as a bridge connecting the different cultures present in the classroom.

2.2.2 The class

Five children participated in this class. Observations of the children and interviews with their regular and reception class teacher as well as the children themselves helped us sketch the children's academic profiles. We provide the profiles of all five children (the children's names are pseudonyms).

Giorgios. Giorgos from Georgia was ten. He had finished fourth grade in his country of origin. He had lived in Greece for only three months and his Greek language skills were very limited. For instance, he understood simple instructions and individual words but found it difficult to understand sentences and continuous speech. He could not respond even with one-word answers and needed an interpreter to understand what was said to him in the second language. He usually replied in his mother tongue and relied on his classmates' translation to communicate with the teacher. In mathematics, he understood some mathematical words and terms (i.e., take, give, subtract) and performed simple operations, for example, "15 and 25. Add them" even without explanatory instructions in his mother tongue but needed a translation for problems such as, "Nikos shared 6 apples among his 3 brothers. How many apples did each one take?" Giorgos was silent in his regular class but was active outside class and when he associated with Greek children.

Yannis. Eleven-year-old Yannis was also from Georgia and had finished second grade in his country of origin. He had lived in Greece for two years before attending a Greek school. Yannis had only recently enrolled in a fifth grade Greek class. He had no help with his homework at home because his parents were not fluent in Greek but two of his classmates in the reception class had been helping him. He also reported that he was able to read folktales in Greek. The regular classroom teacher reported that Yannis was shy and silent in class and he mostly kept to himself during the recess. He understood simple words and questions and answered in Greek with one word or simple sentence answers. He also had difficulty repeating, even with approximations, a simple story he had just heard in Greek. In mathematics, he understood and used some mathematical words but did not understand terms that were included in his class' syllabus such as "subtract" and "add." He understood mathematics problems such as "Nikos shared 6 apples among his 3 brothers. How many apples did each one take?" but could not solve multiplication and division problems with numbers bigger than ten (as in, "Multiply 25 by 3" or "I had 25 apples and shared them among 5 children. How many apples did each child take?").

Maria. Nine-year-old Maria was Yannis' younger sister. In Georgia, she had attended but had not finished the first grade. Like her brother, she had lived in Greece for two years but also like her brother she had only recently been enrolled in the Greek school. She too had no help with her homework at home but also liked to read stories in Greek. According to the regular classroom teacher, Maria was active, participated in class activities and spoke with her Greek classmates but kept to herself during recess periods. The reception class teacher reported that Maria understood words and simple questions and responded with one-word or short answers in Greek, although she could not tell a story or produce continuous speech. In mathematics, Maria seemed unable to understand terms like "subtract" and "add." However, she understood and solved simple problems of the type "Nikos shared 6 apples among his 3 brothers. How many apples did each child take?" She had difficulties with all four operations or with problems involving numbers bigger than ten.

Dimitris. Dimitris who was thirteen years old also came from Georgia. He had finished fourth grade in his country of origin, had attended fifth grade at another school in Greece and was now enrolled in the sixth grade in our research school. He had a twin brother in the same class. His mother helped him and his brother with their homework. He reported that he liked to read both religious and comic books in Greek. His regular classroom teacher reported that Dimitris was an active boy who associated with natural speakers of Greek and played with them during recess. His reception class teacher noted that Dimitris understood complex sentences and could answer even if with incomplete sentences in Greek. His oral and written skills were adequate. In mathematics, he understood and used terms such as "add" and "subtract." He also understood and solved problems his classmates in the reception class had difficulties with.

Petros. Petros was Dimitris' twin and had school experiences much like his brother's. He liked to read Greek books and sports papers. Like his brother, he was an active boy and associated with his Greek classmates. His language proficiency was also on a par with his brother. While he experienced some difficulty understanding mathematical terms, he was able to do the operations correctly once he understood the problem.

The five children in the reception class had the advantage of a common mother tongue but had many differences: different ages, different cognitive and language levels and different school and life experiences. They shared a class for a few hours every day in an effort to learn Greek but it seemed they had little opportunity in their different regular classes to enhance this learning.

2.2.3 Collaboration with the teacher

Before implementing our program, we had several meetings with the teacher of the reception class in order to describe and analyze its theoretical framework. We discussed our choice of *Ali Baba and the Forty Thieves* with her and explained the way she might involve the children in problem solving activities whereby they could rely on their experiences and previous knowledge in order to discuss their ideas.

We pointed out some common characteristics of language and mathematics that are important for teaching and learning. The characteristics we highlighted included the following:

-there is always a degree of ambiguity in the content of both subjects that may contribute to learning, in that it challenges children to use their whole potential to clarify the content and reach an acceptable interpretation,

-the social context, the experiences of every child as well as the context of the teaching act are integral parts in the learning process of both subjects,

-in order to reach understanding children need to negotiate the meaning of the object under study (Siegel, Borasi, 1992).

We also encouraged the teacher to see our program as a general framework that allowed for constant negotiation and dialogue. For instance, we divided *Ali Baba and the Forty Thieves* in sections and designed activities for both language and mathematics for each section. Nevertheless, we encouraged the teacher to consider our suggestions as a tentative framework and divide the story in sections as she saw appropriate for the children's needs. Also, we proposed that the questions and activities we suggested should be considered examples of the types of activities that could be pursued. We felt it was up to the teacher to seize the "teachable moment" and respond to the children's interests and input. Moreover, we encouraged the teacher to use the story as the stimulus to discuss diverse cultural values and habits and introduce the content of other subjects.

2.2.4 Interactions with the first group

The application of the program covered twelve sessions of three hours each and it presented challenges for both the teacher (who applied the specific program for the first time) and the children (who participated in a learning process that was different from the process they were accustomed to).

The story of Ali Baba was divided into parts and the teacher aimed at completing a part at each session. She usually began the session by demonstrating how the new part was related to what the children already knew about the story. Sometimes, it was the children who were encouraged to tell a summary of the previous section. Then the teacher narrated or read the new part of the story, asked comprehensive questions and involved the children in retelling the story. She encouraged the children to use their native language, she accepted their approximations and extended and corrected their expressions in her own speech indirectly. Here is a characteristic example of this type of interaction.

Teacher: What did we say we call the men on the horses?

Yannis: Kalavarides [rirers].

Teacher: Kavalarides [riders], Yannis, that's right, kavalarides!

When the teacher realized that the children had difficulty in understanding parts of the story or the concepts she tried to present, she would turn to other means of expression, often non-verbal, to facilitate comprehension. For instance, when she had the chance to introduce the comparative forms of adjectives, she called two of the boys to the front of the room and used the children as models to act out the concept by using pantomime to reinforce their understanding.

Teacher: Come up, Giorgos. Come up, Dimitris. Here, children. I have Giorgos and Dimitris. Who is taller? (She mimes taller).

Maria: Dimitris.

Teacher: That's right. Dimitris is taller than Giorgos.

Words that are phonologically similar often confuse the children but the teacher was alert to this difficulty and helped the children clear up confusions, as the following example shows.

Maria (narrating): The door opened and they went in. They left the coats [sakakia] and came out. He said "open sesame" and they left. They disappeared.

Teacher: What did you say they left?

Maria: The coats [sakakia].

Teacher: Not the coats...

Yannis (interfering): Sacks[sakia].

Teacher: Right, the sacks.

At the same time, the teacher seized every opportunity the story of Ali Baba offered to involve the children in mathematics activities. She invited the children to recall information and use skills they had acquired in their first language in order to complete the tasks. She also encouraged the children to use the terms they knew in their second or first language, while she introduced mathematical language and terms in Greek. The following is an example of a mathematics activity.

Teacher: Now, the forty thieves stood in front of the cave. Who can tell me, or rather I would like you to write it, how many feet stood in front of the cave? Think first. How many feet did each of the riders have?

Petros: Two feet.

Maria: Four (Perhaps Maria is counting the feet of the horses?).

Petros: There were forty.

Teacher: That's right. Forty riders, two feet each. Write on your paper. How many feet did they have? How did you find it? (The teacher realizes that Giorgos who has only been in Greece for three months does not understand the question). Giorgos, do you understand the question?

Giorgos: No.

Teacher: Yannis, please, explain to Giorgos and tell him to write the answer on his paper.

The children became so used to “seeing” activities emerge from the story that they often felt free to suggest their own, as the following example shows.

Petros: Miss, miss.

Teacher: Yes, Petros.

Petros: Miss, Morgiana saved them four times. Twice when the two thieves came home to mark the house so that they understand and kill him (sic).

Teacher: Bravo, Petros. Four times. Twice when they marked the door...

Petros: And twice, the leader...

Teacher: When the leader disguised himself and pretended to be an oil merchant.

Customs and traits of other cultures were discussed when they developed from the text. For example, the children were confused when they read that Ali Baba who was already married, also married his dead brother's widow. This gave the teacher the opportunity to discuss with the children the Muslim custom of polygamy. At another point, the teacher was given the chance to discuss another custom, for example, the fact that you cannot harm the person with whom you shared “bread and salt.”

In this context, it was not unusual for teacher and children to discuss other content areas whenever the story lent itself to such exploration. Concepts in geography, history, social studies often emerged from the text or the ensuing dialogue. For example, the reference to the country in which the story of *Ali Baba and the Forty Thieves* took place initiated a detailed discussion on countries and continents.

Finally, with their teacher's support the children felt confident enough to write their own version of the story. It was a shared writing activity, whereby the teacher explained the idea to the children, brainstormed and collected their ideas, encouraged them to express themselves in Greek, coordinated the process of negotiation and selection among the children, typed and collated their resulting ideas and presented each of the children with a copy of their book complete with pictures they had drawn themselves. The new story had distinct differences from the original and it was interesting in that it reflected the children's worlds. For instance, the children preferred Ali-Baba instead of his brother Hasim to be killed by the thieves. Ali-Baba's death is much “milder” in the children's version of the story. The leader of the thieves falls in love with Ali-Baba's widow, marries her, repents for his previous criminal activity and leads an honest life. Hasim's son becomes the new leader of the thieves but later also repents and changes his life. And...they live happily ever after.

2.3 Implementation with the second group

2.3.1 The story

Our second example is taken from a different reception class. In this class, we experimented with the wordless genre and in particular Wiesner's picture storybook *Tuesday* (1991).

The pictures in this book tell the story of a gang of naughty frogs who escape from their homes, literally take flight and experience a night filled with madcap adventures.

We hoped that the surreal nature of this fantasy book could surpass cultural borders and offer a field open to negotiation and multiple interpretations.

2.3.2 The class

Four children attended this reception class. Again, close observation of their classroom interactions coupled with interviews with the regular and reception class teachers and the children themselves helped us formulate an idea of the children's language and knowledge levels. Below we provide profiles of the four children (again the names of the children are pseudonyms).

Tanya. Nine-year-old Tanya, came to Greece from Armenia the year our study in this class took place. In Armenia, she had attended the third grade. In Greece, she was also placed in the third grade. Tanya's listening comprehension in Greek was good considering the limited time she had been living in Greece. Her oral and written skills were also adequate according to her regular class teacher, who also reported that Tanya tried hard and cooperated well. She showed a good grasp of mathematics but she did not know basic mathematical terms in Greek, such as addition and subtraction. In those cases, she would risk guessing a word and ask the teacher for verification. Her teacher believed that Tanya did not have very good relationships with her classmates (she was the only non-Greek child in the class), even though Tanya named several girls in her class as her friends.

Georgi. Georgi came to Greece the year this project began. He was twelve and was admitted to the fifth grade of the Greek school. He came from Ukraine, where he had completed the fifth grade. His Greek language skills were weak. His level of understanding of both the oral and written language was poor. Although Georgi knew how to read, he did not understand what he read but he tried hard to understand and participate in his regular class. His regular class teacher encouraged Elias, Georgi's classmate who spoke Russian and had a good grasp of Greek, to act as an interpreter and enhance Georgi's understanding. Both his regular and reception class teacher thought that Georgi's knowledge in mathematics was deeper than his actual performance, which was affected by his limited second language proficiency. In the reception class, Georgi was not as willing and cooperative. He often refused to participate in the activities and sometimes spoke in Russian angrily making it quite clear that he was unhappy. The reception class teacher assumed that there was a competitive tension between Georgi and Tanya.

Nina. Ten-year old Nina had emigrated from Russia, where she had attended school for one year. At the time of our study, she had been living in Greece for two school years and was thus placed in the fourth grade. Nina's level of listening comprehension was very weak as were her speaking, reading and writing skills. In mathematics she had difficulties in all four operations. This was the case with even simple problems, such as "Add 5 to 25" or "if I had 25 apples and ate 5, how many would be left?" She was quiet in class and did not participate unless encouraged by the teacher. Her regular class teacher did not perceive any problems in interactions with her classmates but her sense was that Nina did not have any close Greek friends and associated mainly with non-Greek children.

Julio. Eight-year old Julio, an Albanian immigrant, had lived in Greece for one year and was in second grade. He had never been to school in his country but had attended another school in a rural area in Greece for a few months before joining this school. Julio's level of both listening and writing comprehension was adequate, his oral skills were weak and his writing skills minimal. He was more interested and energetic in mathematics than in language, even though he had difficulty understanding mathematical terms. Julio was quiet, attentive and participated in class activities willingly.

The four children in this reception class posed more challenges than the ones in the previous group we studied in that these four children were not only at different stages in their cognitive and language development and had different school and life experiences, but they also had different mother tongues.

Three of the children, Tanya, Georgi and Nina seemed able to communicate in Russian but we had no indication of Tanya's and Georgi's proficiency level in Russian, which was not their mother tongue but the language they learnt at school. Other parameters that varied from the previous class were the different (and rather unknown to both teachers and children) literary genre we used, i.e., the wordless book and the fact that the program was implemented by a teacher-researcher with the reception class teacher acting as a participant observer.

2.3.3 *Collaboration with the teachers*

In addition to being an experienced professional, the teacher who implemented the program in this class was a Ph.D. candidate and teaching Greek as a second language was among her research interests. The reception class teacher who accepted us in her class and closely observed the implementation of the program was also an experienced professional who embraced our suggestions with enthusiasm. "I was at my wits end with the basal I was implementing, when you stepped in," she reported. "The basal was designed for mother tongue maintenance among children of Greek origin in the USA and used scenes and pictures of US cities. The names of characters were English so it was irrelevant to our own reality or even the children's past experiences." We had several meetings with the teacher of the reception class in order to explain the theoretical framework of the program and asked her collaboration for its implementation. The reception class teacher was soon actively involved in collaborating with the teacher-researcher implementing the program and in facilitating the children to complete the required tasks. The teacher-researcher who implemented the program knew the theoretical framework informing our program so we only felt we needed to discuss our choice of the book *Tuesday* with her and the tentative activities we were suggesting for its implementation. Of course, we explained that she should feel free to alter our suggestions to fit her own teaching style and the culture of the classroom. In other words, she should use our suggestions as a reference framework, trust her experience and inspiration and build on the children's input to construct meaning with them.

2.3.4 *Interactions with the second group*

The implementation of the program covered ten sessions of two hours each. The book offered the teacher the chance to teach vocabulary, grammar and syntax in meaningful contexts. In this way, the teacher introduced grammar and usage concepts, such as articles, nouns, adjectives, synonyms and antonyms. The teacher often used the children's questions and lack of knowledge of language and concepts to expand both their linguistic and cognitive level. What follows is an example of such an interaction.

Teacher: Now, children, I want us to do the following.

Nina: "Following?" What is following?

Teacher: It means "what comes next. What I am about to say." Let's suppose that you are young "reporters." Do you know what reporters are?

Tanya: They pain... No... (She starts to say "paint" but stops in hesitation).

Teacher: Not painters, reporters (In Greek, both words end in "grafos" zografos [painter], dimosiografos [reporter], an ending that means "writer").

Julio: Those who write?

Teacher: Good! They write. What do they write?

Tanya: Tales?

Teacher: Well, no, not tales.

Georgi: Books.

Teacher: Yes, they may write books, sometimes. But they usually write in newspapers. Do you watch TV?

Children: Yes.

Teacher: Do you watch the news? (News [eidisis] in Greek sounds completely different from the word news [nea] which means the actual facts).

Nina: What is "the news?"

Teacher: They tell us the news. What is happening in the world. The people who speak on TV and tell us the news are reporters.

The teacher often had to draw from an extensive range of strategies to help the children understand concepts and vocabulary and to involve them actively in their own learning. For example, after they had finished describing orally a page of the book, the teacher invited the children to come up to the board and write their ideas. When she saw that the children were reluctant to do this, she changed her course of action to accommodate both her lesson plan and the children's wishes.

Teacher: O.K., then. You'll tell me your ideas just like you've done so far and I'll write them on the board. I'll speak the words while I am writing so that you may correct me where you want. Are you ready?

Children: Yes.

(The children take turns and describe the picture)

Georgi: At night a turtle swam in...a tree [ena dentro].

Tanya: No!!!

Teacher: What should I write? In a...[se mia...] (suspending her expression but changing the gender of the article —tree is neutral [ena] and lake is feminine [mia] in Greek— to give the children the cue to finish the sentence).

Georgi: In a lake looking for something.

Teacher: Excellent, Georgi. Let me write it so that I won't forget (she says the words aloud as she writes).

At another point the teacher and the children got caught in the admittedly difficult grammatical concept of the double gender of some Greek nouns. For example, in Greek the word "frog" is both masculine and neuter with distinct endings and a different accent for each type: o'va-tra-hos (masculine) or to va-'tra-hi (neuter). When one of the children first mixed the gender of the article and the noun, the teacher chose to reinforce the grammatically correct type by just using the appropriate mix of article-noun in her own answer. Later, however, when she realized that all the children were having difficulty with the different forms of the noun for "frog," she decided to introduce the grammatical form in a traditional lesson on the board, where she had the chance to distinguish the different forms of nouns and the ensuing differences in their plural forms and in punctuation.

There was a lot of mother tongue use in this class as well. Children who had the same mother tongue were encouraged to use it to understand class interactions in interpersonal conversations. Moreover, due to the mix of languages, the teacher often invited children to describe concepts or objects in their mother tongue and thus initiated an interesting exchange of languages. For example, this mix became evident in the following dialogue.

Teacher: What do you see in the kitchen?

Georgi: Psygeio [Refrigerator].

Teacher: What else?

Nina: It has the... what do we call this?

Georgi: kariékla [char] (instead of the correct Greek word karekla [chair]).

Nina: (repeating Georgi's mistake) Kariékla, thranio [desk] (meaning the table).

Teacher: Is this a desk? What do we call this (showing the table in the picture)?

(Georgi is murmuring to himself in Russian. The teacher prompts him).

Teacher: Say it, Georgi .

Georgi: Can I say it in English?

Teacher: Yes.

Georgi: Table (in English).

Teacher: Right. What do we call it in Greek?

Georgi: I don't know.

Teacher: In Russian?

Georgi -Nina: Stall.

At another instance, when describing the kitchen utensils, the teacher drew a pan on the board to facilitate discussion. On seeing this, Georgi cried,

Georgi: Ah, kastroul.

Teacher: Kastroul in Russian. In Greek? Katsa..(the teacher begins the word to prompt the child).

Georgi: I don't know.

Nina: Katsarola (the Greek word for the cooking pan).

In fact, Georgi, who was the oldest of the children and the one with the longest school experience in his mother tongue, often became exasperated and frustrated when he felt he did not have the adequate language level to express something in Greek. It was at these moments that he turned to his mother tongue to express concepts or ideas or show his exasperation. What was striking, however, was his unwillingness to use Russian when he had to speak in class. Rather, he reserved his mother tongue for private conversations (e.g., with Nina) and when talking aloud to himself. In contrast with Georgi, Julio, who was the youngest in class, felt more comfortable to use Albanian in whole class interactions when he did not have the Greek to express himself.

As in the previous class, this teacher also followed our suggestion and seized every opportunity to do mathematics. When, for instance, the children noticed and talked about water lilies, the teacher also took the chance to familiarize them with the mathematical register.

Teacher: Good. Now, listen! I think that under each one of the water lilies there are three fish sleeping. You can't see them but I can. So you counted 5 water lilies. Three fish are sleeping under each one of the lilies...

Georgi: But they are not sleeping.

Teacher: Of course, they are! How many are the fish sleeping under all the lilies?

Tanya: Five.

Georgi: No the five (sic).

Teacher: Wait a minute. I want you to think first and then tell me. We have five water lilies and under each one of the lilies three fish are sleeping. How many fish are there in all? Three under the first water lily. Three more under the second, under the third...

Tanya: It can't be because three three makes six. Three times three, no (sic).

Georgi: Five water lilies three fish.

Teacher: Let me draw it for you here.

Georgi: 1, 2, 3, 4, 5.

(The teacher is drawing the five lilies and three fish under the first one and stops).

Teacher: Do you see? We have three fish under each lily. Three under this one.

Tanya: Three.

Teacher: (Pointing to the second lily) Another three here.

Georgi: Six.

Teacher: (Pointing to the third lily) And here?

Georgi -Tanya: Nine.

Teacher: Three more, right? Tell me, how many fish in all?

Tanya: Fifteen.

Teacher: Tanya says fifteen.

Georgi: Fifteen.

Teacher: Are you sure?

Georgi: Yes. 1, 2, 3, 4, 5. Five three... (he hesitates for a moment) fifteen.

Teacher: Bravo. We said 3+3...

Tanya-Georgi : Six and three nine and three twelve and three fifteen.

Teacher: Georgi said something else too.

Georgi: What did I say?

Teacher: You did not say 3+3. You said, 5...

Tanya: Times three, fifteen.

It is obvious that the children knew the mathematics concepts but they had difficulty with the mathematics terms and expressions. This is also evident in the following example when the teacher asked the children to count the number of frogs and they came up with fifteen.

Teacher: OK, fifteen frogs. Now if there are...

Georgi: There aren't.

Teacher: ...55 more frogs behind these pictures, how many are they?

Tanya: Miss, write it.

(The teacher does not write the numbers but repeats the problem two more times and asks the children to do it mentally).

Tanya: Miss, miss. (Tanya tries to catch the teacher's attention. The teacher does not respond, as she is busy repeating the problem one more time).

Georgi: Seventy.

Teacher: What do we do then?

Georgi: 55...

Teacher: I want you to tell me the operation. Nina is making the sign for cross.

Georgi: All right. And I say 55 and frogs.

Teacher: How do we call this sign?

Nina: And.

Teacher: And, that's right. What else do we call it? Do you know?

Tanya: Plus.

Teacher: Very good. And what do we call the operation?

Tanya: Madam, madam, can I say it all together?

Teacher: The operation. I want you to tell me what we call the operation.

Tanya: 55.

Teacher: What do we call the operation?

(In their effort to respond to the teacher's questions, the children offer other terms they know, such as "multiplication," "minus," "division," until the teacher says the first three letters of the word for addition and Tanya comes up with the word. Then Tanya gives the answer to the problem as well).

Tanya: 70. 50+10, 60 and 5+5, 10. 60+10, 70.

Teacher: Very well. Let's see how Tanya did it (The teacher writes Tanya's answer on the board).

Teacher: Tanya said that I could write 15 as 10+5, and 55 as 50+5. OK? (Interacting with Tanya, the teacher shows how she added tens with tens, 50+10, and units with units, 5+5). *Can you tell me other ways of doing this addition?* (The teacher extends the children's incomplete utterances in order to help them express their thoughts. Nina suggests adding the five units of 55 to 15 so that the final addition appears as 50+20. And Tanya also suggests adding the two numbers vertically applying the algorithm).

Despite their difficulties with the mathematical terms, it appears that the children saw mathematics activities as a pleasant and challenging alternative to the linguistic explorations of the story and often asked their teacher to do mathematics.

Tuesday also offered ample opportunities for cultural exchanges. At the point where the children learned the word for "fireplace," the teacher and the children opened a long discussion on different heating systems, with everyone contributing their experiences.

Teacher (showing the fireplace in the picture): *Do you know what we call this?*

Julio: Ah, yes. Do you know how we to say this (sic)?

Teacher: How?

Julio: Stof.

Teacher: Stofa! Do you know we use this word in Greek sometimes? My grandmother used to say this word. But we meant the stove (the heating unit) not this (pointing to the picture of the fireplace again).

Julio: We this call (sic) "otzak."

Teacher: Really? And we call it “tzaki.” (A long discussion continues with many cultural and social implications concerning the heating systems in the countries of origin of everyone in class).

With the wordless book, it was a natural outcome of the children’s involvement to attempt to write the stories they improvised while dealing with the pictures. In fact, the teacher-researcher who implemented the program found that the book-making activity “played a significant role in enhancing the children’s interest in the book.” Each one of the children chose to write a different story. Each day, the children wrote and revised with their teacher their interpretations of the book, their responses that is, of the textual and pictorial features of the book they had explored for the day. They then rewrote the revised text on specially prepared paper, which they used in the final version of their books. The children also drew pictures for their stories and the teacher collected the loose pages, collated them into books and gave them to the children, a different one to each.

3. Implications

In our attempt to best accommodate the needs of the language minority children in our study groups, we devised a program that combined “tried and true” strategies with innovative teaching approaches and reflection on the educational process. The activities we designed favored collaboration and solidarity among the children, activated them in their own learning, drew upon their cognitive and cultural capital and familiarized them with habits and values of other cultures. As the teacher of the reception class of the second group pointed out, “every minute was a chance [for the children] to use previous knowledge, to reflect, to confer with their teacher, to discuss with their classmates and even use their mother tongue in order to express their feelings and offer their answers and solutions.”

It was a challenge for the teacher to think of ways, whether through verbal or non-verbal media, i.e., pantomime, drawings on the board, and interpretation in the mother tongue, to communicate meaning without destroying the flow of the story. On the other hand, the children were involved in an equally challenging but also creative process in their effort to enhance their understanding and acquire knowledge in mathematics and language. Both the children and their teacher had to free themselves of their familiar understandings of the learning and teaching process and embrace alternative approaches in order to create a meaningful and rich learning context appropriate for their needs.

Naturally, at times, there were signs of fatigue, expressed with the children’s occasional unwillingness to carry on with the activities. This was probably due to the length of the books, the teachers’ determination to complete the activities they came prepared to complete in each session and to the limited time both teachers had at their disposal to finish these intervention projects. Mathematics, references to other subjects and discussion of cultural issues often offered a relief from the density and intensity of the linguistic activities that sometimes frustrated the children. The teacher-researcher who implemented the program with the second group saw the children’s involvement with drawing as another good break from the constant involvement with language activities.

The difficulty of including children of different ages and different cognitive levels in one class manifested itself in both groups. We did not consider the differences of language proficiency levels as the main obstacle to the creation of a common learning context. Nevertheless, it remains a fact that sometimes the activities in both language and mathematics were below some of the children’s cognitive levels.

A very positive and interesting outcome of the program is that it has had a positive effect on the teachers who collaborated in it. The reception class teacher of our first example continues to do action research with language minority children in mainstream classes and has presented her work at two conferences. Commenting on her experience with the program, she said: “The program ‘Teaching Language and Mathematics through Literature’ changed the children’s attitudes and their response to the lesson. They participated willingly, even the ones who had not done so before. They comprehended the concepts presented more easily, they cooperated spontaneously to solve problems and complete activities, and they felt free to use their mother tongue. My relationship with them improved significantly. The program enhanced the children’s confidence but it also gave me satisfaction and confidence to watch the children’s growth.”

The reception class teacher who attended as a participant observer in the second class continued to implement the program with the same class after the end of the action research study. In close collaboration with the researchers, she decided to teach the children language and mathematics using a mythology book as their contextual framework. “What impresses me more,” the teacher said in a personal communication, “is the smooth switch from language to mathematics activities and vice versa that children make continuously and so naturally! And it seems natural to me too, mathematics is an integral part of the story. Exploring the story, the children got into the problem, applied their previous knowledge to find the solution and all this without interrupting the flow of the story.”

The researcher who implemented the program with the second group described her experiences with it as “unique. There was dynamism, vivacity in the class. The children not only participated but their performance was also amazing.”

As to the children, in both cases, children who started out with one-word answers would give fuller answers, risk sharing their ideas with their classmates and teachers and proudly express them on paper. All children in the second class expressed their enthusiasm for the wordless book. “I loved the frogs and they came to town and flew in the sky, frighten people (sic)” Julio wrote in incomplete language when asked about his response to the program. “The previous book [the basal they were using] was—how to say it (sic)—I did not like it much.” “I did not like the plain exercises,” Nina wrote us. “I loved working and making the book with the frogs.” All three teacher collaborators agreed that the children’s confidence and self-assurance increased as much as did their vocabulary and knowledge in both language and mathematics. From the moment the children were given the authority of their own learning, their creativity and imagination were liberated. Their suggestions—funny, clever, often innovative—ensued as a result of dialogue and reflection. As the reception class teacher revealed, “I was very lucky to experience this program. And I call it ‘luck’ because everything changed in my class from the moment its application started. I saw my children’s eyes ‘wake up,’ liven up, wander in thoughts and return to class filled with experiences and images.”

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