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PUBLIC OUTREACH IN ASTRONOMY

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RESUMEN

En este artículo se analiza la importancia de la divulgación de la ciencia, partiendo de la base de que forma parte de la educación informal. En la primera sección se mencionan algunos aspectos sobre la procuración de fondos. Acto seguido se describen públicos para los que hay que divulgar y algunas maneras de hacerlo.

ABSTRACT

In this paper I will address ways in which astronomy can be conveyed to the general public. I believe that the workings of the cosmos are an effective way to interest the public in science due to their multidisciplinary nature and appeal. This paper is based on the idea that outreach is part of informal education and therefore must be encouraged since it is the way adults learn throughout their lives. We must take advantage of year 2009 to address astronomy in Galileo's honor. I think that outreach should be carried out in the way we enjoy learning about subjects outside our field of expertise. It must be done with passion and for the joy of giving; the gift that outreach conveys is knowledge.

Key Words: outreach

1. INTRODUCTION

Because of its multidisciplinary nature, Astronomy is an ideal discipline to use in public outreach programs for science. The objects studied by astronomers are as remarkable as are ingenious the techniques designed to study and understand them. Outreach programs in Astronomy cover such varied fields as History, the measure of time, Physics, Biology, Mathematics, instrument development and construction. Astronomy addresses very basic questions: Where do we come from? Where are we going?

As we age, we keep ourselves updated on the progress of mankind through informal education, which provides us with tools to solve every day's problems, independently of our area of expertise. Outreach in Astronomy must then be approached professionally to insure its quality.

2. FUNDING

As any public outreach program, popularizing Astronomy requires funding. Before one starts one of these programs I suggest to ask for advise of a professional lobbyst with experience in procuring funds for this kind of programs. Such person knows how to reach the funding agencies and corporations likely to provide the expected funds and will tell us how to acknowledge their support. The lobbysts require a monthly salary and need at least a semester to get to know the details of the project they will be asking funds for. No immediate results should be expected.

Patrons will ask that their funds are used for what they were requested, typically to develop a product, and not to pay for salaries. The administration of these funds should be transparent and the final product should bring prestige to the financier.

Funding must also be asked from decision makers because the development of science in any nation is under their responsibility.

3. TARGET POPULATION

It is important to spread knowledge about our science among scientists working in other disciplines. A fraction of new knowledge appears in the frontiers of different sciences, because acts of creation are stimulated when apparently disconnected concepts are brought together.

Outreach targeted to women in developing countries is fundamental because the academic performance of children and youngsters is on their hands.

Reaching teachers is very important to increase their confidence in their knowledge of present day science and their ability to answer relevant questions from their students.

Of course it is very important to bring popular science to the young, especially to those attending schools which may be not very stimulating, and in this way contribute to their appreciation of scientific endeavor through their life.

Finally, we must reach also the general public, since understanding brings happiness.

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4. HOW TO DO IT?

We must bring science to people in the form that we would have liked that others did with us. Varying continuously our approach to public outreach will make possible to motivate larger audiences.

It is important to put ourselves in the place of the audience, to insure that our message reaches them in an interesting manner. There are many successful outreach experiences which we can use as examples or starting points, adapting them to the local conditions and idiosyncrasy.

When doing outreach for students we must prepare material for the teachers. Teachers are confronted by their student questions and they are not trained to answer "I don't know". The latter would be ideal since scientific progress comes from questions with no answers. Science museums should train teachers. Once the teachers have enough knowledge to answer student questions, they should be encouraged to guide the student visits to the museum. This will show the teachers that they have gained knowledge and provide them with leadership, becoming friends rather than enemies of science museums.

Mass media may become the best allies of science promoters. Since they control the diffusion of ideas and information we should pay the media due attention, taking advantage of their capabilities and being careful with the information we provide them.

Less is more. A common mistake is to talk or write to audiences at a high scientific level that they do not understand. Knowledge takes years to grow. The public will not become expert in a subject just because they hear the best talk, or watch the most interesting movie, or see an excellent exhibit. Our goal should be to create enthusiasm in the public, which will turn into knowledge only when science becomes part of their life, and they feel the need to spend part of their quality time learning more about it.

Popularization of science should take a simple and intelligent approach. We must remember that there is no need to cover exhaustively a given topic.

5. WHICH MEDIA?

Science should be communicated to large audiences through all available media. Internet is ideal because of its easy access and low cost. However, in some countries slow connections prevent users from accessing large data files.

Mass media are fundamental. Millions of people watch TV and listen to the radio daily. TV programs require much more effort than radio broadcasts. However, due to its visual capabilities TV is most appropriate for popularizing astronomy.

Printed media are very important. The reader can go over the subject matter again and again until he or she is satisfied with the degree of understanding.

Museums are ideal places for public outreach. Besides exhibits, they can organize workshops and talks where the public can ask questions directly to the speaker. Some science centers join exhibits with theater and dance, combining art and science.

One must be careful when acquiring a traditional planetarium, unless it is of the portable kind. They are based on one century old technology and visitors do not appreciate traveling to the past. A well used portable planetarium is a great teaching tool. It provides an environment where the speaker is close to the audience and a curved screen where, besides stars, scientific movies can be projected.

6. CONCLUSIONS

Informal education is complementary to traditional school programs. It must be carried out seriously and with due care, and it must be evaluated by experts to guarantee its quality. Evolution of outreach programs is complex since the tools and resulting products are different from those of scientific research and formal education.

Astronomy provides excellent means to popularize science with high quality and important and long lasting impact in the public.

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