



XIX IOSTE SYMPOSIUM

Transforming Science & Technology Education to Cultivate Participatory Citizens

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A brief theoretical discussion on Post-Truths, Socio-Scientific Controversies, False News and their articulations in Science Teaching

Abstract

The present work intends to propose, from a theoretical essay, a discussion of post-truths, socio-scientific controversies, false news and their possible articulations in science education. The term post-truth gained notoriety from 2016, when it was elected by the Oxford dictionary as the word of the year. This theme becomes relevant in science education, as it does not only belong to the scientific area, but is also subject to discussions in the economic, social and political environments. Furthermore, in this perspective, the appeal to the population's emotion and personal beliefs are more present than the objective facts themselves. When it comes to the discussion of socio-scientific controversies, we have to say that these are due to social issues, liable to different interpretations, carrying with it ethical and moral foundations. In one hand, the answers to these discussions do not fit the parameters of right and/or wrong, what we have are different points of view and diverse discussions on the subjects contemplated. On the other hand, false news is news, stories and propagation of information produced from self-interest, while it is widely disseminated, mainly on social networks, as it is a virtual space that does not require editorial and scientific rigors. Our objective is to propose a possible dialogue between these three conceptions, starting from pertinent and current theoretical references in both areas. Therefore, we believe that socio-scientific controversies are able to providing a discussion of post-truths when contemplate issues of a social nature – we can cite as an example, the approach of global warming and the production of electric energy – that involve different interpretations, while the false news takes advantage of these discussions and manipulates information.

Keywords: false news; post-truths; science teaching; socio-scientific controversies.

INTRODUCTION

The present work intends to propose, from a theoretical essay, the discussion of post-truths, socio-scientific controversies, false news and their possible articulations in science education. Our objective is to propose a possible dialogue between these three conceptions, starting from pertinent theoretical references: Reis (2004); Sadler (2004); Santos and Mortimer (2009); Simonneaux and Simonneaux (2011); Mudin and Santos (2012); Reis (2013); Santaella (2018); Lima et al. (2019).

The discussion of post-truths is not exclusive to the scientific field, being covered in several areas, including technological, political and social. Furthermore, in 2016, the expression “post-truth” gained notoriety when it was named by the Oxford Dictionary as “Relating to or denoting circumstances in which objective facts are less influential in shaping public opinion than appeals to emotion and personal belief”.



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The problems with socio-scientific characteristics, according to Reis (2004), are multidisciplinary, heuristic, loaded with values and little delimited. Nonetheless, the possible answers to these questions do not fit into parameters such as right and wrong, but they stimulate reflections on the potentialities and limitations of the analyzed proposals, so that they subsequently support the formation of opinion.

We believe that the themes related to these controversial characteristics, linked to post-truths, need to be analyzed from the perspective of scientific knowledge to have the necessary bases for reflection and discussion. So that they can be better understood by both the scientific community and society, for the purpose of define the best strategies to be adopted in order to reach the population in general. In addition, it is necessary to distinguish post-truths from the conceptions of false news.

A POSSIBLE DIALOGUE BETWEEN POST-TRUTHS, SOCIO-SCIENTIFIC CONTROVERSIES AND FALSE NEWS

We present a possible dialogue between the post-truths, false news and socio-scientific controversies in order to propose a relationship between these three perspectives. We reinforce that the present work does not intend to exhaust the discussion and it constitutes a synthesized reflection from the proposed themes.

Lima et al. (2019, p. 173), starting from theoretical and metaphysical reflections based on Bruno Latour, define the concept of post-truths as “[...] the propositions that, although much less articulated than scientific propositions, are publicized as equivalent or superior to them”.

We believe that post-truths can be understood as competitions between propositions, in other words, the same theme may have different interpretations, which will be considered as equal or superior to scientific ones. In addition, each proposition has a space-time interval of validity, which varies according to the acceptability of the society, moreover, the propositions are supported by articulations with each other, and the better articulated, will have greater space-time interval.

In some cases, post-truths are mistakenly associated with false news. According to Santaella (2018), false news is news, stories, gossip or rumors, produced and disseminated in order to support its own political and economic interests with regard to matters of a public nature. Furthermore, they do not go through editorial rigors, and are easily disseminated, especially on social medias.

Associated with socio-scientific controversies, these questions are originated through the Science-Technology-Society relationship, and divide the opinion of society about different explanations and possible solutions that do not dialogue with each other, commonly based on beliefs and values involving ethical and moral dimensions (SANTOS & MORTIMER, 2009; SIMONNEAUX & SIMONNEAUX, 2011; REIS, 2013).

Generally, we can presume that socio-scientific controversies, linked to problems of a social nature, stimulate the discussion of post-truths through fruitful debates on possible solutions and explanations for these issues, while false news takes advantage of the results obtained and manipulates the information (SANTAELLA, 2018).



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Socio-scientific controversies, through the approach of themes that involve appeals to society, such as beliefs and values (SADLER, 2004; MUNDIN & SANTOS, 2012; REIS, 2013) are able to provide the discussion of post-truths as far as there are conflict about possible explanations for the same social nature theme, generating competition between different propositions, of moral and ethical dimensions. So, the propositions that have better grounds will have greater acceptability by society, and consequently a greater space-time of validity (LIMA et al., 2019).

CONCLUSIONS

The adoption of these themes in the meaning of thinking pedagogical strategies in science teaching may be able to provide critical and participatory formation of the basic school student, in order to elucidate the types of information sources they have contact with, as well as means to ponder the conceptions arising from the scientific environment.

The information that comes to us, as a society, must also be considered in the light of scientific knowledge, providing subsidies to students for understanding about the political, economic, social and/or cultural interests that compose them.

We consider that stimulating students to argue about socio-scientific controversies and post-truths may contribute to different points of view, that can provide information exchange and knowledge building, able to reformulate pre-existing conceptions. Thus, students may learn collectively, in a democratic environment of ideas and opinions, while there is a verification of the sources of information they have contact with.

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