

Literature of science fiction as a tool for dissemination in the science classroom

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Abstract

The legacy of science to society has always been very contradictory and varied. Currently science can be seen as the beginning of a better world, but also as an area of potentially dangerous research. Through science-fiction literature, we can express how science and technology can express public concerns in relation to their possible negative impacts, and secondly, excessive optimism about its results, leading to a form of representation of the aspirations of society. This type of literature deals with the hopes and fears generated by scientific discoveries and portrays the images and myths about science itself, thus representing a good source of discussion in schools. Within this context, this paper aims to propose a roadmap for the implementation of the literary work "Player Number 1" by Ernest Cline (2012), "in the classroom by the teacher of biology classes in high school. The proposal will have to be applied to stimulate reflection, combining reality and fiction to the daily life of students, enriching the methodological possibilities available to the classroom teacher. Among the points to be addressed are the moral and ethical aspects of application of scientific knowledge, based on the reading and discussion of excerpts from this book, focusing mainly on environmental issues. To finalize the proposal prompted students to answer a questionnaire in order to assess what they think of using science fiction books in the classroom as a teaching tool, which will be further evaluated.

Introduction

In recent decades, science is increasingly seen as one that will make the world better, but along with his advances, it can also be regarded as an area of potentially dangerous research when not used ethically and discernment.

In order to make this science, along with his advances, accessible to the public, the scientific publication has as one of its objectives the population lead to scientific knowledge, clarifying the causes of fears and superstitions, as well as the features of the new discoveries. With this, it becomes equally important to spread the news of the scientific area, which initially circulates in specialized publications.

For Alferes and Augustin (2008) the social interests seem to relate to scientific dissemination and therefore science is what can bring benefit to society.

According to Francisco (2005), the knowledge that is acquired through the dissemination of scientific activities, will hardly cause someone to act as a professional in the area, but allows monitoring of issues of national and international importance, giving as an example the Brazilian legislation on biosafety and the Kyoto Protocol.

Even within this context, it is worth remembering what Mortimer (2002), says about the formation of citizens for responsible social action, which is related to decision-making as these were more familiar with some scientific concepts.

With the need for dissemination of scientific and technological advances, there was a need to transpose correctly the new concepts that were previously restricted to the scientific world. Along with this transfer of concepts, there was an effort to change the language of science with various approaches.

Throughout history it was natural, according to the authors De La Roucque and Kamel (2009), the emergence of a literary genre that became known later as science fiction literature. Through it, we can express how science and technology can express public concerns in relation to their possible negative impacts, and secondly, excessive optimism about its results, which lead to a form of representation of the aspirations of society may even make futuristic forecasts.

According to Murray (2003), this sci-fi narrative has reinforced its importance due to the primary cognitive mechanism that exists on understanding the world, where this

awareness has been sought since men understand their role in nature, starting to think about their decisions possible.

Science fiction comes illustrating a close correspondence between the knowledge produced by the scientific community and the human imagination, which somehow does not cease to be an aspect of science communication, interspersed with degrees of literary and poetic, able to attract the minds of men, mainly to young people.

Thus, this type of literature deals with the hopes and fears generated by scientific discoveries and portrays the images and myths about science itself, thus representing a good source of discussion in schools.

With this context and observing the search increasingly common for teachers, new approaches to address topics within the school curriculum, De La Roucque and Kamel (2009), as well as other authors suggest the use of literary works within the room class.

According Chagas (2000) the literature on "scientific literacy" and its implications in formal science education have different proposals regarding the knowledge, skills, abilities, attitudes and values in science, necessary to any individual in a society characterized by the increasing impact of science and Technology.

Thus, this paper aims to propose a roadmap for the implementation of the literary work "Player Number 1" by Ernest Cline (2012), "in the classroom by the teacher of biology classes in high school. The proposal will have to be applied to stimulate reflection, combining reality and fiction to the daily life of students, enriching the methodological possibilities available to the classroom teacher. Among the points to be addressed are the moral and ethical aspects of application of scientific knowledge, based on the reading and discussion of excerpts from this book, focusing mainly on environmental issues.

Methodology

The methodology of this work was originally given in a literature on science fiction, science communication and the use of science fiction literature in the classroom as a teaching tool. This research is based on the use of alternatives to classic teaching tools in the classroom, in order to attract the student's attention, bringing their personal

interests such as reading uncommitted for the production of critical thinking with social figure, and has great importance for the foundation's work.

Then the choice of the literary work, which was defaulted for us, because it is a book easy to accept, providing a hassle-free language and easy access, and is available online in full content was performed. Moreover, it is a book which features a futuristic science fiction be without this move the player away from the environment described, it shows points of the current technological world, in addition to using the current situation, where many young people spend countless hours in virtual worlds, creating friendships, relationships and even generating income.

After choosing the book, held up detailed readings, aiming the analysis of various aspects that the book seeks to address, such as prospecting of future situations, the possible energy crisis, the immersion of the population in virtual environments, to escape from the real world, capitalization of technological industries, among others. Given that the target audience of the work consists of high school classes in biology classes, the analysis and selection of excerpts were looking for possible topics to be worked on in the classroom, they are separated.

The guidance that analysis of the contents in the book took place using as support the National Curriculum Parameters - PCNs (Brazil, 2000) for middle school and cross-cutting issues. PCNs for High School are designed to help educators in reflection on daily practice in the classroom and serve to support lesson planning and development of the school curriculum.

Finally, it was structured as a pedagogical proposal a roadmap for the development of activities that enable the use of selected excerpts from the book in the classroom. In addition, we suggest how these assessment activities, as well as the project, the participation of students answering questionnaires (before and after activities) about what they thought of the use of books of science fiction and science concepts in class worked with the use of these excerpts, especially that addressed environmental issues.

Results and Discussion

After reviewing the contents of the book science fiction chosen, based on the National Curriculum Parameters (PCN) was observed that it has an interdisciplinary

character of the thematic, thus enabling not only the biology teacher working with this book in the classroom but also include the subjects History, Geography and Philosophy.

At the same time, we propose a roadmap for the implementation of the literary work "Player Number 1" by Ernest Cline (2012) "as an educational resource to be used in the classroom by the teacher of Biology. For these activities we propose to target audience groups the 3rd year of high school, because it expected that they already have the intellectual maturity to participate in them. The script has some steps that are laid out below:

First step - Application for prior questionnaire: Before starting the activities is suggested that students meet a previous questionnaire, which aims to analyze the relation which that student to the literature of science fiction and their preconceptions about environmental issues.

Second stage - Lecture on Environmental Education: After the first stage is given a lecture on Environmental Education. This lecture will address concepts and environmental problems, human interference in the environment and how it is detrimental to that environment

Third stage - Use of selected excerpts from the book: In a third, students will be presented a synopsis of the chosen book, which has the characteristic to be a futuristic science fiction, showing points of the current technological world, moreover, selected excerpts from the book will be presented. The idea is to prepare for the next step which has the development of the debates suggesting possible solutions to environmental problems found in these passages of the books presented.

Fourth stage - The simulated public hearing: The objective of this step is to bring to the classroom the concept of a simulated public hearing, and then we can involve students in finding solutions to specific environmental problems. The simulated hearing must contain four moments:

- a. Perception: it is proposed to issue and there are previous knowledge on the topic, using excerpts of the book;
- b. Reason for decision: convergences and divergences are raised, debated and put the key positions are highlighted by; textual production group with the

agreements and disagreements raised by the students, who also will serve as guidance for the next step (c).

c. Attitudes recreation: are chosen participants who will defend the position of each group. After the presentation of arguments going to vote the attitude with which the group solve the proposed problem;

d. Possible actions: from the vote, participants check the actions they can take, contributing to the solution of environmental issues, such as contacts with government agencies, to take the necessary steps and information

Fifth stage - Application of post-activity questionnaire: To finalize the activities students are encouraged to respond again to a questionnaire survey of conceptions of them, post-activities.

Searching for a better assessment of the implementation of these activities, they intend to work with a control group where the activities do not involve the use of selected excerpts from the book, being applied only to lecture on Environmental Education with questionnaires (pre and post class expository). Thus, we can clearly evaluate the functionality of the use of science fiction in the classroom as a teaching resource proposed scheme when comparing with control questionnaires class quizzes the class which had the implementation of this suggested itinerary.

Conclusion

Through the research conducted for the preparation of this work we can see that science fiction literature can be used as a tool in the classroom as generating discussions. This is proved when we observe the growing number of studies using this proposal with positive results.

Thus, when analyzing the book and the subsequent formulation of the script, we expect that by applying the same occurs beyond the positive participation of students, they are also encouraged to reflect on the moral and ethical aspects of the application of scientific knowledge, with the basic reading and discussion of excerpts from a science fiction book.

Finally, through this application with positive results we demonstrate that the literature of science fiction can be used as a teaching tool in addition to developing curricular themes also function as a tool for scientific communication.

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