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Propuesta de actividades para la formación motivacional y afectiva desde el programa Historia de la Química ***Proposal of activities for the motivational and affective education illustrated in the program about History of Chemistry***

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Resumen: El trabajo propone guiar la acción pedagógica de los docentes que imparten la asignatura Historia de la Química en la Universidad de Guantánamo hacia la planificación de actividades que desarrollen la dimensión motivacional y afectiva desde los contenidos y principales valores que aporta dicho programa, utilizando el caudal teórico y práctico del ideario científico de José Martí y de Fidel Castro. Se emplearon métodos de observación participante, análisis documental, criterio de especialistas, concluyendo que se obtienen resultados positivos que se manifiestan en la actuación de los estudiantes y en su interés creciente por la asignatura.

Palabras clave: Acción pedagógica; Historia de la Química; Motivación; Educación en valores

Abstract: The paper recommends guiding the pedagogical action of the teachers of the subject History of Chemistry at the University of Guantánamo to planning activities that develop the motivational and affective dimension of the contents and main values that the program teaches, using the theoretical and practical flow of the scientific ideas of José Martí and Fidel Castro. Participant observation methods, documentary analysis, specialists' criteria were used, concluding that positive results are obtained, and manifested in the students' performance and in their growing interest in the subject.

Keywords: Pedagogical action; History of Chemistry; Motivation; Education in values

Introduction

In Cuba, the objective of the integral training of professionals, and with it, the promotion of scientific culture, considering science as part of the general culture needed, is not an impossible task, based on the work of the government and organizations that, together with the school can make the study of science become a true intellectual joy for adolescents and young people.

At Guantanamo University, as in all other universities in the country, there is a work program for confronting the political-ideological subversion of the enemy aimed at counteracting their influence, guided by the Principal Master Strategy. "Comprehensive and sustainable approach to educational and ideological political work".

The aforementioned document states that social influence in education not only occurs on the educational process in its future, but also on the actors involved in it, teacher and student, since both are social beings that are interrelated with each other and with many other human beings. For this reason, among others, in order to understand, solve and direct many of the situations that the teacher faces in the classroom with his students, it is necessary that in all the spaces of learning, first in the classroom, strengthening the revolutionary morale to face the tasks demanded by the updating of the Cuban economic and social model.

Within the pedagogy in general and of the didactic in particular there have been numerous works on the theme of the class. All authors agree on their importance and function within the pedagogical process, regardless of the definition they adopt.

In the classroom it is essential to achieve an adequate motivation, for which the teacher must prepare accordingly, starting from the domain of the content of his science, the considerations of Didactics and of course the mastery of the basic contents of pedagogy and psychology. This underlies the need for the school and the teacher to assume the creative activity as a work style in order to develop in the student all their potentialities.

Taking into account Marino and Ortiz (1999), after performing a critical analysis on the demands of the contemporary class posed by several authors, such as Danilov and Skatkin, 1985; Gómez, 1995; Klinberg, 1985; Savin, 1976; Tomaschewski, 1978; Labarrere and Valdivia, 1988; Freire, 1985; Alvarez, 1988, 1992; Talízina, 1988; Baránov et al., 1989, propose that in all kinds of this quality must be achieved:

1. A defined ideological political approach, as well as an up-to-date scientific level, according to the content taught and the level of education being worked on.
2. A communication and a collaborative student master activity that stimulate the motivation throughout the process.
3. A participatory learning that promotes the construction of knowledge and the development of habits and skills, as well as personality qualities.
4. A stimulation of intelligence and creativity, conceived as a process of personality (González and Mitjans, 1989)
5. The individualization and personalization of the teaching and learning process in the different moments of the class.

6. An incitement to the conscious and independent action of the students in the cognitive activity and the desire for self-improvement.
7. A link to the future work life and the experience of the students.

Specifically, the case of this research, the kind of sciences lessons in the Cuban school, goes through a process of constant improvement in which the contribution of pedagogy, didactics and initiative of the Cuban teacher are combined in a rational way, so the challenge is to get sciences taught to motivate students with interesting problems through which they learn basic knowledge, so that they can educate from instruction.

In this regard, Frómeta (2011), proposes some practical tips to be taken into account by teachers to achieve this goal:

Tip1. The values (predicted in the objectives), as a guide for the organization of the class, and not the system of knowledge *per se*.

Tip 2. The ten minutes of reflection and debate integrated into the time allotted for the lesson.

Tip 3. Appeal to the principle of scientific and technological neutrality

Tip 4. Refer, together with the content of science, to the history of the scientists who conceived it.

Tip 5. The teacher's example.

Finally he notes that all advice is reducible to a single key aspect: the soul is educated with precepts and inspiring examples.

The purpose of this research work is to guide the pedagogical action of the teachers who teach the subject History of Chemistry to the planning of activities that develop the motivational and affective dimension of the students, in harmony with the main values that the program contributes using as a reference the theoretical and practical flow of the scientific ideas of José Martí and Fidel Castro, in a way that contributes to raising interest in the subject.

Development

Conceptions about science have evolved throughout history. The same have been reflected in different approaches to the teaching-learning process of the subjects in this area of knowledge, where the application of didactic principles offer possibilities to develop a class that is the result of the creative character of each teacher, in its desire for the achievement of the purposes and

objectives of a class in which in an attractive environment, without neglecting the educational and scientific nature of the teaching content, reflect what is taught and what is learned through an adequate use of the teaching activity.

Chemistry is a theoretical - experimental science that from the didactic point of view is framed within the area of the natural sciences. Its history is intensely linked to the development of man. Particularly, the program of the subject History of Chemistry taught in the curriculum for the training of professionals in the pedagogic sciences, aims to contribute to the formation of a comprehensive general culture in the preparation of students for their performance, it is for this reason that in the classes of this subject students should be lead to understand how science is used dissimilarly in the different socio-political systems and how every interpretation of scientific knowledge and its use in practice has an ideological basis. This conception is known as a socio-cultural approach to the teaching-learning process of sciences.

The selection and structuring of the teaching-learning content and the methodological conception of the development of this subject should strengthen, on the one hand, the knowledge that is approached from the study of the different socio-economic formations, which provide a knowledge about how has science been developing, which have been the philosophers, naturalists, chemists and biologists who have made great contributions to the development of chemistry in the world in general, and in Cuba in particular and, on the other hand, concrete their actions to the motivational and affective dimensions of learning, all from the potential offered by the contents, which must contribute as main values the love of the profession, national identity, patriotism and anti-imperialism expressed in their habitual behaviors.

At times, the teaching of science has neglected the transmission of experience in creative activity and the education of attitudes. The way in which many teachers of science conceive the structuring and development of the contents of the programs that they teach makes difficult for the students at many times to reduce tasks to simple routine exercises, especially if there is difficult generalization to new situations and it causes that students are incapable of functioning by a stimulus, so that the potentially formative function of the contents ends up being, thus, wasted, limiting its didactic value and its potentialities to reveal the meaning that the student has to deduce from learning.

For this purpose, teachers should select activities not only with academic format but also in everyday scenarios that are meaningful for students, which promote linkages between both types of situations. It is not sensible to expect them to be motivated to learn if it is regularity in the classes to

practice skills already expired, to memorize lists for no possible reason, to read materials that are not understandable to them because they are trivial, abstract or foreign in their experiences. If students are to be creative and to reveal the significance of the contents in the classes, it is necessary to use activities in which they have more possibilities to practice originality and to develop creative thinking.

Taking into account the process of perfecting the training of a competent professional committed with the Revolution, who is willing to work hard to defend the political, economic, social and cultural bases of our socialist system, based on the values of history, it is necessary to take advantage of all the educational potential of the contents in the classes to link them with the ideas and thinking of the Cuban paradigms of José Martí and Fidel Castro.

Precisely about José Martí and Fidel Castro, transmitting their ideas, feelings, valuations and the strength of their foresight, requires mastery of their works to impress on the classes the emotion and fervor necessary to allow a positive influence on education in values of the students.

Scientific education, in the sense of the study of science and with it the knowledge of nature occupy a privileged place in the thoughts of José Martí, he expressed in his works ideas that were astonishing for the time when he expressed: "Science and freedom are master keys that have opened the doors through which men enter, in love with the world to come" (Martí, 1963, p.89).

José Martí laid the foundations for the development of a pedagogical conception that was eminently scientific, humanistic and innovative, and that responded to the needs of the mass to acquire a culture capable of responding to the demands of the epoch, and it has been expressed throughout his countless works.

On the other hand, the thought of Fidel Castro is the synthesis of all the thinking that preceded him in scientific-educational matters. It carries a new vision of education and pedagogy from its theoretical-practical conception, the proposals of educational transformations made and put into operation by the collective of Cuban teachers of sciences, which presupposes the need to change and to modify the style of thought and with it the work system that conceives the promotion of the creativity of those who carry out this process.

It shows an approach to the task of using the theoretical and practical flow of the scientific ideas of these two personalities, which is why the solutions of the activities included are qualitatively

superior to those commonly performed in the lessons of History of Chemistry that contribute little to reveal all the significance that each content can possess for the subject who learns.

In attempting to transform this situation, they emphasize the role of motivation, since working in the levels of productive and creative assimilation demand from the student a maximum affective involvement.

Another argument that emphasizes the role of motivation is that, if what is involved is to be in line with the main values that the program contributes using as reference the thinking of José Martí and Fidel Castro on science during the process of teaching - learning of the subject must take into account the affective component.

Finally, the teacher will point out to the student, through the solution of each of the activities, that the acquired knowledge and the developed ability will enable him to face qualitatively superior activities, and to solve situations or problems, even outside the framework of the lesson.

Using the participant observation method, it was possible to observe in the studied group the modification of the behavior of the students during the practical lessons and the seminars developed, enhancing their motivation and interest for the subjects addressed in the program. Teachers of the subject have the academic level required to reveal the importance of the scientific thinking of José Martí and Fidel Castro, and thus contribute to the political-ideological preparation of the professional in training at the University of Guantánamo.

The proposal is supported by the results of the consensus in the criterion of 19 specialists consulted, which recognize the feasibility of the activities, which are aimed at improving the training of teaching professionals.

Activities

1.- José Martí Pérez was the most outstanding of the forgers of Cuban culture, excellent conductor of the libertarian deed of 1895, founder of the Cuban Revolutionary Party, unifying men and causes. Why, in your consideration, was he preoccupied with science, having it permanently present in his universal thought?

2.- In Volume 5 of the Complete Works, p. 101, José Martí wrote: "It abhors the formal, memoristic, verbal teaching of school notions envisaged in programs of mere informational foresight, disconnected from the real factors of life ...". Evaluate this writing by putting an example

of a teaching activity that propitiates the contextualization of the History of Chemistry as a science and its contribution to the scientific culture of the future professional teachers.

3.- Make a study of the material "Thinking of Martí on nature and science" and:

a) Select the two most valid ideas in the History of Chemistry from those expressed by Martí on science.

b) Explain, from his point of view, how the Apostle links that importance to education.

4. In his beautiful article "Teachers on the Road", published in 1884, the Apostle said:

"... it is necessary to open a campaign of tenderness and science ... it is urgent to open normal schools of practical teachers, to water them later through valleys, nations ... ", refer to these words, and answer:

a) Is it valid in the current historical context? Explain your answer.

b) Make a methodological proposal of how you in your lessons would use the study of the History of Chemistry with some content that offers potentialities in the programs of college and higher education, so as to contribute, as a teacher, to the general and integral culture of the students.

5. In his historic plea *History Will Absolve me*, delivered on October 16, 1953, Fidel denounces the problem of the industrialization of the country as one of the six points to be solved once the revolutionary power had been seized with the attack on the Moncada Headquarters. In his self-defense speech he states: "Everyone agrees that the need to industrialize the country is urgent, and it requires metallurgical industries, paper industries, chemical industries."

When the Revolution triumphed on January 1, 1959, the Commander-in-Chief would give priority attention to this problem in fulfillment of the promise made in 1953. It would begin a long process of scientific development, under his impulse and personal attention. What qualities of the scientists who carried out the History of Chemistry in its different stages are manifested in the ideas of the Commander when he enunciated and materialized this relevant idea?

6. After the triumph of the Revolution, on January 15, 1960, thousands of professionals left the country to satisfy personal ambitions, and our Commander in Chief saw that the country would have brilliant men and women who would accumulate knowledge to use them in benefit of the people, making known his prophetic phrase that "The future of our country must necessarily be a future of men of science, men of thought, because it is precisely what we are sowing; what we are

sowing are opportunities to the intelligence, since a considerable part of our town did not have access to the culture, nor to the science ".

Known this, answer:

- a) How do you value the unity you establish between the history of past and present science?
- b) b) What validity does this statement of the Commander have in his day for chemical science, due to its history?
- c) Do you agree with the idea expressed by the Commander that year? Read it again and argue what messages you would transmit to keep this idea as a teacher of the content of the chemical and biological sciences?

7.- José Martí and Fidel Castro, men of science, of thought. What aspects you consider lacking in order to be as them?

Conclusions

The main difficulties presented in the program of the subject of History of Chemistry are mainly due to the non-fulfillment of the demands of the contemporary class of sciences in the Cuban school.

Students are not always sufficiently motivated by the issues addressed in the program, sometimes showing disinterest.

The issues addressed in this paper allow us to demonstrate the possibility of deepening the teaching-learning process of the subject History of Chemistry, contributing to the perfection of the process of training a competent and revolutionary professional, as demanded by the current model of development economic and social development of Cuba.

The resizing of the work of José Martí and Fidel Castro on science, consequently enables the teachers of the subject History of Chemistry to apply this in practice.

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