

Children's Literature in Primary School: An Opportunity to Develop Soft Skills

C. Cruz, A. Breda

I. INTRODUCTION

Abstract—Emotions are manifestations of everything that happens around us, influencing, consequently, our actions. People experience emotions continuously when socialize with friends, when facing complex situations, and when at school, among many other situations. Although the influence of emotions in the teaching and learning process is nothing new, its study in the academic field has been more popular in recent years, distinguishing between positive (e.g., enjoyment and curiosity) and negative emotions (e.g., boredom and frustration). There is no doubt that emotions play an important role in the students' learning process since the development of knowledge involves thoughts, actions, and emotions. Nowadays, one of the most significant changes in acquiring knowledge, accessing information, and communicating is the way we do it through technological and digital resources. Faced with an increasingly frequent use of technological or digital means with different purposes, whether in the acquisition of knowledge or in communicating with others, the emotions involved in these processes change naturally. The speed with which the Internet provides information reduces the excitement for searching for the answer, the gratification of discovering something through our own effort, the patience, the capacity for effort, and resilience. Thus, technological and digital devices are bringing changes to the emotional domain. For this reason and others, it is essential to educate children from an early age to understand that it is not possible to have everything with just one click and to deal with negative emotions. Currently, many curriculum guidelines highlight the importance of the development of so-called soft skills, in which the emotional domain is present, in academic contexts. Within the scope of the Portuguese reality, the "Students' profile by the end of compulsory schooling" and the "Health education reference" also emphasize the importance of emotions in education. There are several resources to stimulate good emotions in articulation with cognitive development. One of the most predictable and not very used resources in the most diverse areas of knowledge after pre-school education is the literature. Due to its characteristics, in the narrative or in the illustrations, literature provides the reader with a journey full of emotions. On the other hand, literature makes it possible to establish bridges between narrative and different areas of knowledge, reconciling the cognitive and emotional domains. This study results from the presentation session of a children's book, entitled "From the Outside to Inside and from the Inside to Outside", to children attending the 2nd, 3rd, and 4th years of basic education in the Portuguese education system. In this book, rationale and emotion are in constant dialogue, so in this session, based on excerpts from the book dramatized by the authors, some questions were asked to the children in a large group, with an aim to explore their perception regarding certain emotions or events that trigger them. According to the aim of this study, qualitative, descriptive, and interpretative research was carried out based on participant observation and audio records.

Keywords—Emotions, children's literature, basic education, soft skills.

Catarina Cruz is with Instituto Politécnico de Coimbra - Escola Superior de Educação, Portugal (e-mail: cmcruz@esec.pt).

THE current societies are in constant evolution, namely in scientific and technological domains, influencing as well the interpersonal relationships. Consequently, curricular guidelines from different countries have highlighted and focused their attention on the idea of preparing citizens for the 21st century. Such preparation is mainly based on the academic development of students and the development of skills that allow them to adapt to "new" work's environments and social interactions. Several international organizations have highlighted the need to adapt education to new times, namely the Organization for Economic Co-operation and Development (OECD) in a survey on social and emotional skills [1], emphasizes the development of skills related with task performance, emotional regulation, collaboration, open-mindedness, and engaging with others, as crucial in the citizens development. However, doubts regarding the valuation and the development of these skills, by teachers, in classrooms arise.

Although societies are more evolved than ever in the scientific and technological domains, the news that reaches us every day through the media, particularly about current conflicts between countries, reveals that in the emotional and social domains there is still a lot to evolve. Therefore, it is increasingly urgent to involve students in academic environments that are also promising for the development of so-called soft skills. At an early age, personal development plays an important role in the pedagogical practices of educators or teachers, however, as children begin to attend higher educational levels, personal development or the development of soft skills are no longer among the priorities of educational intentions. Although teachers recognize the relevance of working on skills in the emotional and social domains transversally with the cognitive domain, they often find it difficult to do so in practice, either because they do not know very well how to do it, or because they think they need certain knowledge or pedagogical resources that they do not have, or because they believe that this implies a radical change in their pedagogical practices.

Among the various promising resources in the development of integrated learning, and in the development of emotional and social skills, children's literature plays a prominent role. In fact, storybooks are considered a powerful resource considering a didactic point of view, since, by reproducing fictional situations, can provide children with new information about the world, enrich vocabulary and language skills, enables them to

reflect and deal with problems, internal struggles, and life adversities [2]. The use of storytelling in teaching and learning processes further motivates students, reduces their anxiety in academic contexts, engages them in the educational process through meaningful situations [3], [4], and stimulates the children's curiosity and opportunities for inquiry [5], [6].

This study is centered on a non-formal educational context in which a children's book presentation was carried out by its authors, which are the investigators of this work, directed to children from the first cycle of Basic Education at a Portuguese school. This work has as principal aim to show an example of how children's literature can in a formal or no-formal context contribute to the perception and development of emotional and social skills.

II. THEORETICAL BACKGROUND

A. Non-cognitive Skills in Education System

An education of quality should prepare individuals both academically and with skills such named as *life skills, non-cognitive skills, character skills, socio and emotional skills*, among others [7], [8]. Traditionally, the academic curriculum of several educational levels focuses on a strong cognitive component, however, many efforts have been made to value skills from other domains, namely from social and emotional domains. According to OECD, "Education needs to aim to do more than prepare young people for the world of work; it needs to equip students with the skills they need to become active, responsible and engaged citizens." [9, p.4].

The United Nations defined *Sustainable Development Goals for 2030*, being *Quality Education* one of them. Among the *Quality Education's* goals, we detach "that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture's contribution to sustainable development" [10]. The 21st century is marked by several changes in life in society due, namely, to the science and technological innovations. These changes directly affect the education systems, in the need to prepare competent citizens to deal with the new challenges of society, to promote an inclusive and sustainable future, and reduce inequalities. The OECD presented perspectives and underpinning principles for the future of education systems. The *OECD Learning Framework 2030* [9] states that the competencies to be acquired by students imply the mobilization of knowledge, skills, attitudes, and values, that is, the education of the future must go beyond disciplinary knowledge.

In the educational Portuguese system is considered a curricular document entitled "Students' Profile by the end of Compulsory Schooling" [11], whose guidelines are supported in documents from the European Union, OECD and the United Nations Educational, Scientific and Cultural Organization (UNESCO). In this document the student's profile is characterized according to "the skills that children and young

people must develop as indispensable tools for the exercise of full, active and creative citizenship in the information and knowledge society which we live in" [11, p.11]. This document is structured in *principles, vision, values, and competence areas*, which are crucial for the cognitive development as well as for the social and emotional growth.

The OECD [9] highlights social and emotional skills, such as empathy, self-efficacy, and collaboration, as important competences for helping students apply their knowledge in several daily circumstances. In the OECD's document *Social and Emotional Skills - Well-being, connectedness and success*, "social and emotional skills refer to the abilities to regulate one's thoughts, emotions and behavior" [12, p.4]. Although these skills differ from cognitive abilities, since "they mainly concern how people manage their emotions, perceive themselves and engage with others", they influence the development and use of cognitive skills [12, p.4]. In the *OECD survey on social and emotional skills technical report* [1], is presented the *Big Five model* where 15 social and emotional skills are selected, resultant from a study involving several countries, organized in the following domains: *task performance* (self-control, responsibility, persistence); *emotional regulation* (stress resistance, optimism, emotional control); *collaboration* (empathy, trust, co-operation); *open-mindedness* (tolerance, curiosity, creativity); *engaging with others* (sociability, assertiveness, energy). It is therefore expected that in 21st century classrooms, the development of emotional and social skills will be promoted across the study of various domains of knowledge, since there are many variables which influence students' understanding, being the emotions one of them. In fact, there is a mutual influence between the educational context characteristics and students' emotions, for instance, a context that has a set of goals to achieve, with their fulfillment subject mainly to a summative assessment tends to trigger less positive emotions, such as anxiety.

B. Emotions and Their Influence on Cognitive and Social Domains

Descartes did not doubt that emotions interfere with our thoughts and almost always prevent us from thinking well. Currently, contrary to what was thought until the last century, it is known that emotions are not "silly", on the contrary, they are as guides in our day-to-day lives [13]. It is not simple to define emotion. In a simple view, what happens around us provokes reactions within us and emotions are manifestations of this [13]. Emotions are complex sets of chemical and neural reactions, with some type of regulatory role [14]. In fact, they generate thoughts that help us understand the world and ourselves and that tell us "move forward" or "go back" in relation to what we encounter along the way, that is, if what we find makes us feel pleasure or joy, we move forward; if, on the contrary, it makes us feel pain or disgust, we retreat [13]. One of the many advances in neuroscience has been the understanding of emotions and feelings in the context of human behavior and how they decisively contribute to decision-making that would be considered merely rational [15]. Damásio [16] does not oppose emotion to cognition and considers that

emotion transmits cognitive information, directly and through feelings.

The emotions can be categorized considering several classifications. For instance, emotions can be differentiated between *simple* and *complex*, depending on whether there is a recognizable facial expression or not, while Damásio distinguishes emotions into three categories: *background emotions* (are decoded quickly in different contexts, whether pleasant or unpleasant as well-being or discomfort, calm or tension); *primary* (called by basic emotions are easily identifiable between individuals of a same species, such as joy, anger, sadness, fear, disgust and surprise); *social* (are influenced by society and culture, such as shame, jealousy, guilt, compassion, embarrassment, among others) [17].

C. Social-Emotional Development through children's Literature

One of the difficulties faced by educators and teachers is understanding how to work with their students the cognitive domain articulated with various skills from the emotional and social domains. This integration of knowledge and skills does not necessarily require the use of pedagogical resources designed for this purpose, since it is an articulation that can result spontaneously from the methodology adopted in a given context. However, there are pedagogical resources that can facilitate this combination of skills, namely children's literature, when considered the first educational stages. In fact, the literature can be a profoundly emotional experience [18].

Children are stimulated with the storytelling from a very early age, being this a recurring practice in preschool education institutions. Children's literature engages emotionally the children through images and words [19]. Although this type of literature represents mainly a fictional context, enables children to be empathetic with emotions of fictional others [20]. Literature "encourages empathy, tolerance for diversity, imagination and emotional intelligence" [21, p.456]. Through literature children expand their horizons, visit new places, gain new experiences, and meet new people and more important contributes to the personal development [21]. The children's literature characteristics make it a rich pedagogical resource for awakening emotional and social skills, as well as interdisciplinary learning skills. According to Bateman [22] storytelling provides opportunities for children reflect and to practice suitable emotional responses being a powerful instrument in learning settings for social-emotional development.

III. METHODOLOGY

This study was based on a presentation of the children's book "From the Outside to Inside and from the Inside to Outside" (Fig. 1), whose authors are the investigators of this work. The children's book presentation occurred in a Portuguese school of the 1st Cycle of Basic Education and involved three sessions for children who were in the 2nd, 3rd, and 4th grades, respectively. In this book, João, the character, experiences mysterious "journeys" involving emotions, improbable

situations or even impossible, and dreams conducting him to fascinating and intriguing places.

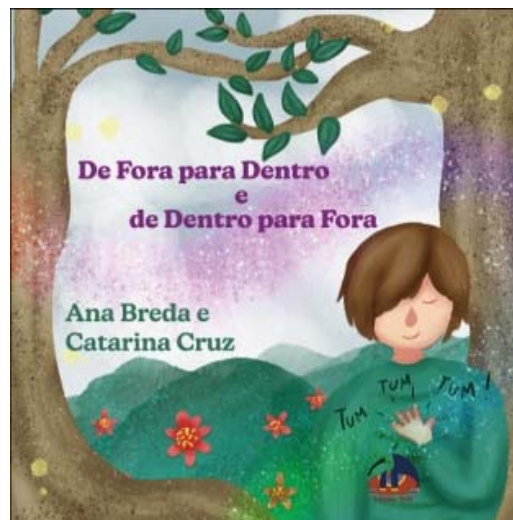


Fig. 1 Children's book: *From the outside to inside and from the inside to outside*

During the presentation, one of the authors read excerpts from the story, accompanied by the projection of its illustrations. Since many questions emerged from the story, the other author was promoting a dialogue and reflection with the children about them. In this book the reason and the emotion are in constant dialogue, thus, in addition to the aim of developing in children divergent thinking, the book's presentation had also as aim to highlight emotional and social skills. In this sense, this study has as research problem: Can children's literature contribute for the stimulus and development of soft skills, in students of the 1st Cycle of Basic Education?

To answer to the research's question, a qualitative, descriptive, and interpretative research was followed [23], based on the participant observation, audio records collected during the book's presentation session and the respective transcripts. This research is sustained in the main objectives: create a conducive environment and ask questions that lead to reflection and the sharing of ideas, through which emotions related to children's social and emotional skills are highlighted; analyze the dialogues arising from the book presentation session and identify evidence of social and emotional skills revealed by children.

During the reading the excerpts from the book, several questions related with them were asked, namely: What are strange thoughts?; Are you and your heart only one?; What is normally associated with the heart?; When you are in class, do your thoughts tend to "run away" to other places?; Does the mirror show everything we are?; Can you "see" what your memory holds?; Do you have a notebook or notepad in your room that you usually write in?; Do you think there is a place where what is big "fits" inside what is small?; How do you feel today?; Do you often daydream?; Does the Universe have a shape?.

The data analysis was based on an adaptation of the Big Five model [1], described in Tables I-IV, according to the story's context and exploration as well as the social and emotional skills which best fit the purpose of this study. In Tables I-IV are adapted and characterized the five dimensions considered in the Big Five model. In each table, the different skills are described according to the context and aim of the study and are associated to them emotions. Each skill has associated emotions related with it and opposing emotions which we denominated by *opposite emotions*. In this association, we do not intend to describe all emotions associated with the skills, but only the principal ones.

Table I presents the skills related with *emotional regulation*.

TABLE I
 EMOTIONAL REGULATION

Skills	Description	Possible Associated Emotions
<i>Stress resistance</i>	When confronted with the possibility of experiencing a strange, unknown, or even unreal situation, he/she controls his/her anxiety and deals well with the situation.	Serenity, confidence, optimism Opposite emotions: anxiety, anguish, fear
<i>Emotional control</i>	Reveals effective strategies to regulate/control emotions when face adverse situations.	Serenity, anticipation, hope Opposite emotions: nervousness, irritation, panic
<i>Optimism</i>	Positive and optimistic expectations for self and life in general.	Optimism, enthusiasm, happiness Opposite emotions: pessimism, sadness, discouragement

In Table II, the skills associated with the domain *engaging with others* are described.

TABLE II
 ENGAGING WITH OTHERS

Skills	Description	Possible Associated Emotions
<i>Energy</i>	In a reflection/ discussion, in a group, interacts with others manifesting energy, excitement, enthusiasm and spontaneity.	Ecstasy, excitement, joy Opposite emotions: embarrassment, intimidation, apathy
<i>Assertiveness</i>	Confidently express opinions and feelings, without fear of judgment.	Security, confidence, courage Opposite emotions: insecurity, shame, fear
<i>Sociability</i>	Interact easily with other people, even if they are unknown people.	Confidence, enthusiasm, sympathy Opposite emotions: tension, embarrassment, shame

Table III characterizes the skills related with *collaboration*.

TABLE III
 COLLABORATION

Skills	Description	Possible Associated Emotions
<i>Empathy</i>	Care about others and their well-being. Accepts and understands the opinions or feelings of others, even if they differ from their own.	Empathy, tolerance, compassion Opposite emotions: irritation, impatience, repudiation
<i>Trust</i>	Show confidence in others when express feelings and opinions.	Confidence, security, relaxation Opposite emotions: distrust, insecurity, shame
<i>Co-operation</i>	Complement or reinforce ideas expressed by others.	Empathy, worry, joy Opposite emotions: indifference, apathy, disinterest

Next, the *open-mindedness*' related skills are presented.

TABLE IV
 OPEN-MINDEDNESS

Skills	Description	Possible Associated Emotions
<i>Tolerance</i>	Open to different points of view and value the diversity of ideas or opinions.	Tolerance, empathy, curiosity Opposite emotions: impatience, disdain, reluctance
<i>Curiosity</i>	Reveal interest in learning. Like to understand and explore phenomenon. Evidence a curious mind.	Excitement, confidence, optimism Opposite emotions: discouragement, insecurity, pessimism
<i>Creativity</i>	Create new ways of doing or thinking about things, through exploration, curiosity, and experiences. Show a free and little formatted mind.	Curiosity, confidence, enthusiasm Opposite emotions: discouragement, rejection, apathy

IV. DATA PRESENTATION AND ANALYSIS

In this section we present and analyze the collected data. For each one of the questions asked to children, are presented excerpts of the dialogues, which are interpreted and analyzed according to the adaptation of the Big Five model [1] (Tables I-IV), being identified involved skills. In the dialogues, children are identified by "child n", where n is an integer number, and the investigator is designed by "Inv.". Whenever evidence of emotions opposing the development of a given skill is identified, "opposite emotions" will be placed in parentheses.

Question 1: What Are Strange Thoughts?

TABLE V
 ANALYSIS OF QUESTION 1

Conversation/Answers
Inv.: What are strange thoughts?
Child: Nightmares!

When asked about what strange thoughts are, the child associates them to nightmares, that is, to something that is not good.

Involved skills: stress resistance (opposite emotions); curiosity (opposite emotions).

Question 2: Are You and Your Heart Only One?

TABLE VI
 ANALYSIS OF QUESTION 2

Conversation/Answers	
Child 1: (...) Because the heart is inside us and is not a person.	either.
Inv.: (...) Can we live without the heart?	Inv.: (...) You are giving the example of the Sun. Why the Sun?
Children: No!	Child 2: Because if, if the Sun explodes, the Universe also explodes.
Inv.: And can the heart live without us?	(...)
Children: No!	Child 3: And we also can't live without houses...
Inv.: So, is that why we are one?	(...)
Child 2: No. (...) I wanted to say that we can't live without the Sun	Child 4: There are people who, can live. (...)
	(...) I've already seen someone who didn't have a blanket!

Children show interest in answering to the question, justifying the answers with logical reasoning and analogies, revealing creativity. Children cooperate in the search for an

answer and justification also revealing sensitivity towards the needs and adversities faced by others.

Involved skills: energy; assertiveness; co-operation; creativity; empathy.

Question 3: What Is Normally Associated with the Heart?

TABLE VII
ANALYSIS OF QUESTION 3

Conversation/Answers	
Child 1: Is it love? (...)	Child 3: Feelings. Inv.: So, why, for example, when we are in love does it seem like our heart beats in a different way? If emotions come from the brain, as someone here is saying...
Inv.: Ah...love! But is it from the heart that love comes from or those emotions that we usually feel when we are, for example, in love?	(...)
Child 2: They come from the brain. (...)	Child 2: It's because the brain orders.

Children present expected answers (emotions and feelings), which are counterposed, with confidence and assertiveness, by the association of emotions with the brain. The different answers are respected by the group.

Involved skills: energy; assertiveness; empathy; tolerance.

Question 4: When You Are in Class, Do Your Thoughts Tend to "Run away" To Other Places?

TABLE VIII
ANALYSIS OF QUESTION 4

Conversation/Answers	
Child 1: Sometimes my thoughts go elsewhere. Inv.: (...) And when they go to another side, where do they go? Child 1: I don't really know... Inv.: (...) Who has it already happened to? And where do they often take you? Child 2: To a forest. Inv.: To a forest? Ah... and what do you see there, in that forest? Or, why do they pull you into that forest? Child 2: Because there are many animals. (...) Child 3: I've felt that too. Inv.: Have you felt it? Child 3: Sometimes I go... Sometimes I go to home. (...) Inv.: Someone is saying...it's the brain. But does the brain come out of us? Children: No! Children: It's the thought. Inv.: Well, it's our thoughts that fly to very distant places... Child 4: Like, for example, into infinite space. (...) Child 5: For recess. (...) Inv.: And where are yours going? Child 6: To many places.	Inv.: To many places... But the places are known or sometimes are unknown? Child 6: Places that don't exist. (...) I mean, the places could exist, I don't know... (...) Inv.: For example, give us an example. Child 6: I don't know...like dragons! Inv.: Ah! You start thinking about dragons. Child 7: The sunset in the mountains. (...) Child 8: A city of Mathematics. Inv.: Seriously?! You...do your thoughts usually take you to a city of Mathematics? Child 8: Sometimes. Inv.: And what is this Mathematical city like? Look, I've never been there! Child 8: Well...trees are numbers. Inv.: The trees...sorry... Child 8: The stick...that trunk is the one. Inv.: Ah... Child 8: But the leaves are different numbers. Inv.: The leaves...? Child 8: Are several big numbers. Inv.: And do you think that this world really exists? Or is it just an imaginary world? Child 8: An imaginary world.

The various places to which the children's thoughts "flee" are characterized in diverse ways as: undefined, not sure where they are going; places that contain elements appreciated by them; familiar places; unknown places; imaginary places.

Involved skills: Optimism; trust; tolerance; energy; curiosity; creativity.

Question 5: Does the Mirror Show Everything We Are?

TABLE IX
ANALYSIS OF QUESTION 5

Conversation/Answers	
Children: The organs? Inv.: Well, the mirror doesn't show the organs. But, for example, if we were...ah...if the surgeon had to open us will be able to see our organs. But would the surgeon be able to see everything we are? Child 1: No. Inv.: What will not be seen? Child 1: What is not physical.	Inv.: Yes, which is not physical. Because we're not just a physical part, are we? Child 2: The memories. Inv.: Memories, for instance. Child 3: Personality. Inv.: Our personality. Child 4: Our emotions. Inv.: The emotions... Child 5: Our tastes.

Children show awareness of what defines the human and that cannot be "seen".

Involved skills: assertiveness; co-operation.

Question 6: Can You "See" What Your Memory Holds?

TABLE X
ANALYSIS OF QUESTION 6

Conversation/Answers	
Inv.: Is it easy for you to see what happened a long time ago, or not? Child 1: More or less! Inv.: More or less... And what can you see better? The good things that happened in your life or the ones that upset you the	most? Child 1: A little bit of both. (...) Inv.: Pedro said "for me it's enough to be calm, calm down a little and I can see my thoughts". Child 2: But I have my bad thoughts more at night.

The memories stored refer to both good and less good things. Some children associate bad thoughts at night. Children show openness revealing to the colleagues something that is intimate.

Involved skills: trust; optimism (opposite); emotional control.

Question 7: Do You Have a Notebook or Notepad in Your Room that You Usually Write in?

Children have a habit of writing: about good things that happen in their lives and less good things; about things they don't want to forget; about things that only confide in the diary; about what is special, what is important; books with imaginary content; about what they research and that will be useful throughout their lives.

Involved skills: optimism; empathy; trust; creativity.

Question 8: Do You Think There Is a Place Where What Is Big "Fits" inside What Is Small?

Children evidence openness when faced with a question related with a seemingly impossible situation and search for creative answers to it. They present assertive awareness of what distinguishes the memory of a human and the memory of a machine.

Involved skills: assertiveness; co-operation; curiosity; creativity.

Question 9: How Do You Feel Today?

Children have awareness that different people can react

physically in different ways to the same emotions.

Involved skills: empathy; tolerance.

TABLE XI
ANALYSIS OF QUESTION 7

Conversation/Answers	
Child 1: I have a diary. (...)	write these things in your notebook? Are you afraid of forgetting? (...)
Inv.: And what do you write? Is it just what you don't want to forget or do you write other things? Child 1: Other things...	Child 4: It's so that when I grow up I can remember school, these things... Child 5: Me, I sometimes when... when something special happens, I go to the diary and always write down what's important. Inv.: What is important to you? (...) Child 5: I like to record everything. (...)
Inv.: And do you usually write good things, that is, things that awaken good emotions in you, or things that make you sad? Child 1: Sometimes things that make me sad. (...)	Child 6: I'm writing a book. Inv.: (...) But a book about your things or something that is in your imagination? Child 6: Something that is in my imagination. Inv.: (...) Why did you decide to start writing a book? Child 6: Because I like writing. (...) And I like reading. (...)
Child 2: I have a notepad where I write the things I would like not to forget. Inv.: But is that all? Or about things that happened in your life, some that you liked the most, others that not so much... (...)	Child 7: I have a notebook in which I write down all my trips. Inv.: And are these trips real trips or are they also trips made by your mind? Do you understand what I'm asking you? Child 7: These are real trips. (...)
Child 2: No, sometimes I write about the things I like, the things I like less and other things... (...)	Child 8: I'm also writing a book and I've already written it. Inv.: Yours is already finished! So, what is your book about? Child 8: It's about a dinosaur that is looking for water. (...)
Inv.: (...) Is what you write there something you often tell other people or just tell your diary? Child 3: We only tell our diary. (...)	Child 9: I like to write...research and save some of the most important things that I research, that will be needed throughout my life.
Child 4: I have a notebook where I write my days, how they were... Inv.: (...) And you only remember good things? Less good things, that bothered you? Child 4: Good things. Inv.: (...) And why do you	

TABLE XII
ANALYSIS OF QUESTION 8

Conversation/Answers	
Child 1: In imagination. Child 2: In our dreams. Child 3: No! (...)	memories and we have many memories, but it is smaller than us... (...) Inv.1: (...) Is the computer's memory the same as our memory? Children: No! Inv.: So why? Child 6: Because there are no trips. Child 5: Our memory keeps our whole life and it doesn't have... Child 7: Feelings.
Child 4: Yes... (...) I don't know... Inv.: But you think it could exist... is that it? Child 5: The brain! Inv.: The brain...So, explain this idea better... Child 5: The brain can store	

Question 10: Do You Often Daydream?

Children confidence some of their dreams and associate "daydreaming" with bad things.

Involved skills: optimism (opposite); trust; empathy.

Question 11: Does the Universe Have a Shape?

Children reveal interest and curiosity in exploring the question posed, intervening with ideas based on some

knowledge, but also on logical and creative reasoning.

Involved skills: energy; co-operation; tolerance; curiosity; creativity.

TABLE XIII
ANALYSIS OF QUESTION 9

Conversation/Answers	
Child 1: Good! Inv.: You feel good. And what is this about feeling good? Child 1: When the heart is beating a lot. Inv.: (...) When you are happy or excited, do you feel like your heart beats a lot? Children: Yes. Child 2: More or less. Child 3: No. (...)	hits too much it's a sign that you're desperate... So what about when you're fine? How does your heart beat? When you're fine... Child 3: Slowly. Inv.: Beat slowly, is that? Ah... but does this happen to anyone else or is it just Vicente? (...) Child 4: When I'm happy my heart beats slowly. (...) Inv.: (...) When we have the same emotions, can our hearts beat differently? (...) So, because we are different and feel things differently, our hearts can also beat with rhythms... Children: Different.
Inv.: Diogo, for him, when he is happy, when he is excited, his heart beats, beats, beats,... However, Vicente has another opinion. Child 3: Because it's desperate. Inv.: So you think that when yours	

TABLE XIV
ANALYSIS OF QUESTION 10

Conversation/Answers	
Children: No... Children: Yes... (...)	dream...when we daydream, we tend to dream things that are good for us. Child 1: No, there are bad things! Child 2: I have nightmares! (...)
Inv.: Can you tell us, or give us an example, of something you have daydreamed about? Do not you remember? Child 1: I remember! Inv.: Remember! Then? Child 1: One day when I was going to the doctor and when I was having a snack, I ate something and died and then they kidnapped me. Inv.: Ah...that's a very bad	Inv.: (...) A little while ago they said "ah, when we dream awake we only dream nightmares". (...) Is it just nightmares? Children: No. Child 3: I have three dreams. Inv.: So? Child 3: To be drummer, writer and footballer.

V. CONCLUSION

Although few excerpts of reflections or discussions resulting from questions asked to the children are presented, in general, regarding the domain *engaging with others*, they reveal *energy*, excitement, spontaneity, and enthusiasm. In the same domain, children evidence *sociability* and a good performance at public speaking, without embarrassment. During the book presentation sessions, it was notary the *collaboration* between the children, namely *co-operation* as well as *open-mindedness*, evidencing *tolerance* being open to different points of view.

In general, from the analysis of presented dialogues, we verify that of the four domains considered in the presented adaptation of the Big Five model [1] to carry out data analysis, the skills in the domain of *emotional regulation* were the least observed, being expressed evidence of a lack of optimism in two situations and in another situation emotions opposite to stress resistance were manifested. Considering the domain *engaging with others*, energy and assertiveness were the more manifested skills, in *collaboration* domain empathy, trust and

co-operation were expressed frequently, and related with *open-mindedness*, curiosity, creativity and tolerance were very observed.

TABLE XV
ANALYSIS OF QUESTION 11

Conversation/Answers	
Child 1: The Universe is round. Inv.: (...) Is the Universe round? Children: No! Child 2: It's infinite. (...) Inv.: Ah...infinity... What is this about being infinite? Children: It never ends. Child 2: There's no end. Inv.: (...) So, can we say that it has form? (...) Children: No. Child 3: There is only one Universe. Inv.: There is only one Universe. Why do you think there is only one Universe? Child 3: Because there's only one black hole there. (...) Inv.: Can you see or tell what the shape of the Universe is? Child 3: No... Inv.: And why not? Child 3: Oh, I mean...ah...um... Inv.: Can you help? Child 4: Why it staying away from us? Inv.: Ah... the Universe is so far from us that we cannot visualize its shape, is that it? Child 4: I don't know...	(...) Child 5: We can't see the shape of the Universe because you'll never get too far to see the shape... when you go to the Moon, you can see the Earth because you're very far away, but as you're small you can't go very far because you're not tall. (...) Child 6: There is no border, the Universe is infinite. Inv.: The Universe is infinite...at least that's what it seems to us, isn't it? Child 6: Every day it grows more. Inv.: Ah...the Universe is always growing...or is it always developing? Child 7: Develop. Child 6: No, growing up. Children: Developing. (...) Child 8: I think the Universe has no shape because it is infinite. Inv.2: (...) Could it be that because it is infinite it has no shape? Child 9: Yes. Child 5: We don't know if it's infinite because it's the way we think. We have never traveled... (...) Child 5: It may have an unknown shape.

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