

The popularization of science as factor of education and social inclusion

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Abstract

The postmodern society has demanded a permanent contact and interpretation of information related to Science and Technology (S&T). The decisions taken by individuals depend more and more on their training to allow them for the use of available technologies. In this context, it is necessary to bring science closer to the society. However, the distances among the centers for development of S&T in our country are a real problem and the population has no access to technological development. In the most cases science is in the hands of scientists and also restricted to academic boundaries. The popularization of science approaches the general public; it gets the primary and secondary schools, and others onlookers involved in sharing S&T in a playful and interactive fashion. In view of that, the scientific diffusion promotes social inclusion, and its purpose is to enhance the interest of ordinary people, especially the youngest ones, to do science. We have developed some highly complex technological experiments to

promote formal as well as itinerant scientific education that allows the science to become reality for everybody. In this present work we approach the activities of Laboratory “Ilha da Ciência” of the Department of Physics Universidade Federal do Maranhão (UFMA) are realizing itinerant exposure in several places in the Maranhão State. The respective results we will present in the Conference.

Introduction

The dissemination and popularization of science to the public came from the establishment of modern science in the XVI-XVII centuries. Science popularization showed distinct phases, with purposes and characteristics that reflect the context, motivations and interests of the time. Diverse reasons for this action may be identified since the seventeenth century. Galileo, for example, has had an intense work promoting not only physics and astronomy, but also new methods of to think and to experiment.

Divulgarion of Science is a multidisciplinary subject which involves different scientific conceptions: Science & Technology, History of Science, Natural Science, Health, Education, Media, Linguist, impact of language used in social networks, cultural norms, Applied Social Sciences. of Science is a multidisciplinary subject which involves different scientific conceptions: Science & Technology, History of Science, Natural Science, Health, Education, Media, Linguist, impact of language used in social networks, cultural norms, Applied Social Sciences.

Given the coverage the popularization of science is a process of transmission of knowledge of science and technology in language directed to a nonspecialist audience.

In this context, it is the popularization of science as distinguished scientific dissemination to communication of science and technology. Thus "scientific dissemination refers to any process used for the communication of scientific and technological information." While "the Communication of Science and Technology means the communication of scientific and technological information, transcribed in specialized codes for a select audience of specialist" (Massanani and Moreira)

Our work on the Laboratory "Ilha da Ciência (Island of Science)" of the Physics Department of UFMA, goes beyond broadcast and Scientific Communication set up because there develop Science, Technology high complexity, we make experiments with

result research of Undergraduate and Postgraduate, producing monographs and papers, graduate professional education secondary, undergraduate and postgraduate courses in different fields of knowledge by studying Evolution of Teaching, developing projects for Teaching, Research and Extension. For this production we also have finance through funding agencies promoting research like CAPES, CNPq, FAPEMA, BNB among others in the form of support for research and scholarship. This manner we are making technological communication and are promoting education as a vector for the Popularization of Science (Oliveira, Oliveira and AJS, AJS).

Considering the processes used to transmit scientific and technological information, the popularization of science is performed using the experiments that demonstrate the laws that govern the universe, especially physics, in a playful and interactive way, making the junction of Theory and Practice. In addition, these experiments are displayed in a permanent exhibition that is visited by researchers, teachers, graduate students, undergraduate students of Elementary and Secondary Education and Society in general. These requests are received by instructors, and monitors.

Our purpose is to stimulate young people to study science and to reduce the distance between the centers of research, the scientist and society, demystifying science. In the “Ilha da Ciência (Isle of Science)” have done many activities to promote science popularization and itinerant education in the state of Maranhão. Recently, with the sense of increasing the inclusion of the Laboratory in the community has been acquired aquisição Mobile Science with a Van which was characterized and equipped with a Basic Science Laboratory. In the present work we will make a report of the actions of the Laboratory Science Island in the northeast region in particular performed to bring science and the general public.

Historic

The project Island of Science today Laboratory of Communication in Science "Ilha da Ciência (Island of Science)" of the Department of Physics of the Federal University of Maranhão constitute a useful strategy for teaching physics and science in the state of Maranhão in the Northeast located Brazil. This through the development and

manufacture of equipment, as well as the preparation of instructional materials that have oportunizado to students of Basic Sciences of the local universities and also the high school Maranhão, an approximation of the physical phenomena and other areas of knowledge enabling thus a significant and constructive appropriation of knowledge produced in this area of exact sciences, in addition to the Laboratory is contributing to the development of scientific research (Oliveira et al., 2011).

Starting its activity 1992, currently the LDC Isle of Science, has place in events disseminating and exposure of the scientific and technological experiments, has scholarship students undergraduate, postgraduate, as well as aid development agencies. The resource are for development and production of didactic experiments and for display as well as for preparation of instructional materials for science communication events (Oliveira el all, 2009).

The Isle of Science has room for computing with computers in network, printers, scanners, digital cameras, auditorium with audiovisual resources, bench for permanent exhibitions, mezzanine for student to study and to do research and recently acquired a mobile unit (Van) as Mobile Science. In the field of astronomy have three telescopes and a mobile planetarium. Your library has books from all areas of knowledge.

The Ilha da Ciência (Isle of Science) has nearly a hundred experiments, mostly developed in UFMA in the areas of Physics, Chemistry, Mathematics, Biology and Computer Science. In its permanent exhibition also have fetus, fish, crustaceans, a beehive and a library of video science eighty films in all areas of knowledge. Annually, counting among outdoor exhibits and site visits, the Isle of Science serves an audience of approximately 15,000 people.

Activities

In the formation of human resources have been oriented the students graduate, undergraduate and high school, with scholarships from agency research federal e state . In the publications include conducting several publications in its different presentations in the form of articles in professional journals, books and book chapters and conference proceedings. All these works have an effective participation of the Island Science Laboratory team (Oliveira et all, 2008, Breve relato ...).

In the technological production, particularly in the making of equipment, we can mention the development and construction of equipment for better comprehension of the laws of physics, math games, equipment for measurements of electric and magnetic properties of matter. We can also highlight a equipment that is already being industrialized and industrial record by Brazilian industrial and placed for sale on national and international market (potencial well, fig. 1).



Figure 1

In the innovative Extension in the last years several projects were approved encouragements aiming Innovation, where we can the the formation of a PET group, implementing the New Talent Project (CAPES) and the acquisition of a mobile unit (Van) for the Isle of Science (fig. 2).



Figure 2

How encourage the dissemination of science in the Maranhão state the Ilha da Ciência (Isle of Science) coordinates the National Week of Science and Technology since 2003, the year of its implementation. Also coordinated the Regional Meeting of SBPC (2003, 2012) and SBPC Annual Meeting in 2012.

Conclusion

To conclude we emphasize that besides every effort to put "science where the people being" we can still to detach the contribution of the Island Science Laboratory, as an Innovative Extension and Production Technology, the creation of other laboratories with the same objectives in the state Maranhão, as in the University State of Maranhão (Hall of Science) and Laboratory of Scientific Dissemination of Caxias and the Federal Institute of Maranhão Imperatriz - MA and numerous other projects.

Outro ponto que gostaria de enfatizar e de fundamental importância tanto quanto, ou melhor, que qualquer outra atividade de produção de conhecimento é a oportunidade que se está dando para cada cidadão de adquirir conhecimento básico sobre ciência e seu funcionamento, que lhe dê condições de entender o seu entorno, de ampliar suas oportunidades no mercado de trabalho e de atuar politicamente com conhecimento de causa na região Nordeste do Brasil, em especial ao cidadão do estado do Maranhão, onde os índices de inclusão social estão muito aquém do que possa sonhar para o mínimo de uma adequada qualidade de vida.

Another point I would like to emphasize and of the fundamental importance and as much as, or better, than any other activity of knowledge production is the opportunity that we are giving to every citizen to acquire basic knowledge about science and its workings, which give you the means to understand your surroundings, to expand their opportunities in the labor market and act politically knowingly in northeastern Brazil, especially to citizens of the state of Maranhão, where the indices of social inclusion are far short of what could dream for minimum adequate quality of life

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