Food Additives - Teaching Chemistry in a STS perspective

Marta dos Santos Manaia [1], Isabel P. Martins [2]

[1]Escola Secundária Afonso Lopes Vieira – Portugal; manaias@net.sapo.pt

[2]Departamento de Didáctica e Tecnologia Educativa, Universidade de Aveiro – Portugal; imartins@dte.ua.pt

The growing scientific knowledge as well as its technological applications reflects the life of human beings. Therefore it becomes urgent that nowadays in democratic societies, the young act as informed citizens, capable of making decisions in a responsible way and that some of them choose to follow a career that will give them continuity to their achieve their goals.

In the presence of these demands it becomes necessary to reconsider the purposes, methodologies as well as the role of the teacher and the student in the learning-teaching process of sciences.

The teaching of sciences according to STS (Science-Technology-Society) perspectives have been object of study for a vast number of investigators and has also been present in many underlying orientations in curricular reforms, internationally, however, this is very incipient in our country.

Although there is an agreement in the interest of learning science, the performed teaching has not promoted the curiosity of the young in the natural world, which in a way may contribute to many of them giving up studying sciences. They assume that sciences are too abstract, since their teaching relies on academic aspects, which are not connected to the surrounding world.

Teaching sciences in a STS perspective, where the contents are assumed relevant and make sense in accordance to themes and problems, is one of the ways that turns out to be promising to motivate students to learn sciences, and

simultaneously provide the students with a more authentic view of the influence of science in society as well as the influence of society on science.

Therefore the purpose of this study was to conceive, implement and evaluate STS classroom strategies with retrench to the teaching of chemistry in compulsory school programme.

The theme that was chosen to develop the unit on respective strategies was *Food Additives*. Taking into consideration diet problems in developed countries, not that it being a lack of supply, however, there are questions related to technological and scientific aspects when it comes to the production of these supplies and the social problems related to their consumption of which is important to work out with the youth in perspectives to a scientific education from an early age.

Nowadays we are surrounded by light, fat free, sweetened, cholesterol free and few calorie supplies, terms that are used to impose an option to the ones who do not have the capacity to choose.

The implementation of the unit was put into practice with students from the 8^{th} grade from Afonso Lopes Vieira Secondary School in Leiria during the elective year of 1999/2000.

According to the purpose of this study, it was followed by a qualitative investigative methodology aiming at outlining and interpreting a specific situation and therefore without the intention of generalising acquired results.

The implemented STS strategies' potentialities were evaluated applying the technique of direct observation as the main method of gathering data.

Other additional methods of conceiving data were obtained, such as a questionnaire in which the students completed during the following academic year, with the intention of analysing the students' perception on the importance of the chosen theme.

According to the didactic proposal's evaluation, the data gathered proved that the students understand technological aspects from the theme and know how to position before the consumption of some food.

The outcome of the evaluation at the end of the developed unit was that the majority of the students had learning capabilities relevant to the area of chemistry and the above mentioned.

Simultaneously, the use of these kinds of strategies promoted the motivation of the students towards the learning of chemistry, plus the fact that some students recognised how useful it is to carry out more projects under this orientation.

As a contribution to this study, it should be highlighted that the globality of the various situations, activities and materials conceived, that the teachers may use in context to the classes or as a source of work.

In the end, this study refers to the authors of scholastic manuals and those who are responsible for the make up and restructuring of the curricular programmes, besides the already mentioned teachers.