

Mauá Project: Citizenship and Environment Educational as Pathway to Critical Thinking and Students' Empowerment

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Abstract: This article aims to present preliminary results of an ongoing research project linking environmental education and citizenship engagement. We will illustrate the actions of the students engaged in the project to draw their classmates' attention to the school and the environmental issues surrounding them. Particularly, we will focus on the particular on a seminar prepared and presented by the students to disclose the results of a survey conducted of all students in the school. Our preliminary findings suggest that citizenship engagement actions in the school provide students with social leadership (empowerment), and that they thus become agents of transformation in the school environment with *a personal responsibility* and *participatory* attitude.

Keywords: environmental education, students engagement, citizenship, generative themes

Introduction

The popular discourse in the media concerning the environment is also present among educators and teachers; however, the relationship between environmental education and civic engagement has yet to be fully explored. Consequently, according to Reis & Oliveira (2014), teachers are striving to incorporate this topic in science classrooms.

This study presents preliminary results of an ongoing research project linking environmental education and citizenship. The objective of this article is to present the project steps taken to date, with emphasis on the collaborative aspects. We will illustrate the endeavors of the students engaged in the project to draw their classmates' attention to the school and the environmental issues surrounding them. The concept of "generative themes" (Freire, 1989) and the conceptions of the good citizens proposed by Westheimer & Kahne (2004) will be used to analyze the actions of those involved in the project.

This article focuses in particular on a seminar prepared and presented by the students to disclose the results of a survey conducted of all students in the school. Our preliminary findings suggest that civic engagement actions in the school provide students with social leadership (empowerment), and that they thus become agents of transformation in the school environment. Thus, environmental education no longer remains only a theory when present in the school's curriculum; it becomes praxis.

The project

The project is referred to as "Citizenship and Environmental Education: Rediscovering the Capabilities of Mauá High School," and it is funded by FAPERJ (Research Support Foundation of the State of Rio de Janeiro) through Public Notice 36/2014 for improvements in public High Schools. The project's primary objective is development of actions, in cooperation with students and teachers, that promote concrete improvements in the school through environmental education and citizenship.

The Mauá High School is located at Anil Beach, Mauá district. The school offers morning, afternoon, and evening classes for middle and high school students. It is small, comprising eight classrooms, a cafeteria, a kitchen, a 35-person auditorium, a library, a staff room, an office, the principal's office, a courtyard, and a large outdoor area. The school is named after the Viscount of Mauá.

Mauá is a district of the city of Magé, which is located in the state of Rio de Janeiro (RJ); the district is named in honor of Irineu Evangelista de Sousa, the Viscount of Mauá, a Brazilian businessman and banker. The city is located on Guanabara Bay. It was historically the main entry point to Rio de Janeiro City, where vessels arriving from Portugal docked. Another of its important historical landmarks is the first railway built in South America, constructed by the Viscount of Mauá. This railway linked the coast to the country's inland areas, passing through the city of Petrópolis, at mountains region of Rio de Janeiro State, and became the gold trail, because of the transportation of gold and other ores coming from all way inland.

Given the surrounding social context, there is considerable opportunity for discussion in the high school regarding the environment. Even before the project started, some initiatives were already in place, such as waste sorting and water quality consideration.

The project team includes three university professors (authors of this paper), who drafted the project and submitted it to FAPERJ; four scholarship Mauá High School students and one volunteer; and three school teachers, two of whom receive grants (the third is a volunteer). The project was submitted to FAPERJ in September 2014 and was approved in December of that same year. The students' scholarships and professors' grants began in May 2015, however, and funding for the project was released in October 2015. We have therefore been conducting the project since August 2014, when we started visits to the school. Notably, the school's principal gave us full support from the outset of the project.

Methodological procedures

Our methodology is based on qualitative research methods according to Erickson (2012), with the social environment and relations among subjects being the objects of analysis. The Freirean perspective is also used in our methodological procedures, as it regards the emergence of generative themes driving our actions. Generative themes, according to Freire (1989), are those extracted from problematization of the practice of students' lives. As a springboard for the teaching and learning process, a generative theme is a methodology based on the dialectical theory of knowledge, because "outside of the quest, outside of the praxis, men cannot be" (p. 66).

Thus, our methodological procedures inform the project's developmental stages. Immersion of the researchers in the school allowed for identification of environmental issues as a generative theme for preparation and submission of the project. Once the team was formed, actions were collectively guided (Freire, 1989) through work meetings, which took place at the school approximately once every two weeks.

Work meetings

The team's work meetings take place at the school on a two-week basis, and began in mid-May 2015. Audio of the meetings is recorded for record-keeping purposes. The recorded conversations, which raise problems and their solutions, as well as the meeting's conflicts and dilemmas are then transcribed, functioning as an instrument of both data collection and group reflection.

Following the Freirean perspective, meetings are characterized by equal rights of speech and opinion, allowing for the emergence of generative themes and the actions resulting therefrom. In this way, two topics were brought up: the source of the school's water, proposed by the teachers; and the need to know what other students thought about the school, proposed by the scholarship students. The team decided to address the second issue, because before the water issue could be proposed as a topic, it had to be recognized as a problem affecting the students (Freire, 1989). In the process of raising awareness, it was necessary to determine what the students thought—that is, what their opinions and perceptions were about the school in which they studied.

The quest to understand what students thought about the problems existing in the school mobilized the team to take the following actions: (a) Drafting of a questionnaire given to the majority of the students, with questions regarding problems found in the school, teaching methods used by teachers, and their students' own motivation to study; (b) Tabulation and organization of data in charts; (c) Presenting the results to all students in the school during a seminar, facilitated by the scholarship students participating in the project; (d) Interviewing the school's teachers about the student questionnaire results (still in drafting stages).

The seminar: A space for citizenship and students' empowerment arousal

Multiple sessions of the seminar were held on October 6, 2015 so that most of the students could participate. The scholarship students were responsible for presenting the data and promoting dialogue with the other students. To explain the subject of the presentation, one of the scholarship students wrote a rap with lyrics describing the objectives of the project and the completed questionnaire presentation. The rap was sung in each session, followed by presentations by the scholarship students, who took turns in showing their classmates the questionnaire's results.

The question "Do you think that teaching at Mauá High School enables critical thinking in students?" caught everyone's attention. During analysis of the questionnaire, it was reported that although students who answered did not know the meaning of critical thinking, the majority nevertheless responded "yes." In the seminar, this issue was reviewed and widely debated. The argument put to their classmates by the scholarship students was that it would be impossible to induce a transformation of reality without critically analyzing it.

We are going to present some of Esther and Robert's point (both scholarship students) about critical thinking during the seminar. At the following table it is possible to see their statements and how they make points to the other students.

Table 1: Esther and Robert's point made during the session of the seminar

Event	Transcription
1 (session 1)	<p>Esther: I would like to ask you a question that isn't here at the presentation, but it was in the questionnaire. Do you know what critical thinking is? Someone else knows it? Could someone else give me its definition?</p> <p>Student 1: Speak out your own opinion?</p> <p>Esther: Yes, it does count! I gonna give an example (...) there was this question " Do you think that teaching at Mauá High School enables critical thinking in students?" What do you think? (...) I would like to hear you guys! [silence]</p> <p>Student 2: It is ... when people keep on track to achieve their rights, and so do teachers and students have to be motivated.</p> <p>Student 3: It is missing in our classroom</p> <p>Esther: Noop! It is missing everywhere! We realize many students run away from this topic (...) but it is very important. We have to apply critical thinking everywhere and every moment (...) For instance, I cannot impose to you my will and you just accept it (...) thus we need to learn to criticize and to claim (...) But remember, to claim it is necessary to be within the compliant.</p>
2 (session 2)	<p>Esther: Here [she points to the graphic showed in the projection screen] the of the students responded "yes" [to the same question of event 1), but will the most of students know what was critical sense? [some students say "no"] Why did students respond "yes" then? [silence] Guess or what?</p> <p>Students: Lack of interest</p> <p>Esther: Lack of interest, what else you think? (...) they didn't answered what they really think, they didn't use their critical thinking (...)</p> <p>Student 1: They were manipulated ...</p> <p>Esther: Yes! Exactly, you gotta!</p>
3 (session 2)	<p>Esther: Now listen up, how about social enviornment, what could critical thinking contribute to you later?</p> <p>Student 2: to have own opinion, right?</p> <p>Esther: Yeap! What else?</p> <p>Student 3: Don't let be manipulated!</p> <p>Esther: Let me say this: if nowadays we don't have critical sense to respond this questionnaire, will we have critical think to vote or to claim our rights? [silence] ... no!</p>
4 (session 2)	<p>Robert: Hey guys, listen to me, I gonna ask you three questions: do you think Mauá High School needs to change? Please, hands up! ... ok! now... who wanna the school changes? Please, hands up again! ... all right ... so among those who said wanted the changes, who wanna do something to change it?</p> <p>[there some silent moment followed by students comments]</p> <p>Robert: Ok! Now, who has already thought to do something? [one or two students say they have]</p> <p>So why didn't you do it?</p> <p>Student 4: Because nobody cannot do anything, don't you remember when I was punished [he is talking about something in the past]</p> <p>Student 5: None take us seriously since first grade of High School [Note: High School in Brazil has three years 1st to 3rd grade] before I wanted to something, I had this attitude, you know, of change something, but not anymore.</p> <p>(...)</p> <p>Esther: I gotta, you try to something but they [administrators] don't let them do it, I gotta! so you need be critical just for these situations (...) but I am hereby to speak up it is possible (...) you gotta have the perseverance, because it is something you gonna use it later. I just say it because I know it is possible [to change].</p>

Discussion and first conclusions

The conceptions of the good citizens proposed by Westheimer & Kahne (2004) can be used to briefly analyze Esther and Robert's discourse during the seminar presentations as well as the whole project. Westheimer & Kahne (2004) defined: *personally responsible* as the responsibility of someone else within the community by working, paying taxes, obeying the laws; *participatory* the act of leading or organizing events, it is expected this leader knows how government work; *justice-oriented* those who seeks out, critically assesses for social justice.

Thus, Esther's point about the critical sense issue is considered as personally responsible and participatory ways of citizenship act. For instance, at the event 1 when she says "but remember, it is necessary to be within the complaint", she is pointing out to students' personal responsibility to deal with different situations. Event 2 shows her attitude tending to the participatory perspective once she is trying to make other students think about. In other words, she acts like a school leader. Nevertheless, her leadership is more evident at the event 3 when she calls for students' attention about voting. Robert is more around the personally responsible attitude at the event 4, when he asks the three questions. Neither Esther nor Robert had trained or planned to do the presentation with the researchers, which were there for supporting them.

Environmental issue was addressed both in the beginning and in the end of each session. Usually Esther asked to students their opinion about environment. After some students' responses such as "green; water; air; pollution" she turned to social environment, in which their school is part of. At this point, the issues regarding to water and environment were discussed again as a critical perspective. Therefore, the seminar was an important step in the project's development in that the students themselves engaged their classmates in dialogue.

Based on the theory of dialogic action (Freire, 1989) we can see the seminar promoting collaboration, generating themes and perspectives of changing in teaching through empowerment of students. The theory of dialogic action is based on four characteristics: *collaboration*, *unity*, *organization*, and *cultural synthesis*. Collaboration brings subjects together to transform the world: "Subjects meet in cooperation in order to transform the world. Collaboration can only be achieved through communication. Dialogue, as essential communication, must underlie any collaboration" (Freire, 1989, pp. 167-168). Unity must occur in favor of liberation and transformation, a form of exercising collective praxis. Organization "is not only directly linked to unity, but is a natural development of that unity. Accordingly, the leader's pursuit of unity is necessarily also an attempt to organize the people, requiring witness to the fact that the struggle for liberation is a common task" (p. 176). Finally, cultural synthesis is based on the different views of subjects. "Cultural action is always a systematic and deliberate form of action which operates upon the social structure, either with the objective of preserving that structure or of transforming it" (p. 180).

The dialogue established among students reinforced the characteristic of collaboration, particularly regarding to the issue of critical thinking, which became a vehicle for communication among them. The students' speech during the seminar demonstrated characteristics of unity and organization, and the structure of the seminar can be considered a cultural synthesis. For example, the scholarship student who wrote the rap communicated to his peers through the artistic and cultural language of the community in which the school is located. At the same time, the arguments presented by the scholarship students point out a democratic leadership whose definition of critical thinking is a method for communication and transformation.

As our first findings we are able to state the issue about critical think emerged as one of main points in this whole process so far is related to how people act in their own environment, that is, how they are citizens. Thus we point out the lack of any participatory attitude of Mauá High School Students is related to the history of Mauá district. Despite its historical importance, the Mauá district is plagued by environmental pollution, including debris from the bay and from the community, which still lives with a precarious urban infrastructure and a lack of basic sanitation. At the context of the school, students do not understand this situation as a problem. No problem, no conscious about either water quality or other social conditions they have.

In conclusion, in the context of the Mauá High School, environmental education has to foster the critical think as way to make student conscious about their own problem (FREIRE, 1989), as opposed to a curriculum that fails to develop students and teachers' critical thinking ability. Then in our point of view, empowering students means to make them conscious about their own problem, consequently, to push them up to take up higher levels of citizenships.

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