MULTIMODALITY, CHEMICAL TEACHING AND CHRONICLES:
PEDAGOGICAL VIEWS FOR THE TEXTUAL GENRES

*Silmar José Spinardi Franchi 1 | Aldo Sena de Oliveira 2 | Pedro Faria dos Santos Filho 3

1 Federal University of Santa Catarina, Department of Exact Sciences and Education, Center of Blumenau, Blumenau, Brazil – 89036-256.
2 Federal University of Santa Catarina, Department of Exact Sciences and Education, Center of Blumenau, Blumenau, Brazil – 89036-256.
3 State University of Campinas, Department of Inorganic Chemistry, Institute of Chemistry, Campinas, Brazil – 13083-970.

ABSTRACT

In accordance with some specialists, chemistry teaching must be centered in the chemical knowledge and the social context. A chronicle narrates facts and events, through its own linguistic structures, in contrast to the eloquence of the great literary classics and of the classic approach of the textbooks of Chemistry. The short narrative, focused on everyday themes, allows the chronicles to be accessible, from the point of view of reading and written production. The proposal of using the chronicles in the teaching of chemistry, through a multimodal approach, evidences multiple possibilities of learning and conceptual change, highly desirable for the learning of the sciences. In this article, we discuss the use of Chronicles for Chemical Teaching, who consists in a good alternative to provide a better interaction between the student and the chemical knowledge. It would consist in an additional tool to be used by the teacher. We present two chronicles, that can be used in classrooms, for the deepening of contents involving the area of chemistry, desirable to the learning of the sciences.

Keywords: Chronicles, Chemical Teaching, Multimodality.

Education, chronicles and multimodality

The pedagogical proposals for education, and more particularly for Chemistry Teaching, in the contemporaneity must be elaborated taking into account the context in which the students are inserted. In this sense, in recent years there has been a very pronounced increase in the dynamization of information, with the advent of new technological resources that maximized the forms of access, made possible new forms of organization and structuring of educational practices for teaching.

Different didactic approaches, elaborated in this context, take into account the new dynamics that are established in classroom relations, favoring work with contents in a plural and multidisciplinary form.

For Bakhtin, the fields of human activity are linked to the use of language and the use of this language is given through statements that reflect the specific conditions and purpose of its use. Then, all text is organized according to a genre that will be identified taking into account its three elements: thematic content, language style and its compositional construction.

Chronicles, as discursive textual genres, expand the possibilities of knowledge construction, through differentiated appropriation in terms of language, oral or written, involving the problematization of concepts through social contexts and situations. The colors, the images and the arrangement of the text, maximize the forms of signification of a certain theme, from the (re) construction, in the imaginary plane, of situations experienced in the daily life. The daily experience can be (re) signified, elaborated and internalized, with a view to a differentiated form of learning.

For Arrigucci, the chronicle can contribute to an understanding of the longings of modern life, through the account of the transformations and the fleetingness of contemporaneity.

The textual elements required in the elaboration of a chronicle can consider multimodality, making possible new forms of knowledge construction, through the dynamic relation between the social context, the specific content of the preterite area and the differentiated language used in this elaboration. By using chronic as a pedagogical resource, new relationships are possible as discursive practices, enabling new dialogues, new problematizations and insertions of thematic in the sense of introducing concepts for later exploration.

Chronicles and Chemical Teaching

Considering the postmodern dynamics, there are multiple tools to make explicit the contents in Teaching Chemistry, including technological resources and everyday situations in a complexity.

The Chronicles for Teaching Chemistry are considered as an innovative way of responding to the wishes of modern teaching, as well as to bring the chemical knowledge of the experience of the High School student. In this way, we look for the most diverse subjects that are part of the curriculum to contextualize the teaching of Chemistry, as
well as to suggest fictitious cases and situations of the day to day so that the contextualization and the interdisciplinarity occur, all this, of course, in the direction of contemplating the programmatic content of Chemistry for High School, throwing hands of creativity and imagination.

The definition of chronicle, according to the Aurélio dictionary was considered:

Chronicle: [From lat. Chronica]. S. f. 1. Historical narrative, or record of common facts, made in chronological order. 2. Genealogy of noble family. 3. Little tale of undetermined plot. 4. Journalistic text written in a free and personal way, and which has as topics current events or ideas, artistic, political, sports, etc., or simply related to daily life. 5. Section or column of a magazine or newspaper devoted to a specialized subject: political chronicle, chronicle theatrical. 6. The set of news or rumors related to certain subjects: It is unbelievable the chronicle of the reunions that occurred in that distant municipality. 7. Biography, generally scandalous, of a person: His chronicle is well known.

According to the above definitions, definitions 3, 4, and 6, if taken together, accurately, reflects this work.

In the literature, there is a work on Chronicles for Teaching Chemistry, developed by Santos Filho, where the author explains the concept of density through a story, dialogues and daily situations, which served as motivation to continue this work. Considering the definitions for the term "chronicle" mentioned above, a series of texts were developed, not necessarily interconnected with each other, whose purpose would be to use everyday situations where chemical concepts could be worked out, or to think about a certain chemical concept and to develop a story that would contain it, exploring the dialogue, imagining scenes, creating characters that interact throughout the story, with the purpose of evidencing that certain chemical content is present in the daily life of the student, although in some way this has not been evident until the moment.

Each chronicle has a certain extent, which varies according to the chemical content addressed. Such chronicles are not the transcription of chemical contents present in textbooks, nor do they seek to explain a certain content in its totality, or even that they become reference materials for teachers and students. Chronicles must be, from their conception, instruments of teaching.

In order to exemplify the use of these discursive textual genres, will be presented synopses of two chronicles, potentially usable in the discussion of topics of great relevance in the Teaching of Chemistry.

Following the synopses of two chronicles for the chemical teaching, with samples of dialogues and ways of approaching chemical content, considering people’s daily lives:

**Chronicle 1: June parties under chemical views**

Considering that the target audience, at first, are students of Basic Education, it was considered the need to create characters that were in the same age range as the target audience, in different situations of daily life, easily imaginable or even lived by some of its possible readers. The purpose of this paper is to help chemistry teachers introduce the relationship between color and energy, more precisely electronic transition concepts, in a contextualized form.

For this, after brief talks about color and what is seen, about the relationship between colors and energies, young characters experienced a magic trick in a circus, where the magician changes the color of a flame several times, evoking its magic words and using some magic powders. With the same magic powders used by the circus artist, the two characters seek to repeat the feat, believing that magic words are responsible for the color changes of the flame. As the story unfolds, the characters visualize firework burns, whose colors are exactly the same as they visualized in the magician’s trick, and interact with more characters throughout the text in dialogues. From there, they analyze the chemical composition of the fireworks, recognizing the salts used, and that the coloration is probably due to the presence of different cations, considering that the explosion somehow provides energy to the metallic cations, being able to reduce them, and interact so that some coloration is seen.

**Figure 1: Dialogue extracted from chronicle 1**

**Chronicle 2: Observing the nature and intermolecular chemical forces**

Environmental aspects are important reasons for reflection and collective education, so that when oil spills occur at sea, for example, it is undeniable not to think about the disaster itself, but also about the possibilities of reversing this situation that is harmful to the environment. Specifically, chemical concepts can be worked having this situation (fictitious or not) as context, with explanations about chemical bonds and intermolecular forces, which make the oil not to mix with the sea water.

In the chronicle “Observing the nature and intermolecular chemical forces”, these situations were placed, using a fictitious news of the oil spill on the maritime surface. From this news, the curiosity of a young man causes his family to become involved in the discovery of the main intermolecular interactions between polar and nonpolar molecules (among other chemical concepts), and this discovery involves other characters outside the family life.
Progressive, seek scientific answers on the questions raised.

In this way, there is the opportunity to teach intermolecular chemical forces in a contextualized form, considering the nature of the immiscible liquids, the intermolecular interactions among themselves and with other liquids with completely different chemical composition.

Figure 2: Dialogue extracted from chronicle 2

Conclusions:

The use of chronicles in the chemical teaching strengthens the learning of concepts, since it allows the student, through a differentiated language, appropriation of the themes, privileging discursive analyzes, symbolic and semiotic representations, through a socio-historical contextualization. In this sense, the chronicles enable (re) creation of dynamic situations that allow students to produce meanings, organize and give meaning to their statements and, through practices of different languages, build multiple learning.

Acknowledgments:

The authors thank the cartoonist Rodolpho Giglio for the creation of the cartoons.

REFERENCES


