

Yarning circle as a strategy for developing critical thinking

ABSTRACT

In order to evaluate yarning circles as a strategy for developing critical thinking skills, three yarning circles were held with five classes from the 7th grade of elementary school around the theme "The life of Darwin". This is a qualitative action research. The sessions were documented as audiovisual recording, transcribed, and discussed based on the content analysis method. Some ideas have stood out, allowing for the establishment of categories based on critical thinking skills and the questions raised in the yarning circles according to the FA²IA typology. The results indicate that it is essential to consider the waiting time for students to respond, as well as to reduce the number of questions and increase their quality.

KEYWORDS: Yarning circle. Critical thinking. Teaching strategy.

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INTRODUCTION

When discussing yarning circles, the first name that comes to mind as an inspiration for this practice in Brazil is that of educator Paulo Freire (1921-1997). The contextualization of the Yarning Circle emerged from the work of this educator with the Culture Circles in adult literacy. He began his journey towards a conscious and liberating practice, from the experiences he acquired with parents and educators in 1950 in the Northeast of Brazil. Still in Pernambuco, Freire developed activities that brought the school and the family closer together, in the so-called Parent-Teacher Circles. In these circles, it was fundamental to understand that the experiences and life background could not be ignored in the teaching and learning process. Thus, the Paulo Freire method was introduced, which at first was called Culture Circle.

The fundamental starting points in the Culture Circles were dialogue and critical thinking. The contents to be studied were chosen by the participants, allowing them autonomy, incentive to participate, understanding of themes that would be relevant to them, and freedom. "It is the matrix that gives meaning to an educational practice that can only become effective and efficient to the extent that the students participate freely and critically" (FREIRE, 1974, p. 05). Paulo Freire inspired and still inspires supporters of democracy, transformation, and evolution. The Culture Circle was one of his starting points for a reflexive and liberating education. This and Paulo Freire's other projects have gone beyond the area of adult education, making scholars in the field of education ponder on banking, mechanical and dominating education in schools. After Freire's initiatives, education was not the same. Some adaptations emerged from his ideas, among them the yarning circles.

Using yarning circles as a strategy in science classes in elementary school and having as a guiding axis the discussion about Darwin's life in its social, technological and scientific aspects, we believe that this theme has the potential to promote the development of critical thinking skills, since it allows us to establish strategies focused on dialogue, questioning and argumentation. Dialogue not as a mere instance of negotiating and mediating conflicts but as a space in which disputes can be accommodated and reconsidered in order to contribute to the understanding of their reality from a social, scientific, and personal point of view. Questioning and arguing in the sense that asking good questions and arguing is a creative act and becomes an instrument to learn about science and to learn how to do science. Asking questions and arguing helps us to make sense of the world and to give meaning to the information and contexts in which we live, increasing our explanatory power. Thus, this study aims to analyze the yarning circle as a strategy that enables the development of Critical Thinking skills.

THEORETICAL BACKGROUND

In the context of the classroom, Brazilian researchers stand out for making the Yarning Circle (YC) an effective strategy in the development of their projects. Although their studies are from different areas, they converge both in the use of YC and the dialogue and reflection perspective that is its aim. In 1993, with the publication of the book "A Roda e o Registro", a partnership among teachers,

students and knowledge, Cecilia Waschauer highlighted the use and, mainly, the recording of YCs in the classroom. She proposed the recording both individually (field diary) and collectively (together with the students). This can be noticed when she states:

But in order for the conversations at the Circle not to be mere "chatting," and to actually fuel knowledge construction, Recording is necessary, since Recording is a great instrument to systematize and organize knowledge. It is also a possibility for the Circle not to have an end in itself, but to open itself up to the world. Through texts, the knowledge managed there can, for example, reach other groups... in fact openness is an important characteristic of the "spirit" of the Circle (WARSCHAUER, 1993 p. 56).

Based on this principle, recording, for this author, can be a valuable tool for the reconstruction of knowledge, since reviewing what has been experienced provides an opportunity for reflection. The yarning circle is now understood and used as a participative strategy in which the intention is to share experiences and develop reflections. Widely used in community interventions, its theoretical reference comes from the articulation of authors from social psychology, psychoanalysis, health and education. Its methodological basis is based on the psychosocial intervention workshops, with the main objective of creating a space where its participants ponder about daily life, considering their relationship with the world (society), with work (technology) and with their projects (science).

According to Mélo et al. (2007), the conversation wheels prioritize discussions around a theme (selected according to the participants' context) and, in the dialogic process, people can present their elaborations, even contradictory ones. Thus, each person instigates the other to speak, being possible to present their points of view and listen to the other person's perspective. Therefore, it is understood that yarning circles promote the collective repercussion, the construction and reconstruction of concepts and arguments through listening and dialogue with others and with oneself. When thinking about how to make use and conduct this tool, one must consider that the dialogue built represents the thoughts and voices of "individuals with different life stories and their own ways of thinking and feeling, in such a way that the dialogues, born from this meeting, do not follow the same logic" (WARSCHAUER, 2002, p. 46).

Therefore, it must be considered that the yarning circle as a teaching strategy integrated to several dimensions of knowledge presents a series of possibilities to contribute to the development of critical thinking skills, since it increases the number and quality of the meanings that students draw from what they read and perceive, expressed through what they write and say.

Among the examples of teaching strategies, the one that comes closest to the objective of this study are the strategies presented by Vieira and Vieira (2000), since they show great potential for the development of critical thinking skills. These authors discuss strategies focused mainly on questioning, such as the Science, Technology and Society (STC) oriented approach. Although questioning is associated to many teaching strategies, since in many of them there is the need to ask questions, the act of questioning itself can be a strategy, since for Vieira and Vieira (2005) it can motivate and/or keep students involved in the tasks; call attention to what is being learned; promote the act of thinking; activate metacognitive processes and trigger evaluation practices. On the other hand, in

their study, Anjos and Garbo (2019) showed a lack of practices conducted through questioning or discussion. They state that most of the time, attempts are made only to disguise transmissive teaching with simulations of teaching problem solving and, even if teachers are concerned with using different teaching resources and strategies in their classes, aspects closely related to transmissive teaching still prevail, with decontextualized and non-dialogical expository classes, which prevents the critical development of students.

According to Vieira and Vieira (2005), using approaches that leverage the development of Critical Thinking skills, such as the CTS-oriented approach, allows students to use these skills in a variety of contexts, exploring different communication processes and using numerous strategies, such as Yarning Circles. As Vieira and Vieira (2000) state, the application of Critical Thinking skills has to be taught, otherwise, it will not be carried out by students. Suggestions in teaching critical thinking for the application of skills include: (1) demonstrating how critical thinking skills can be employed in various situations; (2) modelling the use of critical thinking skills; and (3) diversifying the situations or activities based on which critical thinking skills are proposed, with the importance of using real-life situations.

It is believed that teaching practices, with the use of intentional methodologies, allow the teacher to build learning activities or curriculum materials that promote critical thinking. The skills that can help in outlining and establishing methodologies emerge from the use of taxonomies, which can be used by teachers, namely to write down the issues included in the activities that will be developed enabling the involvement of Critical Thinking. The problem solving should focus on fundamental aspects if it is intended to promote critical thinking skills. These aspects are related to the waiting time and question typology.

The waiting time corresponds to the time the teacher gives students to manifest themselves after being questioned about something. There are two waiting times. Waiting time 1 refers to the time that the teacher gives the student to answer before they interfere in any way. Waiting time 2 refers to the time the teacher waits to react to what the students have said or even ask another question. "When teachers abandon 'aggressive' patterns and learn to extend the waiting time from one to five seconds, many significant changes can occur in the classroom" (VIEIRA; VIEIRA, 2005, p. 58).

The question typology is a classification or taxonomy oriented to the construction/elaboration of questions that appeal to critical thinking skills. Following the definition and Critical Thinking skills by Ennis (1985), Vieira and Vieira (2005) established a typology called FA²IA. This designation considers that the inquiry of the educator should:

- a) focus on a question/subject/problem;
- b) follow the analysis of arguments;
- c) identify/make assumptions;
- d) inferences and evaluation of the whole process.

Based on these assumptions, YCs become a teaching strategy with potential for the development of critical thinking skills. It is possible to establish some relationships between the characteristics of YCs and the characteristics of critical

thinking presented in this study. In YCs, a question or problem situation is presented to the participating group, allowing them to express their perceptions, concepts, arguments, questions and concepts (MELO; CRUZ, 2014). These same authors also emphasize that the dialogue is a characteristic of yarning circles, enabling the group to work reflexively on its manifestations, allowing the development of critical thinking skills.

METHODOLOGICAL APPROACH

Since one of the researchers is also the teacher of the students participating in the research, regarding its objectives, we defined that this would be an action research. According to Thiollent (2007, p. 28) action research "is a method, or a research strategy that combines several social research methods or techniques, with which a collective, participative and active structure is established at the information collection level". The same author emphasizes that the participation of the researcher enables problem solving and discussion based on a broad theoretical reference allowing those involved to transform their reality.

The observations made in this study occurred in a private school located in the northeast region of Brazil. Five classes from the 7th grade of elementary school in the morning shift were analyzed, consisting of an average of 30 students per class aged between 10 and 12 years, coming from different locations. The process of selecting the subjects was based on the following aspects: 1) the researcher is the teacher of the classes, which will enable a research-action study; 2) the "majority" of the participating students had already had contact with the Yarning Circles in the previous year (6th grade), since the teacher was the same. We used the term "the majority" because five of the total participating students arrived at the institution during the school year in which this study took place; 3) The institution also offers High School classes, so the class chosen is in the second year of *Ensino Fundamental II* – which makes them more open to the possibility of sequencing in this same activity and follows the principle of a good development of the work with a group of students (which would be difficult in case of choosing more advanced classes). 4) Many students participate in other activities inside and outside the school, which makes them possible multipliers of YC and the possible reflections provided by it.

The development of the research took place through a partnership established between researchers/school and researchers/students. In the first partnership, the researchers collected the authorization of the legal representative of the institution through the Term of Consent. Through this consent we were able to submit and obtain the approval of the Committee on Ethics in Research in Human Beings of the Federal University of Sergipe (n. 2,050,527) through Plataforma Brasil. The second partnership was effected through the Term of Free and Informed Consent – TCLE signed by the legal representatives of the participating students, being aware of the objectives of the research and allowing the use of their speech and images for this study.

As the yarning circle is the object of this study, considering its objective and recognizing that the action-research, defined here earlier, enables the use of different techniques as collection instruments, we chose to use audiovisual recording as an instrument. The choice of audiovisual recordings was due to the

fact that there was a great interest both in the speeches and in the bodily expressions of the students who were "listening" to the speeches. The head movements agreeing and disagreeing, the fingers lifted when asking to speak, also served as research data. According to Loizos (2008, p. 149), this type of record is necessary "whenever any set of human actions is complex and difficult to be comprehensively described by a single observer as it unfolds."

This type of record, like any other instrument, ends up interfering with the phenomenon studied. To minimize this interference, the cameras were installed the week before the classes planned to obtain the data. Considering this perspective, two cameras and a voice recorder were used, all positioned in strategic locations to capture the images and especially the speeches of the participants, thus reducing the risk of loss of some data before storage in a safer place. The rooms with approximately 16m² were not an obstacle to arrange the Circles with the number of participating students.

We tried to build the YC with the participants in a space where everyone could feel comfortable listening and sharing data. In this sense, the YCs were organized in days and times shared with the science class schedules, which did not compromise other schedules beyond what was established in the teacher's planning, who is also one of the researchers of this study. The research was carried out in two stages:

Stage 1 – Movie "Darwin's Darkest Hour" (produced by National Geographic). In the week prior to the data collection, the participating students watched the movie in the school auditorium. Two hours of class were used for this. This step was fundamental for the research, because the discussions in the YC were about "Darwin's Darkest Hour" and this movie takes a look at Darwin's history as a researcher of evolution (relations about science) and as a citizen who needs to make choices and resolve conflicts (relations about social issues). The choice of this theme was made for two reasons: 1) this was the content that initiated the studies in this series; 2) The students expressed the desire to know a little more about the history of the man who traveled for five years on a ship (relations about technologies) and became known worldwide for his writings and discoveries.

Stage 2 – Yarning Circle. The YCs were divided into three moments, reserved for each of the 50-minute classes. As the subject has three class hours per week, the data production took place in the normal class schedule of one week. These moments were identified here as: Yarning Circle 1; Yarning Circle 2; Yarning Circle 3. Each of the YCs was previously planned in scripts:

- a) Yarning circle 1: in the first Circle, the students were invited to remember what happened in the movie. For such, some questions were proposed. They then had the floor to try to answer what was proposed to them. The intention was to enable dialogue, focus on the central idea and argumentation about the theme, through the mediation of the researchers. The purpose of this circle was to instigate discussion about Darwin's importance in the development of the theory of evolution and the reasons for his doubts and possible fears before divulging the data found during his trip on the Beagle ship for five years;
- b) Yarning circle 2: to start this circle, the students were invited to "assemble" an imaginary timeline. This line was delimited by the dates

Darwin was invited to travel in the Beagle (1831) until the publication of the book "The Origin of Species" (1858/1859). The researchers made available excerpts from Darwin's letters at that time. These letters were taken from the book *Origins - Selected Letters of Charles Darwin 1822-1859*. During the assembly of this imaginary timeline, discussions were initiated based on the questions of the script in order to enable/identify **assumptions** and make **inferences**. These questions opened up the discussions of the second circle, which was mediated by the teacher;

- c) Yarning circle 3: in the latter, the proposal was to evaluate aspects related to Darwin's decisions, already presented and discussed in the previous circles, bringing to the present day, that is, the students at this moment were able to "put themselves" in Darwin's place and realize that he was not just an "old, bearded researcher with a coat" many imagined before the movie, but a man with family, friends and conflicts. In addition, they were challenged to establish possible CTS relationships.

After the yarning circles, with a total of fifteen (three wheels per class), the recordings were deposited in a "cloud" storage service (Google drive) to avoid possible losses of material. Before starting the analysis and to avoid any judgment in the selection of the classes to have the data analyzed, this choice was made through a draw among the researchers. Two of the five classes were drawn, since the amount of data produced was large and would require more time to analyze so much data. The raffled groups were not identified, because in addition to the exposure of the students, the target of analysis were the speeches during the circles, regardless of the class from which they came. After listening to and transcribing the circles we started the data analysis by content analysis based on Bardin (2011).

The pre-analysis included the stage of organization of the material to be analyzed. The analytical description involved the analysis of the data relating them to the proposed theoretical framework. Finally, the inferential interpretation sought to clarify the ideas resulting from the instruments of data production. To carry out the content analysis, the speeches obtained by the filming and recording of the audio performed in the yarning circles were organized into categories. Considering Franco (2008, p. 59), to organize categories it is necessary to classify "the constituent elements of a set, by differentiation followed by a regrouping based on analogies, based on defined criteria".

One of the criteria that led to the organization of the analysis categories was the relationship between the CT capabilities and the characteristics, presented here, relating to the YC. This relationship can be seen below in chart 1:

Chart 1- Critical thinking areas and skills and their relationship to the characteristics of the yarning circle

CT Areas	CT Skills	YC Characteristics
Elementary clarification	Focus on a question	Do not deviate from the topic discussed;
	Analyze arguments	Defending your own point of view;

CT Areas	CT Skills	YC Characteristics
	Ask and answer clarification questions and challenges	Ability to relate new knowledge to previous experiences and knowledge;
Strategies and tactics	Decide on an action	Exposure of one's own thoughts;
	Interacting with others	Narration of lived/imagined experiences;

Source: Own authorship (2019).

In this study two categorizations emerged: 1) for the analysis of the students' speech, which in turn was based on CT skills, and 2) for the questioning of the researchers regarding the students' answers, the latter being based on the FA²IA typology.

RESULTS AND DISCUSSION

To better understand the skills and how they have been developed in the yarning circles, these will be presented in isolation. After the skills, aspects related to the questioning will be presented and discussed. In each capacity discussed, the students' speeches will be presented. These in turn were identified by fictitious names (YC representing the yarning circle followed by its respective number), reducing the condition of identifying the participants.

Elementary Clarification

Focus on a question – the participants were focused on the topic discussed, without showing any escape from what was being discussed. In all of the students' speeches in the yarning circles, they discussed what was proposed by the researchers from the script of each circle, without deviating from the topics presented.

Felipe: "It's because of the movie, because if Wallace hadn't shown it, Darwin wouldn't have all that courage, because when Darwin saw the letter he was shocked, he didn't want to lose the things he'd accomplished, so he had the courage to go for it [...]". (YC 1)

Léo: "Well, he was a normal person, someone who was interested in the subject, and because he was hard-working, determined, he wanted to... he tried to find out, he tried... He took the trip, even though it took a long time. He tried hard, he pushed his limit, it was a challenge for him, for him to succeed, because he wanted to. He really wanted to find out, he thought about it. And he, as a hard-working man, pushed his own limits to get where he wanted, and he did it. What if Darwin hadn't done it? We wouldn't have the knowledge about evolution and about animals and plants and living things that we have today." (YC 1)

Têca: "Wallace went to the Amazon, but Darwin also came here to Brazil, he went to various places, Salvador, Rio de Janeiro, and then, when he changed at 17 from Medicine to Naturalist, to study Natural History, in 1831 at 22 he is invited to travel in the Beagle, then he sends a letter to his teacher." (YC 2)

Mara: "IN 1809 he was born, in 1831 he traveled in the Beagle, in 1836 he returns from the trip, and only in 1859 he publishes the book with what he managed to describe from the trip, in 1859 he publishes this book and he died in 1882, the idea of his evolutionism was only accepted in the twentieth century, in 1900 or so, he didn't even see the result." (YC 2)

Luca: "I think he was afraid to publish because his research, in addition to going completely against the belief of the church... People since they were little learned that God created the whole world and if he was going to change that suddenly I think it would terrify society [...]" (YC 3)

Melo: "Seeing Darwin's story, his life, his process, to try to unravel something left over from Natural History and the origin of living beings... we could learn lessons by observing this story of Darwin's life and his choices." (YC 3)

For Warschauer (1993), maintaining the focus on the discussion of the topic is possible because the pre-established script guarantees to the mediator of the yarning circle the condition to propose ideas that are related to each other, forming a "chain of thoughts". Moreover, the choice of the theme made by the participants themselves integrated them into the context of the discussion.

Analyze arguments – at some times, the students' speeches demonstrated the analysis of arguments, but this only became clear when the questions of the circle mediator provoked the need to explain reasons/motives to some fact or a summary of ideas. This can be noticed in the statements below:

Mediator: "When Wallace sent the letter to Darwin, did he already know anything about what Darwin had done? How did you guys figure that out from the movie?"

João: "From what I had understood, I think Darwin already knew Wallace, and that's why he decided to send the letter, and because of that I think Darwin had already told him that he knew this, as the two were researchers, Wallace probably wouldn't reveal it, as Wallace didn't have much detail I think he liked the idea and researched about it, so I think Wallace already knew about his experiment, but he didn't know everything in general, so he started studying and getting to know a little better [...]"

Felipe: "Actually he didn't want to disclose it, he wanted to, the problem was that he was afraid because people might call him a witch or something, mainly because of religion [...]"

Bia: "Because of this, Wallace was able to find out a lot of things and he wanted to publish it himself, Darwin had already found this out 20 years ago, before he was afraid to publish it, so that's why it's called Darwin's darkest hour, the challenge was for him to be able to publish without people boycotting [...]"

In relation to this capacity we noticed a certain development in the speech as the students, from the middle to the end of the circles, were presenting their opinions. The students' speeches, most of the time, were provoked by the mediator. The students increase their participation in YCs as new elements are presented providing conditions for them to present and defend their points of view. The fact that has caught our attention is that most of the time, their statements only occur after the mediator's interpellation. This can be associated with the fact that in classes where the practice of the circle does not occur

(expository classes), the students are in a more passive role (listener) and not active (speaker).

Ask and answer clarification questions and challenges – this skill could emerge mainly in circle 3, as participants were challenged to compare decisions and moments experienced by Darwin with their own experiences or led to imagine themselves in them. It can be seen in the following lines:

Mediator: “[...] For example, let's imagine it was today, you, 2017... - Darwin was in the 1820s, when he decided to leave medical school to be a naturalist, at his father's objection, to take a trip to investigate something he didn't even know he was going to find, but he felt the desire to make that trip. - Let's bring that back to you today... You left medical school... What would that repercussion be like today? Imagine yourself in Darwin's life, only today.”

Lis: “My mom would kill me.”

Bia: “Like, he was away from his family for a long time and left everything behind... He stayed away a long time... he stayed away for five years. But it would be a lot easier today. It would also be hard to accept you leaving your family and what you had built, but today it would be a lot easier than it was then.”

Pedro: “I agree with Bia on one part, the part about saying that in the 21st century it is much easier to travel than in the 18th century at that time. For various reasons... We have planes, we have safety kits, we have many medicines today that can prevent various diseases... And so, there are people who plan more for this kind of trip, there are people to accompany you, there are doctors, there are several things that you can use to help, in this case... But there are also other complications... Which is the case of the family, of course... The same thing Darwin faced as well. And leave your life in the sense of venturing into something else, you understand? Something more challenging... let's put it this way.”

It is possible to notice in these statements the expression of their own thoughts in relation to the question and in relation to the statements of the other students. In addition, there is a comparison between the time of Darwin and the present day, thus generating possible reflections on making decisions at such different times. Through speeches like these it was possible to verify that the subjects commented on their colleagues' position, taking a stand.

Strategies and Tactics

Decide on an action – during the various circles conducted, some of the subjects intervened only to express their agreement or disagreement with the problem presented, but some others added reasons for their position. Even though they were not the majority, the mediator's intervention when asking "why" or "how" was intended to mobilize the students to go beyond the "yes or no". This is revealed in the statements below:

Mediator: "Does 1831 have anything to do with 2017? I'm thinking like, have we changed our minds from then to now?"

Arton: “I don't think so...”

Mediator: "Why?"

Arton: "Teacher, I think that in those days there weren't so many courses, so many professions like today, there were few valued professions, so what he thought was: 'I'm a doctor, I have money and so on, my son can't be... my son has to be a doctor, or he has to have a valued degree, to have the same status that I have', I think he thought more or less like that."

Mediator: "Status..."

Several students: "Yes."

Mediator: "Why?"

Felipe: "Being a renowned doctor."

Gê: "Because his father was afraid, because being a researcher, at that time, he thought it would be risky, he wanted his son to be a doctor, so he wouldn't risk being a researcher..."

Mediator: "Explain it better."

Gê: "You asked us if we think things have changed, I think that at that time his father was really afraid of what people would think, but he was also afraid: 'my God, my son is going to leave a medical school to study science', and he wanted his son to study medicine, and I think things haven't changed much, because today if I did that with my mother, she would also think the same thing [...]."

Alê: "I think that hasn't changed much, because people think a lot about what others will think, like the person wants to have a name, but I think today we do it as an expression, we choose what we want to be, regardless of what others think, I think, but still people think that medicine is a kind of higher degree than others."

Interacting with others – throughout the several circles we could observe by the statements that a group of students becomes more intensely involved in the course of the debate. On the other hand, others keep predominantly in silence, giving their opinion punctually, or making head movements demonstrating confirmation or denial of what is being discussed. The statements presented below represent part of this discussion among the participants.

Mediator: "2- My scarce habit of making sea trips..." that is, he almost never travelled to the sea, right? "3 - The scarcity of time, and the possibility that I don't suit Captain Fridistroy" who is the Beagle's captain... " 4- Surely a very serious objection is the very short time for all my preparations " i.e. the trip was near... "But if it weren't for my father I'd take all the risks...", how do you see his relation to his father, regarding the trip, by that part of his letter?

Leo: "Dad wanted... dad wanted to stop him [...]."

Luana: "A lot of things were in his way, but the worst was his dad's opinion, in the movie, we can also notice that."

Leo: "Stuck [...]."

Mara: "The way Darwin responded to the teacher shows a little how Darwin feels about his father."

Luana: “it was fear and at the same time courage, because he went [...]” (laughs)

According to Warschauer (1993 p. 37), “silence is their right, sabotage must be avoided. A dialogical class needs a critical mass of participants to move the process forward and carry along those who do not speak but listen.”

ASPECTS OF THE QUESTIONS

Based on the questions proposed to the students during the circles, and having them as a strategy for promoting CT in YCs, we highlight in this section the discussion about the number of questions, the waiting time and the FA²IA Typology used in the elaboration of the questions.

Number and Waiting Time

During the transcription of the speeches, one point that drew a lot of attention was the amount of questions that were asked. Based on this, we proceeded with the counting, and obtained the following values from table 2:

Chart 02 - Waiting time for each question

Class 01 – Yarning Circle 01	Class 02 – Yarning Circle 01
Questions: 39 - time: 40 min Yarning Circles 02 and 03	Questions: 29 - time: 24 min Yarning Circles 02 and 03
Questions: 75 - time: 65 min Total: 114	Questions: 28 - time: 31 min Total: 57

Source: Own authorship (2019).

Considering the number of questions in both classes, we observe that the number related to the first class corresponds to twice the amount of the second class. However, taking into account the time of each circle, it is possible to calculate an average time that is very close to one another.

This number of questions in a short period of time shows that, in fact, questions that need further elaboration and reflection on the part of students could not be answered and discussed in such a short period of time. This excessive amount of questions ends up interfering with waiting times. Considering that there is approximately one question per minute and there are on average thirty participants per circle, it is clear that in such a short time the amount of participants would have to be more limited, since there were answers that lasted up to approximately thirty seconds, or half the time of each question.

According to Vieira and Vieira (2005), the increase in the teacher's waiting time contributes to improving critical thinking, since the number of questions will decrease, consequently the teacher's interference will be less, thus creating expectations that more students will participate, not only with short answers, but generating discussions and collective reflections. These same authors emphasize that for effective questioning it is necessary that the teacher avoid dominating the discussion by asking questions all the time.

For Gall (1984), the questions posed to students should consider sufficient time for them to: listen to the question, understand its meaning, generate an answer and want to express it, something that requires at least 5 seconds.

There are some suggestions given by Tenreiro-Vieira and Vieira (2000) that, according to them, allow for effective questioning and increased waiting time, these would be: avoid repeating portions of the students' answer, what they call "teacher's echo", avoid comments that evaluate the student all the time, comments like "yes", "that", "very good", "exactly" and avoid counteracting the student's statements with phrases like: "ok, but...". In the case of YCs in class, where there is the mediation of a teacher, it is necessary for the questioning to be "provocative" to the point of allowing a greater discussion between students and a shorter discussion between teacher/students.

FA²IA TYPOLOGY

In this section, discussions were directed at the questions presented in the YCs. As the Circles were oriented from a previously elaborated and validated script, some of the questions had a construction based on the CT skills and more specifically the FA²IA typology. These questions, in this study, are referred to as Planned Questions. The others, which emerged during the dialogues without avoiding the theme, but that were not within the questions planned in the script, were called Spontaneous Questions.

This nomenclature was established to facilitate the analysis of the questions that were produced from the typology; furthermore, Bordenave and Pereira (1991), affirm that it is necessary to plan the questions that are intended to be made in the discussions, but being flexible and adjusting according to the development of the dialogue. The table below shows in which categories the planned questions were grouped (exactly as in the transcript).

Chart 03 – Categorization of questions

CATEGORY	SUBCATEGORY	PLANNED QUESTIONS
Focus	Focus on a question/issue/ problem	"And can anyone remember a little bit about the story of the film?" "Could somebody please remember the movie? A synopsis?"
Argumentation	Follow the argument analysis	"Why did Wallace send the letter to Darwin, to him of all people?" "Why did Wallace send this letter to Darwin and not to someone else?"
Assumption	Identify / make assumptions	"So you come to your parents and you say, Mom, Dad, I'm 17, I don't want to study medicine, I want to study natural history, that's 2017, Darwin was in 1826, when he left the course, 1826-1827, so think about it, let's put ourselves in his place and think about how Darwin's parents felt at that moment?" "But I still wanted to know how you imagine yourselves making a trip at 22, coming back at 27... How do you

CATEGORY	SUBCATEGORY	PLANNED QUESTIONS
		imagine yourselves in Darwin's place on this trip?"
Inference	Make inferences about something	Let's imagine a situation [...] So when Darwin arrives from the trip... Imagine, you come home from the trip, your family misses you and everyone is *astonishment* "He's back!" Not even he knew he was so famous. So, in 1836, when Darwin came back, he was already a well-known naturalist. But from then on, Darwin took on a new challenge. What would that new challenge be?" "Yeah, now I wanted you all to try to answer me, watching Darwin and his life as it developed... I don't think you'll ever forget him... right? What lesson does his story leave you?"

Source: Own authorship (2019).

We notice in this chart that the planned questions were directed to the group of students without making any specific participant assignments. For Young and Glenn (1981), each one feels involved, reflects and prepares a response freely, without feeling pressured. To better analyze whether the YC dialogue was effectively conducted by the planned questions and whether any discussions that enabled reflection and decision making were evidenced, referring to the promotion of CT as defined by Ennis (1985), the charts below list the planned questions and the participants' speech sequences by class.

Chart 04 – Planned questions/statements by the participants/Focus

CATEGORY	First Class	Second Class
Focus	<p>“And can anyone remember a little bit about the story of the movie?” Bia: "I remember that scene, that he brings his kids and he starts to study the bees, but the kids try to catch the bees, he studies them while they take the pollen, they carry the pollen from a flower, they carry it and let it drop, to help... Then he studies them and then he goes and studies a little of the plants ... I think later, the other day, in the movie. He takes his children to a greenhouse they have, they study the plants and talk a little about the plants [...]" Helena: "On an island [...]" Gi: "Someone sending a letter." John: "I examined why it starts with someone writing a letter [...]"</p>	<p>Could somebody please remember the movie? A synopsis? Hélio: "It showed how his discovery happened step by step." Amanda: "It shows a book with his story with the step by step to the theory of evolution." Ann: "It showed both the professional and the personal side, and brought the two together [...]." Pedro: "It starts with Wallace [...]." Bia: "He's in his room studying, writing [...]." Ann: "He's writing a letter to Darwin about the theory he'd discovered, that if Darwin didn't talk, he would talk."</p>

CATEGORY	First Class	Second Class
	<p>Déhora: "It was I don't know the name, but it's a guy, what's the name?"</p> <p>Renata: "Wallace?"</p> <p>Breno: "Was that Wallace?"</p> <p>Gi: "That was Wallace!"</p> <p>All: "Wallace"</p> <p>João: "Wallace writing a letter to Darwin... Talking about the island."</p> <p>Bia: "Because Darwin studied natural selection, everything, then this Wallace had also discovered these things, which Darwin spent twenty years researching, he also discovered and then he sent the letter and told him [...]"</p> <p>João: "It stated that he sent the letter with what he had discovered, and also saying that he could send it to the media, that he had discovered it, and that he wanted to show the world what he had discovered."</p>	<p>Manu: "He wanted to say that he had found something [...]"</p> <p>Paula: "He made the discovery that Darwin had hidden, as people knew he had discovered [...]"</p> <p>Hélio: "He made the discovery that Darwin [...]"</p> <p>Carla: "Why did he do that? To make him jealous? Or to... (...) How did he get there?"</p> <p>Gabriel: "He wanted to share his discovery with another scholar of the subject."</p> <p>Renzo: "It shows Wallace talking to Darwin later. Darwin even got worried and talked to his wife."</p> <p>Alma: "But for him to explain to the guy a research he did that was so challenging, I don't know... that was dangerous. If he exposes... It's because he had to have a certain intimacy."</p> <p>Clara: "It could be implied that he was close to Darwin."</p> <p>Almico: "So, it doesn't show, but you can see that they kept in touch after the letter."</p> <p>Bia: "Yeah, right [...]"</p> <p>Têca: "He starts telling his wife... He tells his wife about that letter and starts talking about what he found out on his trip on the ship."</p> <p>Gê: "He was like... very nervous that what Wallace was achieving now he had already achieved a long time ago, but because of the very strong presence of the church [...] He was very afraid."</p>

Source: Own authorship (2019).

These examples of statements show that the students are focused on recalling scenes/facts from the movie that match the proposed questioning. Each one brought a memory that was "feeding" the memory of others, the dialogue was being built and the main idea emerged. Once the Focus was identified, spontaneous questions arose on the Circles so that the questions that could answer the second category could be reached: argumentation. The chart below shows the questions planned for this purpose and an example of the sequence of talks that emerged from them.

Chart 05 – Planned issues/participants' statements/Argumentation

CATEGORY	First Class	Second Class
Argumentation	<p>“Why did Wallace send the letter to Darwin, to him of all people?”</p> <p>Gê: "I'd say first, that that's what he knew, the day Wallace sent the letter seeking encouragement, I think Wallace also thought a little bit like Darwin, but Wallace was... he wasn't like Darwin, he thought: 'should I send it, should I not?' He wasn't like Darwin who stalled for a long time. Then he wanted an encouragement from Darwin, as they had already talked about it, he knew that Darwin knew about this subject that was evolution, then he sent the letter, then it ended up that Darwin noticed this, then Darwin got a little challenged and wanted to prove it, wanted to show that he knew, that he'd discovered this for longer than he had, so they started exchanging letters, so I think they arranged for the day that the two of them would write that whoever had more information would win, we saw at the end of the movie that it was Darwin who won, because as Darwin had been researching this for 20 years, and he researched it for a long time, he knew much more than Wallace, so it was Darwin who won, and because he showed facts that were real and when people read they noticed that Darwin was right, he wasn't called a witch, he was accepted, and people began to have as much religious acceptance as the question of evolution. ”</p>	<p>“Why did Wallace send this letter to Darwin and not to someone else?”</p> <p>Maia: " Because Darwin had already studied this field, so if it was to prove to someone to perfect it, something like this, it would be someone... (...).”</p> <p>Amilca: "(...) Wallace knew that Darwin made the trip by ship, he researched a lot on this subject, so he thought...and he didn't know that Darwin would have made the discovery and hidden it, just as he must not have known it was all complete, so he wanted to help out.”</p> <p>Student: "Teacher, but I had... correct me if I'm wrong... I had said that if anyone was going to perfect it, it would be Darwin, only he already had the complete theory, so there is no reason revealed for him to tell Darwin [...].”</p> <p>Mary: "He already had the whole theory, he didn't have what (...) Like, he didn't send it to Darwin to 'oh, let's finish the research', 'Oh, let's do more research', he already had the theory ready, so like, he kind of wanted to share it with a person he trusted, kind of that's why he should have, like ... spoken, a great closeness to him.”</p>

Source: Own authorship (2019).

The analysis of these lines indicates that, in both classes, arguments were expressed. In the first class a student manifests a longer response, which demonstrates an attempt to find acceptance of his idea. It shows some reasons

that for Ennis (1996) represent points of acceptance or not of the other participants. In the second class, the statements are shorter, but each one expresses a point of view in agreement or disagreement with the others, as can be seen in the excerpts highlighted.

CONCLUSIONS

Including the yarning circle in school contexts refers to the reflection on different teaching strategies that enable participation and the construction of knowledge in a critical and propositional manner. Thus, this study provided some reflections on the yarning circle as a teaching strategy promoting critical thinking skills in the school context. During the analysis of the development of the yarning circle, it was possible to highlight the possibilities and limits of this strategy in the classroom. Therefore:

- The subjects were interested in the "new" proposed classroom arrangement, as well as in the possibility of speaking freely, since this teaching strategy stimulated the students' ability to dialogue more, to discover diverse cultural and social values. In addition, each participant brings with them different realities;

- The students' learning was built in a flexible, dynamic and practical way, leading them to learn from each other;

- The teacher ceases to be the center that transmits information and the students become the protagonists in the construction of knowledge;

- It is necessary to consider the response time of the students, because they need more time, to stop and reflect on what was asked of them, thus providing a possible reflection on the subject. To do this, it is necessary to decrease the quantity and increase the quality of questions;

- The choice of the FA²IA typology contributes to the quality in the elaboration of the questions making them more effective and generating reflection and transformation of ideas during the dialogue;

- The use of the FA²IA typology calls for the use of CT skills.

Thus, we understand that the yarning circle, planned and implemented from critical thinking skills, leads to reflection on a democratic and dialogical nature in the teaching and learning process, in which all subjects can participate in the collective construction of a certain knowledge. It is worth noting, however, that YC alone is not capable of widely promoting critical thinking skills if it is not intentionally oriented.

A roda de conversa como estratégia para o desenvolvimento de pensamento crítico

RESUMO

Com o objetivo de avaliar as rodas de conversa como estratégia para o desenvolvimento de capacidades de pensamento crítico, foram realizadas três rodas de conversa com cinco turmas do 7º ano do Ensino Fundamental tendo como tema gerador “A vida de Darwin”. Trata-se de uma pesquisa qualitativa do tipo pesquisa-ação. O registro foi feito em gravação audiovisual, transcrito e discutido a partir do método de análise de conteúdo. Algumas ideias se destacaram, sendo possível a construção de categorias baseadas nas capacidades de pensamento crítico e nos questionamentos realizados nas rodas de conversa a partir da tipologia FA²IA. Os resultados indicam que é fundamental considerar o tempo de espera de resposta dos estudantes, bem como diminuir a quantidade de questionamentos e aumentar a qualidade das questões.

PALAVRAS-CHAVE: Roda de conversa. Pensamento crítico. Estratégia de ensino.

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