

THEATRE INSTRUMENT FOR SCIENTIFIC DIVULGATION

Dr^a. Maria de Fátima Salgado
Universidade Estadual do Maranhão ó UEMA
mariadefatimasalgado@yahoo.com.br

Dr. Antonio José Silva Oliveira
Universidade Federal do Maranhão
oliva@pq.cnpq.br

Jailson Cunha da Costa
Universidade Estadual do Maranhão ó UEMA
Jc2costa@outlook.com

Luis Cássio R. Salazar
Universidade Estadual do Maranhão
cassiosalazar@hotmail.com

ABSTRACT : Science and Materials Engineering Professionals work with the application and development of metals, polymers, ceramics, research into new materials and new uses for the existing. In Attention to the issue of environmental responsibility, population and companies are increasingly seeking for materials that do not harm nature, developing recycling and reuse technologies practiced in large scales. The project divulge Materials Engineering for students and teachers of basic education, creating mechanisms with the community to promote environmental conscience actions. The dissemination of the workshops was made by means of posters, brochures and banners, the plays were presented in several schools in the city. Some participants, initially, aimed only at the certificate, but during the workshop, began to think differently, they were impressed and motivated because of the knowledge acquired. Some teachers because of the motivation obtained in the workshops and lectures, made the selective process for Master degree. An academic chose this subject as the theme of his Work Course Conclusion. High school students expressed interest in take the exam for this area.

KEYWORD: Materials Science, Basic Education and Sustainability, Science Theatre.

INTRODUCTION

The area of knowledge " Materials Engineering " has registered few professionals , with the prospect of operating in various sectors . This fact is very well reported by various initiatives of professional education and research institutions such as: The Center for Technology (Ctec) , Federal University of Alagoas who performs activities with middle school students (Andrade , 2013) ; The School Holidays Materials Engineering for Students and Teachers of Secondary Education (MEPE) , where various Educational activities are developed in order to make accessible to students and teachers from public and private high school knowledge in the areas of Materials and Engineering materials and thus help improve the quality of education offered , especially in public schools (Sousa , 2013) . Given the guidelines of the National Curriculum Parameters - NCP , which tells us : " Given this globalized world , which presents multiple challenges for man , education emerges as a necessary utopia indispensable to humanity in its construction of peace, freedom and social justice " (BRAZIL , 1999)

Professional Science and Materials Engineering deals with the application and development of metals, polymers and ceramics, among others. Also works with research into new materials and new uses for existing. In Attention to the issue of environmental responsibility, ordered by population, companies are increasingly seeking for materials that do not harm nature, developing recycling technologies and reuse of sedimented principally practiced on large scales. The professional should be upgraded and watch out for preserving the environment.

The Materials science has been dinamizada and combined with dramatic language, allowing the time to learn to become a pleasurable experience. Thus, public school students to reflect on the beauty of knowledge and is able to display, create, think, question, speak, form their own scientific spirit (Bachelard, 1996) and participate in the transformation of their social reality (Freire, 1987).

It is participate that vision we present the results obtained from the project discussed in this article, indicating the main objectives and goals achieved during the same. The Extension project financed by the Foundation for Scientific Research and Development of Maranhão - FAPEMA. "Materials Science in Elementary Education: Building a Sustainable Future", publish the Materials Engineering through lectures, short courses and plays with students of basic education awakening vocations, presented technological innovation accord national and state curriculum guidelines.

METHODOLOGY

The dynamics of the project consisted of short courses and workshops taught by renowned researchers invited by Dr. Maria de Fatima Salgado belonging areas of study in Engineering Materials: Metals, Polymers and Composites; roundtable discussion with workshop participants to define the means of dissemination of materials science in escolas.Montagem and presentation of plays in schools.

To mount the workshops, stages were followed: bibliographic searches, performed in various sources such as the National Curricular Parameters - PCN (BRAZIL, 1999). Review of reading; Preparation of publicity materials, such as posters, folders and bands, containing objective of the project, details of the short course as a

place and time that was offered and a brief review of the work of each visiting researcher. Registration form to fill spaces containing personal and professional information. Banner size from 2.00m x 0,70m with objective of the project and information of workshop which was offered. Certificates to the participants in the workshops were made. Invitations to participate in the workshops were done in Caxias schools and the State University of Maranhão-UEMA and Institute Federal of Maranhão - IFMA of Caxias. Registrations high school teachers and students of chemistry, physics and biology were made.

Theatrical activities were developed, and the subject matter taught in its short course, or were written, rehearsed and presented scenarios to students of basic education in public schools, students, teachers and the general community, the act of promoting awareness on the development sustainable, encouraging use and reuse of materials.

RESULTS

The workshops were administered in the Materials Laboratory and Scientific Divulcation, was invited Researcher Prof. Dr. Ayrton de Sá Brandim (IFPI-Teresina) for given from 3 to 5 May 2013 on metallic materials, composite materials workshop was given by the researchers: Prof. Dr. Cleber Cândido da Silva (UFMA - Imperatriz) and Pr. Dr. Ana Angélica Mathias Macêdo (IFCE - Quixadá - CE) with the theme Applied Composites in Biomedical Natural Area occurred on 24 October 2013. For polymeric materials researcher Dr. Vincent galber Viana Freitas (IFPI-Teresina) was invited and occurred on 7 December 2013.

The project was disseminated through lectures and plays in schools of Caxias (MA): Center Education Aluizio Azevedo, Thales Ribeiro **Gonçalves**, Inacio Passarinho, Maranhão Federal Institute of IFMA-, Maranhão State University-UEMA. The dissemination also gave through internet sites such as the site SNCT 2013; LABMAT the site where they are staying a large part of the materials produced during the project; UFMA the site (Santos, 2014) which was released composite materials workshop.

During the National Week of Science and Technology SNCT 2013 Caxias were presented some plays. In Figure 2.a. Presentation at SESC / Caxias. in times of test Labmat as illustrated in Figure 2b. Figure 2c, presentation of marionette theater in rural school Caxias, in the village quiet.



Figura 1 oficinas ministradas no LabMat



DISCUSSION

An important factor to consider was seen to make the call "lack of time", this was the response of most teachers: "I'm more interested I lack time," many of them work two or three shifts, alleged that the State pays very ill and so had to work another shift to supplement the budget. Many academics CESC-UEMA and IFMA-Caxias signed up, making it clear that the certificate was the main motivator to participate. During the workshops it was noted that both teachers and students changed their opinion, stating that they felt motivated by being gratified by the knowledge acquired.

In relation to short courses offered, it has, in Figure 1a workshop with Prof. metallic materials. Dr. Ayrton de Sá Brandim. Figure 1.b of polymeric materials with Prof. workshop. Dr. Vicente Freitas galber Viana. In Figure 1.c workshop composites materials with Prof. Dr. Cleber Cândido da Silva and Profa. Dr. Ana Angélica Mathias Macêdo and Figure 1.d shows the interaction of the vice-chancellor of UFMA Dr. José

Antonio Silva Oliveira in composites workshop, where the final products produced on the same were presented.

On the occasion of lectures in educational institutions, became an invitation to students to participate in plays, a large number of members interested in participating in these activities was conducted . In the early days of testing , all agreed to attend, but over the course of the trials and encounters difficulties have arisen and unwillingness to be tested , causing a large withdrawal . However , it was observed that the plays had made great improvement in school activities of participants who remained , showing good performance in seminar presentations , teamwork and loss of shyness , highlighting that the artistic - theatrical streamlined method , offered this benefit to participating actors , as well as imparting knowledge of materials science and solutions of environmental problems encountered in our day to day as the recycling of scrap metal , scrap , plastic bags , etc.

.CONCLUSION

During this project it was revealed that students and teachers participating in the project had interest and more systematic knowledge about materials science and theatrical language , opening prospects for production Course Conclusion work and motivation to study master's degree . High school students involved in the project expressed interest in take the exam for this science

Despite the difficulties encountered to bring together basic education students for the test of theater piece, and also with the teachers' strike, was performed successfully every lecture and its theater piece displayed.

The actions taken during the year 2013 in the city of Caxias, MA, such as lectures and plays, doubts transformed into knowledge. The students of basic education have developed the habit of playing the soft drink cans in the garbage, among other materials found in our daily lives, and knowledge of the use and reuse of scrap iron.

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