

Character creation as an inclusion tool: cartographies of a science teaching experience in elementary education

ABSTRACT

The challenge of a special educator to accompany inclusive processes of students with disabilities, in collaboration with a regular classroom teacher, co-exists with the one of testing collective disposals in science teaching and learning contexts. Facing these obstacles, this study seeks to answer the question of how a "problematizing character" can operate as an inclusion mechanism for students with intellectual disabilities and contribute to the integration of a special educator in the pedagogical activities developed in a 5th grade class in a public school. Based on the Invention of Worlds methodology, the regular teacher and the special educator have built strategies of collective disposals with the students and the character. This methodology seeks to create conditions for learning that are guided by an active, creative, and problem-oriented conception, with flexibility to articulate ideas and suggestions brought by the students. The study adopted, methodologically, the cartography of the interactions of the character with the class, especially with three students diagnosed with intellectual disabilities, in a collectively constructed narrative. The results show that the collaborative work between the special educator and the teacher was strengthened by the pedagogical challenge of mobilizing the character and making it a problem solver. The "problematizing character" emerges for the students loaded with inspiration and creative ideas, provoking their involvement and interest in the pedagogical activities. During the interdisciplinary challenges and problems that defied them to think about Science in the interface with imagination and inventiveness proposed in the activities of Invention of Worlds, it was noticed that the feeling of "not knowing" expressed by the students with intellectual disabilities was giving way to the (self) recognition of the unique creative and authorial capacity. The interlocutions that the students established with the character constituted a common plan of interactions and cooperation with the teacher and the special educator, configuring an inclusive collective disposal.

KEYWORDS: Inclusive collective disposals. Invention of Worlds. Basic Education. Inclusive Education. Science Teaching.

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INTRODUCTION

Proposing Science education approaches with didactic strategies that contemplate skills and competencies instigating students' autonomy and social construction is a challenge for teachers who aim to tension transmissive models of education. The challenge of experimenting new ways of dealing with subjective collectives and diversities in the interface between creativity and imagination provokes, by its turn, the possibility of creating knowledge acquisition strategies through the Invention of Worlds methodology. This method prescribes that the "teacher builds together with students a story-device that serves as a context for several problematizations"¹ (ALVES, 2020, p. 28).

The Invention of Worlds might involve the creation of a city as a world-model with distinctive characters and contexts (CABELLEIRA, 2017), or a character created by the teacher (CASA NOVA, 2015). This character, who appears to put into motion the dynamics of the Invention of Worlds, brings situations-problems that demand deeper study and position taking. In this study, such character is considered a problematizing character. Not always the problematizing characters are known by the students (CASA NOVA, 2015). They may be created by actors outside the classroom, making possible the integration with the school community (ALVES, 2020). More recently, with the implementation of the Base Nacional Comum Curricular (BNCC - National Common Curriculum Basis) (BRASIL, 2018), the challenge of the "problematizing character" is also creating situations articulating the narrative with the learning goals, competencies, and skills established by the document.

Inventing worlds in the classroom implies, initially, the collective discussion of themes and ideas delimited by the interests of a group of students. These initial discussions, explaining the themes, guide the construction of a narrative and a path that will be developed during the school year. Mobilized to position themselves and solve problems with creativity and imagination, students are challenged to make stories instead of reproducing dominant narratives of a represented world. Inventing and dialogically inhabiting the world differs methodologically from copying and exploring the world. Oliveira et al. (2022, p. 188) remark that in their experience "the Invention of Worlds methodology, associated to problematizing interventions, generates a non-linear process, different from conventional education based on questions with correct and previously known answers".

The Invention of Worlds methodology is the foundation of the actions of the research project *Rede de Saberes Articulando Ciências, Criatividade e Imaginação* (Rede SACCI1 - Knowledge Network Articulating Sciences, Creativity and Imagination). It assumes the epistemological concept that knowledge is permanently being built and that we and the world are the emergence of dialogical interactions.

On the one hand, the Invention of Worlds provides learning conditions guided by an active, creative, and problematizing concept, with flexibility and articulation of ideas and suggestions brought by the students. On the other hand, the challenge of building strategies with an attentive and reflexive view about special education policies remains. Such challenges, by their turn, require seek

for the difference and the singularity to gain potency with originality and protagonism.

Carvalho (2004, p. 121) emphasizes that "basic education teachers, in general, declare themselves unprepared for the teaching-learning process of the target audience of the Special Education but few teachers question the influence of traditionalism in their pedagogical practices". Adams (2020) mentions that future teachers perceive the target students of Special Education as a challenge. Due to the absence of a theoretical discussion about the deficiencies in undergraduate courses, they assume their lack of knowledge about these students' peculiarities. The undergraduate students interviewed by the author also highlighted that, by the lack of experience adapting the "content to be ministered", they could not recognize these students' learning capabilities (ADAMS, 2020, p. 17).

During our study, we were challenged by the use of a method oriented to the teaching-learning process of Sciences with Special Education students, and the regular teacher's lack of experience was compensated by the partnership with the Special Education Teacher. The content centrality and the need to adapt were switched to a centrality in the student. With this aim, the "problematizing character" built a partnership with the Special Education students to solve the problems presented and to deepen the scientific content studied.

To advance in this study about inclusion strategies articulated with Sciences education, we delimit the research area to one class of the elementary education fifth year in a rural public school, which is also a partner of the SACCI network. In this particular class, three students enrolled passed through a multiprofessional evaluation that diagnosed them with intellectual disability. Due to the slow process in the public healthcare system, they were still awaiting neurological care but were already included in the School Census and received support from the school and its network for their special needs. On the other hand, the Invention of Worlds method is part of the school's methodological approach since 2015, included in its Political Pedagogical Project (PPP) and School Regiment. Therefore, the creation of a "problematizing character" as a methodological strategy is part of the school routine, both of teachers and students.

This study's guiding question is: how the "problematizing character" in an Invention of Worlds and Sciences context can operate as a tool to include students with intellectual disability? The study goal was to follow the inclusive processes in the regular classroom and the collective construction of a transversal narrative related to scientific themes. The character's interactions with students were mapped by the special educator who sought for traces of the inclusive process.

Concerning students with intellectual disability, Thoma & Hillesheim (2011) state that it is essential for schools to be actively involved not only in the physical insertion of students in the school environment. The school and the classroom dynamics must be planned to contemplate both specific and collective needs. To change this reality, it is important to evaluate the methodology and create inclusive teaching strategies. Seeking for practices that attend students' special needs, the focus in the collective helps tensioning homogeneity patterns and permits the flexibilization the school's curriculum.

In summary, we understand that creating strategies potentially moving inclusive collectives corroborates public policies that intend to implement access and permanence actions for all students, focusing on human empowerment.

INCLUSIVE POLICIES AND THEIR IMPERATIVE LINES

Besides the recent updates in the Brazilian legislation, Special Education continues finding barriers to fulfill its attendance goals for people with disabilities in schools. Beyer (2010) remembers that decades ago Special Education had its public attended in special schools, while children without apparent physical or intellectual disabilities attended regular schools. Only in 1994 the *Política Nacional de Educação Especial* (National Policy for Special Education) (BRASIL, 1994) was implemented. This policy guided the instructional integration process and conducted to regular school students with conditions to follow the work plans of regular classrooms.

In 1999, the Decree n. 3.298 defined Special Education as a transversal modality to all teaching levels, emphasizing its complementary action to the regular teaching (BRASIL, 1999). In 2003, the Ministry of Education created the Inclusive Education Program to guarantee the organization of the special education care and the promotion of accessibility.

Currently, in accordance with the National Policy for Special Education in its Inclusive Perspective (BRASIL, 2008) launched in 2008, Special Education must pervade all teaching levels and guarantee the inclusion of students with disabilities, global development disabilities, and intellectual giftedness. Since 2009, the Operational Guidelines for Specialized Educational Care in the Basic Education, modality Special Education (BRASIL, 2009), started guiding the school inclusion of individuals with disability in regular education.

The Brazilian Law of Inclusion of the Person with Disability - Statute of the Person with Disability - defines in its second article the person with disability as "that who has long term impairment of physical, mental, intellectual or sensorial nature, which, in interaction with one or more barriers, can impede his full and effective participation in society" (BRASIL, 2015).

Concerning the nomenclature, a significant portion of the official documents still contemplates the term "mental deficiency", although the more accepted and widely disseminated worldwide is "Intellectual Disability" (AMERICAN PSYCHIATRIC ASSOCIATION, 2014). Schalock et al. (2009) apud Araújo & Almeida (2014, p. 343) present the definition of intellectual disability as: "[...] an impairment characterized by significant limitations both in the intellectual functioning and the adaptative behavior, expressed in conceptual, social, and practical habilities".

During the inclusion of Special Education students in regular education, institutions required a medical report to guarantee the right of the person with disability in the school. Currently, according to Brasil (2014), no medical report is required for the enrollment and care of students with disabilities.

The specific needs of Special Education students, including students enrolled in the regular educational system, still impress a comparative thinking generally reflected in the judgements related to their difficulties and inabilities (CARVALHO, 2004). In the words of Carvalho, "[...] it is the exclusion logic because the undesired comparison between persons occurs around certain indicators that

'eliminate' those that do not fit in as they escape the established standard". (2004, p. 40).

According to Beyer (2005), an important condition to make inclusion possible is critically rethinking education because not only students with some limitation or disability are special and different. In this sense, requiring a standardized and uniform learning in a group of students is incoherent and reinforces the necessity of revising traditional teaching methods. In this sense, "schools must revise concepts, teaching, guidance and care strategies for all students in order to recognize and attend their needs, developing their utmost potential" (MARTINS, 2011, p. 20).

Considering this perspective of rethinking spaces, periods, curricula and methods, the Opinion 56/2006 (RIO GRANDE DO SUL, 2006) emphasizes the importance of flexibilizing and adapting curricula in regular classes. Such adaptations consider the practical and instrumental meaning of basic contents, using varied teaching methods and resources and applying adequate evaluation processes for students with disabilities.

We understand that the adaptations needed to include students with intellectual disabilities can be positive for all teaching and learning processes inside the classroom. Nevertheless, the idea that the Special Education is restricted to the student with some disability still pervades many educational practices. In this sense, collaborative teaching presents significant paths for the inclusion process. Mendes et al. (2018, p. 45) define collaborative teaching – or co-teaching – as a practice "providing a support service in which a regular teacher and a special educator divide the responsibility of planning, instructing, and evaluating the teaching given to a heterogeneous group of students".

The collaborative teaching proposal potentializes the special education teacher role inside the school. This perspective overcomes the restrictive model that special education teachers work only with the student with disability and the Special School Care, and that it is their sole responsibility the included student's success. Collaborative experiences may also qualify teachers' training process because they permit rethinking educational practices and reflecting about all students teaching-learning process. Collaboration invites professionals to care for all students needs and not only to adapt the included students to the others (MENDES et al., 2018).

These theoretical and conceptual ponderations consider that the manner in which the actors of the school context are perceived and evaluated requires the perception of a complex network with multiple implications that emerge and organize themselves in the teaching environment. The relations inside this complex network are not only understood as forms but as force fields intertwined in a common plane. Kastrup & Passos (2016) treat the common plane as a communication operator between heterogeneous singularities. The common plane is, at the same time, individual and collective and not a mere homogeneous grouping that gathers actors (individuals and objects) with relationships between them. As all actors are implied in the common plane, the comprehension of a complex reality emerges.

The common includes a double sense of sharing and pertaining. It is understood by Kastrup & Passos (2016) as that which is lived in the experience as the sense of pertaining to a collective, that which we shared and, at the same time, take part of, pertain, engage with. Thus, we can understand that the

Common Plane characterizes an agency. In this sense, the network weaved tends to be heterogeneous, open, centerless (DELEUZE; GUATTARI, 1995), permitting new agencies between its actors.

Haesbaert & Bruce (2009 apud TRENTIN, 2019) emphasize the importance of agency because it, besides connecting bodies, is also formed by the collective agency of the enunciation. Trentin (2019) highlights that collective enunciation agencies can produce dialogical and affective flows, indicators of subjectivity production processes.

THE CONTEXT OF THE INTERVENTIONS AND THE TRACING A COMMON PLANE

This study was conducted with an Elementary School 5th grade class of a public municipal school located in the rural area of a city in the state of Rio Grande do Sul. 16 students were enrolled in the class and three students had passed through a multiprofessional evaluation that diagnosed them with intellectual disability.

To keep the anonymity, the students are mentioned by fictional names. The three students with intellectual disability are from now on called Hades, Achilles, and Apollo. Besides having the same diagnosis and being in an age-grade distortion, the three students had well-defined characteristics.

Achilles was 15 and had entered the school in the previous year, after passing through an insconstant and conflituos school trajectory. When Achilles enrolled in the school, we contacted his father, who mentioned being his legal responsible as the child had little contact with his mother. During long talks, the father mentioned that Achilles had a school history of conflicts and significant learning difficulties. However, Achilles was receptive to the care in the Resources Room, demonstrating, most of the times, interest in learning. Nevertheless, he presented mood swings, demonstrating frailty or preoccupation because he understood his school difficulties and diminished himself for that.

Hades, 14 years old at the time, was very withdrawn in school and sometimes even apathetic. He had received specialized care for several years. Besides being "assisted", he demonstrated little autonomy in performing the activities and little interaction with his classmates. The mother and the grandmother (the legal responsables) were present in the school whenever it was possible and seemed to understand his difficulties, attending the school requests to seek for multiprofessional care. Nevertheless, the family depended on the *Sistema Único de Saúde* (SUS - Unified Health System), which slowed down the access to the necessary assistance.

Apollo was 14 and was communicative and happy most of the time, but headlong when facing adversities, impatient with his difficulties, which frustrated his capabilities and potential. In the resources room, Apollo was eager and anxious to learn, attentive and participative in the activities; however, perceiving his difficulties, he was also negative and rebellious. His family was of low income and did not contribute to his education because in many opportunities seemed to be incapable of dealing with him. However, the father demonstrated interest in this school education.

With the aid of the Special Education monitor, experienced in accompanying students in the classroom, Achilles, Apollo, and Hades presented more receptivity and interest. The regular teachers also identified some progress in their learning.

It is worth mentioning that, although dedicated and attentive, the regular teacher could not attend them individually due to the demand with other students. The monitor changed the classroom dynamic regarding these three students who, by their intellectual conditions, in many situations were at the margins of the class activities.

As the Invention of Worlds method is part of the school's educational routine, in the beginning of the year, the special educator and the regular teacher organized collective debates with students to clarify their study interests. As a methodological strategy, they agreed to create a character to mobilize students to become protagonists in the Invention of Worlds experience. This character, created by the special educator, assumes the dynamic and potent role of being the problematizer, permitting her inclusion in the class and the pedagogical partnership with the regular teacher.

The students interacted with the "problematizing character" through the technological and communicational resources without knowing that the author was the special educator, who used the strategy of interlocution by letters. The letters are a way of evaluating each student's contribution during the Sciences learning process. The regular teacher used the e-mail and a smartphone message application to interact with the class.

The actors started entering the scene, seeking a common plane of interactions and intervention planning. They needed to consider the regular teacher's teaching plan, students' ideas and interests, and the disposition of the character to create problems to be solved by the children. Therefore, some tools were used in this study as devices to generate data: the creation of a "problematizing character", a logbook, e-mails, and letters.

The logbook is characterized as a potent instrument to map the perception built across the cartographic trajectory, considering that relevant points and real time notes evidence particular situations and guide the paths for future studies. The students themselves use the logbook to track and map processes during the Invention of Worlds method. These experience reports add relevance to the study, revealing each actor's actions. Such interactions with the "problematizing character" were mapped in order to seek traces capable of producing collective-inclusive agencies.

METHODOLOGICAL PROCEDURES TO PRODUCE AND ANALYZE DATA

This study is of qualitative nature with descriptive/narrative characteristics. It is based on the cartographic method of Gilles Deleuze as systematized in the form of traces by Passos, Kastrup & Escóssia (2015) and Passos, Kastrup & Tedesco (2016). Kastrup (2015) is our main interlocutor to understand the interfaces between the philosophical perspective of the cartography and the scientific inquiry potential. She emphasizes that the implication of the apprentice cartographer in the research field immediately puts the question of where researchers will put their attention on. Most of the times this question is focused on which point to place the attention. However, the author highlights that attention is not restricted to a single point neither to a simple piece of information. Mapping demands researchers to constantly modulate the problem, assuming an open posture, an open thinking. While formulating the layout, the cartographer must "problematize the cognitive forms of the researchers themselves in relation with the field they are dedicated to" (AMADOR; FONSECA, 2009, p. 5).

The cartographic method challenges researchers to get involved in the context to co-transform it, tensioning the predominant paradigm of knowing the reality to then change it. In other words, the researcher is required to understand that we experience a dynamic world in an unceasing construction (PASSOS; KASTRUP; TEDESCO, 2016).

Entering the research field causes the emergence of realities that were not previously "given" nor awaited observation or clarification. According to Barros & Barros (2016, p. 176), "the cartography commits itself significantly with the analysis of the research process to be made even when this analysis is not exerted on the data, i.e., on an objectivity taken as independent from the research itself". This aspect of the cartography values the implication of the researcher and reveals the social relations established while conducting the study proposal.

Cartography reflects the inseparability between making and knowing, between researching and intervening (PASSOS; BARROS, 2015). This reminds us of the indisputable fact that the presence of a cartographer in the field generates effects that alter this medium and context. So, we can assume that, in this manner, there is a data production. This production is analyzed in the next section.

MR. PTOLOMEU GUERRA: CREATION OF A PROBLEMATIZING CHARACTER

The conduction of the pedagogical practice using the Invention of World method articulates a "problematizing context that emerges through a character in the story" (ALVES, 2020, p. 82). The creation of a "problematizing character" in this study aimed to establish a communication with the class without students noticing the special educator's participation and authorship.

The "problematizing character" adopted the image of an elderly person, someone outdated, who is eager to have assistance to cope with the "novelties" of the modern world. He was presented to the class as Mr. Ptolomeu Guerra. This character profile aimed to intentionally contemplate students' desire to deal with

the Invention of World through polemics and novelties. The name "Ptolomeu" is a reference to the Ancient Greek scientist, astronomer, and geographer, Ptolemy. This name was intended to articulate several aspects of the curriculum, especially by the reference to a scientist, which could help dealing with the Sciences of Nature.

As previously mentioned, the special educator's actions were anticipated and had the regular teacher's consent, being thus a collaborative action. The regular teacher proposed the theme to be discussed, and Mr. Ptolomeu acted to insert the problem in class. Mr. Ptolomeu made his first contact with the class by sending an email to the regular teacher. The email arrival agitated the class routine. The teacher told students he had received an e-mail in which Mr. Ptolomeu Guerra asked for the help of a class that likes polemics. Below is the letter sent by the "problematizing character":

Good day, my dear students,

Well...let me see from where I begin...my name is Mr. Ptolomeu, at least, that is what they told me...let me explain.

I passed nearly 5 years in a small island, without knowing exactly who I was.

Everything started when the cruise ship I was in with my friends sank. Many disappeared, some died, and others, like me, ended up in a small island where a small group of people live.

They accepted me in this island but, as I lost my memory and they don't have means of communication there, I got lost. This year, a group of students while doing research there found me and recognized me. I supposedly was Mr. Ptolomeu Guerra, a millionaire who had disappeared.

Finally, I was taken back to my family. I recovered part of my memory but during these 5 years I was outside of this world.

Then I had an idea...one of my servants told me that in the region there was a group of students that liked news and polemics. Here I am asking for your help.

Let's begin. In the first place, I want to show my gratitude to those who helped me in that small island. For this, I need you to help me giving a name to that small town. I need you to help me getting updated about the news of the moment because I am kind of lost.

I thought we could initially communicate by e-mail...

Do you agree????

So, can you help me??

After the reading of the message by the teacher, the students were curious. Instead of questioning the truth of the character, the students immediately got immersed in being part of that narrative. In the movement of curiosity and eagerness to know more about the new friend, it was possible to see the smile in the face of those who were previously introspective in class. We remember Maturana (2014) who stated that if we want to "understand human activity, we shall pay attention to the emotion that defines the domain of actions in which that activity takes place" (MATURANA, 2014, p. 138).

To map the moment in which the character "entered" the class context, it was when he moved many emotions such as happiness and the harmonious interaction between the students involved in that narrative.

In the moment he entered the class context, Mr. Ptolomeu assumed a significant role in students' creative and inventive process, who directed to him their proposals and intentions, adopting a dynamic and interactive posture. The "problematizing character" established meaningful moments in the classroom, contributing to the construction of a narrative in that context. According to Alves (2020, p. 82), when creating a world, the subject makes another self that occupies that world, i.e., a character to act in that world and, at the same time, to produce/create. For the author, in the Invention of Worlds proposal, the characters are the personification of a thought that invents the world. In this inventive process, the "problematizing character" role is to mobilize and foster collective discussions. At the same time, he needs to be mobilized according to the demand brought by the class. As cartographers, we do not know what we will find during the immersion in the class. Therefore, it is necessary to build strategies that help and, in a certain sense, direct the cartographic adventures.

The cooperation dynamics that constitute the agencies between students are visible when they collectively start thinking about answers and possibilities of contacting the character. The class mobilized itself to elaborate answers to the challenges proposed by Mr. Ptolomeu's narrative. At the same time, the students exerted their autonomy and clarified their experiences and knowledge. They sought to understand classmate's positions to continue the narrative. We found that the strategy of creating a character fosters the collaboration between students and teachers, mobilizing and permitting the collective-inclusive agency in the class context. This collective agency in a common but, at the same time, diverse dynamic denotes the cooperation that emerges between teachers and students.

STUDENTS' INTERLOCUTIONS WITH MR. PTOLOMEU

Hence, there was a class mobilization to provide answers, arousing curiosity about who could be that millionaire. "Will he 'invest' in us?" asked one student. Thinking about what was happening inside their curious minds excited the special educator to keep following the class. Meanwhile, she observed the students with intellectual disabilities, intimately projecting what would be their understanding about the proposal. However, she was apprehensive when perceiving expressions of misunderstanding or apathy in some moments.

The class chose the letter as a form to communicate with Mr. Ptolomeu. It is worth mentioning that for most of them the letter was still the most familiar form of communication. Afterward, the teacher would "send" the letters by email. At that occasion, the three students with intellectual disability (Hades, Apollo, and Achilles) were not in class. The other classmates sent letters to Mr. Ptolomeu with different ideas and many questions. They wished to know who he was, where was that island, etc. Some excerpts evidence the students' immersion in the creative process:

What to say to Ptolomeu?

Mr. Ptolomeu came from the earth to tell you that here on Earth everything is ok, we have talked a lot about polemics and much more. In the classroom we are halfway done with the question of island we have worked a lot in the disciplines but it is only it now I want to know how are you. (student F*, 5th grade).

The student here called F* is preoccupied with the answer to the friend and tells about the work done with the invention and the school disciplines. The students' reports were varied. Some questioned, some told him about the class, others only reported what had happened. The student L* documented in her logbook a report after Mr. Ptolomeu's contact:

Mr. Ptolomeu,

the Mr. emerged in the island of Cape Verde that we located and he told his story to the 5th grade. So, we decided to talk about it and then many great ideas popped up such as talking about garbagge, making a volcano on the garbagge with cans and we are working hard to make it good Mr. Ptolomeu has been meaningful to the 5th grade. (student*, 5th grade).

The excerpts from the logbook present some ortographical mistakes and other questions that, if related to the objects of knowledge of the different disciplines, open a wide array of opportunities for the teacher. In order to continue the studies based on the 5th grade workplan, after reading the letters of his new friends, Mr. Ptolomeu talked about himself and indicated the coordinates of the Cape Verde island as being his location. The teacher would soon present the Treaty of Tordesillas and intentionally put the problems in that direction. Mr. Ptolomeu also asked for information related to the means of communication used in school in order to instigate the use of the interactive radio² provided by the school, encouraging them to continue the Invention of Worlds proposal. In a new contact, the friend thanked for the class messages and brought more information about himself:

Hello, my dear friends, how are you?

I fell glad with your feedback and with your preoccupation with my person. Answering to your questions...well, I already mentioned what happened to me. The island where I stayed in those memoryless years pertain to an archipelagus formed by ten vulcanic island in the central region of the Atlantic Ocean. It is around 570 kilometers from the Western Africa coast, the islands cover a total area of a little bit more than 4,000 square kilometers. They call it Cape Verde; however, the village I stayed still don't have a name, I am waiting for your suggestions. I am fine now, thanks God, but still a little bit lost. Have you already thought how will you help me? How can we organize the polemics and the news to reach all the parts of the world? As you know, I have friends everywhere, I am an important man. My informers passed there through the road BR 290 and found your school. They told me you have a radio in your school, is it true? Do you use it to inform something? I am eager to talk more with you. I also want to know more about yourselves. What do you like to do? What are you studying in school this year?

Best regards.

Even in the moments the included students were not present in the classroom, we perceived how much the dynamic welcomes and provides the involment of the whole collective. Students are no longer seen individually but are part of the common plane of discussion and collective exchanges that includes everyone's inventiveness and protagonism. Each new communication, they invented, questioned and sought for new challenges involving the ideas raised by the character. The discussions ocured on a daily basis, and the group recovered the theme telling the novelties to those who were not in the previous classes. In these exchanges, they discussed the theme and interacted with the diversity of thoughts that emerged from each one. These collective-inclusive

agencies fostered learning and permitted students' protagonism in a common plane.

INTERLOCUTIONS OF ACHILLES, HADES, AND APOLLO WITH MR. PTOLOMEU: THE CHALLENGES OF INCLUSION

The regular teacher, while developing his workplan, aimed to link different areas' contents to the questions that emerged in the Invention of Worlds. After the first contact of the "problematizing character" with the class, students remained studying the contents foreseen in the curriculum and giving new answers or making questions to their new friend. Mr. Ptolomeu made another contact by e-mail, asking for the class assistance. The teacher showed the email to the students, indicating that, in that moment, he was sick and needed the aid of the class to have a better health.

Good afternoon, my dear friends,

I miss our talks.

I need your help... for some days I have been feeling ill, with stomach pain, nausea, and sometimes I pass the whole day in the bathroom. There in the island I had these symptoms the time I drank sea water, and there they told me it was because of pollution.

Since I came back home, I have eaten a lot. I think I have exaggerated on snacks, sodas, and fried foods. Is it bad? But I don't understand very well how these "stomach things" work.

Have you ever felt it?

Another thing, does pollution exist where you live?

I am waiting for your news. Best regards.

Intending to mobilize more specifically the three students with intellectual disability, soon after this message, Mr. Ptolomeu sent another one. He reported having heard about three students who lived in the rural area and knew about teas and other types of food that would alleviate his symptoms. Mr. Ptolomeu then made an invitation directly to the trio, asking for guidance and information about what would be helpful.

Good morning, dear students,

I am still sick of the stomach. It came to my knowledge that in this class there are three very dedicated boys that know something about homemade medicine, teas, things that are good to alleviate my symptoms.

Misters...you live in the rural area, right? Could you study with your family members what types of food and teas could be used to alleviate my symptoms? What do you produce in the region you live? It also came to my knowledge that there is a health center close to the school, could you go there to find some piece of information about it? I will give you this mission and I wait for your feedback.

Talk soon

We highlight here the relevance of the students with intellectual disability's school activities, reverbing the value their participations received. We perceived that even inside a class that adopts an inclusive posture and a workplan with several possibilities, the actors of the process sometimes stay at the margins of the common plane, needing a punctual call for them to play a main role. With this intervention of Mr. Ptolomeu directly summoning Achilles, Hades, and Apollo to interact with the group to answer his questions, we understood the importance of the interdependence between Achilles, Hades, and Apollo and the collective.

The teacher took advantage of the last contact of Ptolomeu to ask students to write a letter to him, presenting their doubts and advices to his problem. It was exciting to see Hades and Apollo (Achilles was not in class) writing a letter to help their friend even though they were still in literacy acquisition process. Below we present an excerpt of Hades's letter to Mr. Ptolomeu:

Hi Ptolomeu how are you
Are you eating well
Are you taking your medicine
You have to eat, fruits, vegetables to become
stronger, you take absinthe, or fennel
mint, lemon balm
I like car. Riding
I like tractor
I like bicycle
Sorry for the delay

It can be perceived that, even with the ortographical and interpretation difficulties, Hades got involved in the theme, attending a collective demand: writing his own letter. An excerpt of Apollo reveals his intention of helping the friend Ptolomeu:

Hi Pitolomeu are you allright
I knew that you are sick
Marcela, Lemon grass, Camomille

Many times, in the resources room, the special educator, while working with reading and writing activities to potentialize students' delayed abilities, heard self-depreciating sentences from the students who felt incapable of learning and following the regular class. In a fragment of her logbook, the special educator wrote that Apollo, who was always spontaneous and energetic, commented about a reading and writing activity: "Ah, Mrs., I am too dumb for this, I think I'll never learn", or "ah, Mrs., these writing activities I can't do, it makes one feel depressed". Achilles, who has an introspective and shy profile sometimes hid in a hood or cap when asked to write. He was so insecure that he said, before even trying, "ah, I can't do it".

Such self-depreciating feelings permeated the three special education students' trajectories. On other occasions, when asked to write, Apollo and Achilles opposed, stating they were incapable of doing it. We perceived that, during the Invention of Worlds process, the impotency and the feeling of "not knowing" lost space to the main role and participation in a practical activity guided by their creativity.

As Hades, the other classmates also sent messages of assistance, giving advices for their friend's health. By reading the students' letters, we perceived the interest they had in talking about themselves, their school routine, and indicating "recipes" to help Mr. Ptolomeu's health. Unanimously, they commented about the class proposals, especially about the Invention of Worlds, demonstrating, besides their interest in the proposal, the attention and reality they attribute to the "problematizing character".

The class also sought for news they judged important for Mr. Ptolomeu, as he was isolated and memoryless for a long time. They talked about the elections, some headlines that impacted them, some world events, but they were mostly concerned with his health. Student M* wrote the letter in a sheet with many hearts and colorful drawings:

Hello, MR Pitolomeu I am M* from Caçapava do Sul RS 5th year.

I alredy know that you sir was lost in the island of Cape Verde for many years.

In this period many things happened such as; we made a film, we worked with polemics.

As you sir had health problems, you can use some teas. We have a dance group in the school.

Polemics; such as children and teenagers that died by gun violence.

Can I make you a question? How was the island of Cape Verde like?

It has been very nice to talk to you many things happened.

Kisses, talk soon.

A plan contemplating diversity is still a great challenge, especially when dealing with a classroom with students with disability. The inclusive proposal evokes changes in teachers' performance because, as teachers direct their plans and actions to these students, it is possible to perceive how there are different forms of learning inside the school context. Establishing this common plane between students requires contemplating each one's potential in order to help the collective. The methodological proposal of the Invention of Worlds permitted collective-inclusive agencies, reverbing changes foreseen in inclusion policies

while also attending the principle of "not excluding anyone from the general conditions of school progression" (BEYER, 2010, p. 69).

The special educators registered one of Apollo's speeches in the resources room. He shared his experience about the ongoing creativity project in his classroom: "today we learned about some sciences' stuff of the digestive system, very nice. Then the teacher asked us to write some hints to Ptolomeu". This speech corroborates that the content studied on that day was meaningful to the student, who could align with the theme chosen by the class.

We remind here the importance of collaborative teaching as an inclusive education proposal. The partnership between the regular teacher and the special educator prioritizes practices aligned with what we understand as collective-inclusive agencies in school. When making an inclusive proposal, we understand that the care with the student with disability is not restricted to the special educator's attributions. This kind of work in Special Education, performed jointly to contemplate the student and the group's needs, is called Collaborative Teaching (CAPELINE & ZERBATO, 2019). Regarding this co-responsibility in teaching, the authors state that:

In Collaborative Teaching, the special education teacher and the regular teacher divide the responsibility of teaching, the hits and misses. By this reason, the Special Education professional does not enter the class to supervise, criticize or teach what others should do but to contribute, to learn. (CAPELINE; ZERBATO, 2019, p. 39).

Another important aspect about collaborative teaching is the fact that the planning is not meant only for the student with a disability. The collaborative plan should reach all students of the class, evidencing each one's potential, aiding them in their difficulties while uniting the collective. Such practice is not an easy task. It configures an action that considers the diversity of the collective, understanding inclusion not only as a privilege of students with a disability. Developing respect and welcoming differences in the collective is understanding inclusion as equity, not restricting it to adaptations and comparisons.

Collaborative teaching's proposal is not a work centered on the student with disability. It has as a prerogative that both teachers should work with all students in class, adapting scheduled activities to permit their access for all. (MENDES et al., 2018, p. 76).

The National Guidelines for Special Education in the Basic Education (BRASIL, 2001) mentions that pedagogical support services shall act within the regular classroom, which includes the joint action of the special education teacher with the regular teacher. Even when the class has only one regular teacher, the collaborative teaching between this teacher and the special educator is indispensable to attend the needs of a collective-inclusive and inventive agency. The Invention of Worlds, as a method that contemplates several fields of knowledge, permits the involvement and the exchange between these professionals and makes the collaborative teaching possible inside the classroom.

Continuing the activities, the class, mobilized to think and dialogue, invented a new plot for the narrative. For them, Mr. Ptolomeu would be in another galaxy and not on the planet Earth. All contributed with their ideas and then they opted to make material this moment when Mr. Ptolomeu, according to them, passed through a portal, leaving Cape Verde's Island to the "Cosme Island", in another unknown galaxy. This intergalactic transposition of Mr. Ptolomeu gave room to

new discussions and approaches of different contents of the thematic unit "Earth and Universe", which is contemplated in the National Common Curricular Basis (BRASIL, 2018). Such contents were debated in writing activities, conversation rounds, and artistic productions. Mr. Ptolomeu kept intervening and interacting with the class, tracing new interlocution strategies.

Corroborating with the process, characteristic of the invention, the teacher conducted the closing of the intervention, requesting students to think about a creative ending for Mr. Ptolomeu's narrative. The main proposal was sharing ideas because the apex of the project is defined by the collective. During the whole process, students perceived the regular teacher as a mediator of this relation with Mr. Ptolomeu and did not question if the author of the letters was the Special Education teacher.

The class joined efforts and gathered recyclable materials to make visible the world invented. The happiness and involvement were notorious especially in Apollo, who was chosen by the teacher as the presenter. As the classes have many students, in the apex day, only a part of the students of each class were invited to present to the public (community) the Invention of Worlds' productions. The others were invited to visit the exposition together with the school community. All of them participated in the construction and production of the material, except Achilles who was absent from the school until the end of the year. Apollo was involved bringing materials, giving ideas and being excited with the fact of being one of the presenters. Hades helped, but most of the time was apathetic and depended on the Special Education monitor to perform the tasks.

Hades, Apollo and Achilles attended the special education care on a weekly basis and, during these meetings, the special education teacher sought to rescue what she had worked in class. Hades and Apollo were absent in many classes but were present in most Invention of Worlds activities. Achilles had a history of being infrequent in other institutions as well. After passing through a crime situation close to his mother's house, his mental health was significantly affected. Even with the school support, which took the necessary procedures to provide him health care, Achilles left school. In the special education care, Apollo was enthusiastic and could verbalize many actions he made, such as researching with family members and talking with the community to help Mr. Ptolomeu's narrative. Hades was very shy and needed to be constantly challenged to interact. Nevertheless, he was at ease to talk and express himself in the special education care.

When questioned about the Invention of Worlds practice, Apollo and Achilles expressed their satisfaction and level of interaction with the narrative, demonstrating interest in participating and interacting in the inventive processes. The special educator appointments during students' attendance in the resources room evidence their enthusiastic attitude. Apollo reported: "Mrs., today was great, we are building the portal, you Mrs. will see, it will be very good".

In the final day, the emotion was evident in every one in class. The "model" presented was full of feelings, emotions, and had a bit of each students' participation. The regular teacher, proud of his students, helped in the public presentation. The appropriation of the narrative and the comments about the tasks performed during the Invention of Worlds indicated a successful collective practice. Apollo was highlighted by his effective and dynamic participation. Achilles was active in some moments but apathetic in others. Even though his participation was not notorious, it was valid as he was welcomed in his subjectivity and has his needs respected.

FINAL CONSIDERATIONS

Reflecting about the strategies used in the Invention of Worlds method, we observe that they potentialized the collective-inclusive agency during Sciences teaching in an Elementary Education 5th grade. We evidence that operating with the Invention of Worlds method tends to challenge not only students but teacher's planning. It assumes a flexible and inclusive character by incorporating the demands and questions brought by students during the pedagogical practices, without leaving behind the curricular contents.

While understanding inclusion as a process that does not depend solely on the Special Education teacher, the collaborative work permitted practices that attend the diversity and complexity of the school context. It permitted and qualified the accompaniment and mobilization of students with intellectual disability to create and learn Sciences in the regular classroom and not only in the special education care room. Moreover, the collaborative work between the special educator and the regular teacher was potentialized by the challenge of mobilizing the character to become a problematizer.

The "problematizing character", before constituting himself as an inclusion tool, required the weaving of a common plane of collective creation. It involved digital technologies, such as e-mail and cellphone messages, and non-digital tools, such as letters and logbooks. This common plane provoked collective interactions and facilitated the special educator's immersion and implication in the Invention of Worlds experience. The interlocutions between the students and the character constituted a common plane of interactions and cooperation with the teacher and the special educator, configuring itself as an inclusive collective agency. Such agencies were inclusive because they were independent from the disabilities and valued each one's historical singularities. Instead of reproducing dominant narratives of a represented world, the collective-inclusive agency made the narrative emerge from an invented world that considered and gave visibility to collective protagonism.

The problematizations brought by the character were influenced by the narrative inventive flow and opened possibilities of articulating different curricular topics. In this study, the character creation induced the beginning of the story. However, the character can appear at any moment as an effective tool and even emerge from the collective narrative. In the inventive process, the "problematizing character" role was mobilized and fomented by collective discussions, being put into action according to the demand brought by the classroom context.

The challenge of innovating emerges from the proposal of an inclusive education because it provokes the educator and establishes a new perception of learning, especially of students with a disability, and summons them to develop practices respecting the diversity. Bringing the discussion about the inclusive practices in the school environment to light, we highlight some teacher's claim of lack of knowledge as a limiting factor in the teaching practice. However, it can be overcome when the method challenges them to seek for forms of collective integrations.

During the Invention of Worlds activities, when Sciences' activities were guided to mobilize the imagination and creativity, the feeling of "not knowing" of students with intellectual disability gave place to the (self)recognition of the singular creative and authorial capacity.

As an epistemological position on the studies about classroom experiences and as a guiding principle for data production, inventing and dialogically inhabiting the world differs from copying and exploring the world. By the end of this study, we emphasize that this position needs also to permeate the pedagogical practice and teachers' continued training, sustaining that inventing worlds with children is no less real than the concrete and daily world that appears as existing and preceding our observations, interventions, and explanations.

Criação de personagens como dispositivo de inclusão: cartografia de uma experiência em ciências no ensino fundamental

RESUMO

O desafio de um educador especial para acompanhar processos inclusivos de alunos com deficiência, em colaboração com o professor da sala de aula comum, coexiste com o desafio de experimentar agenciamentos coletivos em contextos de ensino e aprendizagem de Ciências. Diante desses desafios, este estudo busca responder ao questionamento de como um “personagem problematizador” pode operar como dispositivo de inclusão de alunos com deficiência intelectual e contribuir para integração de uma educadora especial nas atividades pedagógicas realizadas em uma turma de 5º ano do Ensino Fundamental de uma escola pública. Ancorando-se na metodologia de Invenção de Mundos, o professor regente e a educadora especial construíram estratégias de agenciamento coletivo com os alunos e o personagem. Essa metodologia busca criar condições para aprendizagens orientadas por uma concepção ativa, criativa e problematizadora, com flexibilidade para articular ideias e sugestões trazidas pelos estudantes. O estudo adotou, metodologicamente, a cartografia das interações do personagem com a turma, especialmente, com três alunos diagnosticados com deficiência intelectual em uma narrativa construída coletivamente. Os resultados evidenciam que o trabalho colaborativo entre a educadora especial e o professor foi potencializado pelo desafio pedagógico de mobilizar o personagem e torná-lo problematizador. O “personagem problematizador” surge para os alunos, carregado de inspirações e ideias criativas, provocando o envolvimento e o interesse deles nas atividades pedagógicas. Durante os desafios interdisciplinares e problemas que desafiavam a pensar a Ciência na interface com a imaginação e a inventividade propostos nas atividades de Invenção de Mundos, percebeu-se que o sentimento de “não saber”, explicitados pelos alunos com deficiência intelectual, foi dando lugar ao (auto)reconhecimento da singular capacidade criativa e autoral. As interlocuções que os alunos estabeleceram com o carácter constituíram um plano comum de interações e cooperação com o professor e o educador especial, configurando uma disposição colectiva inclusiva.

PALAVRAS-CHAVE: Agenciamentos coletivos inclusivos. Invenção de Mundos. Educação Básica. Educação Inclusiva. Ensino de Ciências.

NOTES

- 1 The translation of all quotes in this article are of the authors' responsibility.
- 2 A proposal involving a partnership between UNIPAMPA, UFSM, UFPEL, IFSul, IFFar, INPE and CPRM. It was approved by the call MCTIC/CNPq Nº 05/2019 PROGRAMA CIÊNCIA NA ESCOLA Ensino de Ciências na Educação Básica (SCIENCE IN THE SCHOOL PROGRAM Science Teaching in the Basic Education).
- 3 The interactive radio is a school project seeking the interaction between classes. It also provides teachers and students with an interactive and dynamic resource to work with curricular contents.
- 4 Text translated by Camila Faustino de Brito. E-mail: camila.brito@ufrgs.br. Curriculum CV Lattes link <http://lattes.cnpq.br/3056383689714803>.

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