

I don't call myself a scientist: Understanding why self-denomination as "scientist" is avoided by university professors.

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Introduction

Scientists and science communicators often lament the existence of a gap between science and the public. That is why one of the aims of surveys of public perception of science is the view on the profession of the scientist and how science is done. Although in the US some surveys date from early 1930's, they became more frequent in Europe in the late 1980's, for example, and more recently in Latin America, in mid 1990's.

A survey in the US has shown that only 35% of respondents consider that they have an "excellent" or "good" understanding of what is the work of a scientist (National Science Board, 2014). Created in 1983 by Chambers, the draw-a-scientist test has shown, in more recent research, that stereotypes of scientists persist in both children and adults (Losh, 2010); this paper includes, in fact, a recommendation for avoiding portraying scientists as eccentric, obsessed, lonely workaholics, for example, by public figures and media. The real scientist is somehow "hidden" from the public if one takes as the basis some other aspect of certain science perception surveys. In Brazil only 12% of interviewees were able to point the name of a Brazilian scientist. Although Brazil has not always been eminent compared to developed world in recent years research indicators point to a great expansion of scientific area in the country (Leite, 2014). The percentage of the sample that could freely cite names of Brazilian research institutions and scientists was used to assess the level of importance of science. The most cited names were of historically important Brazilian scientists, such as Carlos Chagas and Oswaldo Cruz, revealing the public difficulty to recognize contemporary researchers.

Studies on the image of scientists for intermediary students reflect a gendered-oriented perception of the profession of the scientist, where the latter is seen as a male odd person. This situation changes when students meet scientists in person or through the Internet. Some Brazilian investigators have, in fact, looked at perception of students about scientists (Diniz & Schall, 2003; Maia et al., 2012). Choosing a science career will be more determined by the science teacher or actual knowledge about science and the scientist? This and other studies try to understand how and whether students choices are determined by the image of S&T professionals and the quality of teaching (OECD, 2006). Also, does the public understand that science is made by scientists but ignores who scientists are?

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In Brazil, as in many countries, science is conducted mostly in universities by professors and their graduate students and post-doctoral fellows. Are these the scientists of a country? How does the general public get to know them? When asked for an opinion on a scientific issue, how often are these professionals mentioned in the media? How do they ask people to introduce them on TV and newspapers, for instances? Do they present themselves as professors, teachers or scientists? (or all of the above?) Is it clear to a TV viewer that Dr. X or Professor Y is an actor of the scientific process? Or is it an underlying fact? These questions are part of our speculation on to what extent the academic community, by not coming forward as scientists for society, collaborates for persistency of the lack of information about who are the country's contemporary scientists and institutions.

In an attempt to evaluate whether the name "scientist" was used by university professors to introduce themselves, we conducted a survey with 20 professors from a Biology research/teaching institute, exploring forms of self-denomination in formal and informal situations. The results indicated that most of them do not make use of the term "scientist" for professionally self-denomination. The low rates in self-denomination as scientist among university professors were confirmed by a following survey with 74 undergraduate students (Oliveira et al., 2015). The results we obtained therein restated an intuitive idea that we had, being scientists and making part of this community ourselves: we don't call ourselves scientists! However, although we may have our own judgments and ideas on how to introduce ourselves as either scientist, researcher, professor and so on to a specific community group, we wanted to give voice to other scientists about the issue on why 'I don't call myself a scientist'.

Here we present the results of discussion groups with professors from a university about their professional self-denomination and impacts that this might incur in the general public.

Method

The method used was qualitative and was based on the focus group methodology (Gomm, 2008; Barbour, 2009). The homogeneity of the group consisted in that they were all biologists, worked as full-time professors at the Instituto de Ciências Biológicas at Universidade Federal de Minas Gerais, had been active in research in the previous five years with intellectual productions attested by their CV (Brazilian CNPq Lattes CV database). The heterogeneity of the group was that they represented different areas of knowledge in the field of Biology. Participants acted in the areas of Biochemistry, Botany, Ecology, Microbiology, Genetics, Physiology, Parasitology, Pathology and Zoology. Invitation was sent by e-mail and two groups (of five and seven people, respectively) were formed.

A work protocol was developed and one of us (A. Vilas-Boas), who can be considered a peer among the participants of the group, was selected to be the moderator. The motivation material used was in the form of slides with some selected data from previous works (Oliveira, 2014 and Oliveira et al. 2015). The main questions proposed for discussion were:

- What do you think about the fact that most respondents of our previous study called themselves university professors and rarely used the term scientist?
- Are the terms "scientist" and "researcher" synonyms?
- Do you see any impact on society upon the fact that university professors do not call themselves 'scientists'?

The discussions lasted for a maximum of one hour and were both video and audio-recorded.

Results and Discussion

Participants of the focus groups were initially exposed to the data previously obtained by us, in which professors wrote down how they nominate themselves professionally. Group participants related positively to the answer that most of their colleagues have made, i.e., they also thought “professor” is the most adequate choice for naming the profession and that “scientist” would not be chosen by any of them. Several ideas were presented as the reasons for such. Most of them agreed that: 1) professor is an adequate term because that is the name of the position they were hired for; 2) there is no regulation for the profession of scientist in the country, making it a non-existing profession; 3) self-denomination will vary and is dependent on the situation and to whom one is talking to (e.g. self-presentation will vary according to formal and informal daily situations).

Here are some thoughts presented by participants about the meaning and uses of the name scientist:

- The name scientist encompasses activities in many different areas in addition to Biology, such as Geology, Engineering, etc.
- The name scientist is more utilized to designate researchers in private companies.
- The expression ‘research scientist’ was mentioned to be rather common in universities of the United States or for a position of a junior researcher in other countries as well. However, participants suggested that the term “research scientist”, used abroad, lacks the type of labor stability that a tenure-track professor position has.
- It is more simple and straightforward to say “I am a university professor”, instead of saying “I am a scientist”, which demands further explanations.
- There is more respectability involved in being a university professors well as higher deference and recognition for the title ‘professor’; however, participants believe that people do not know the array of activities that a professor does, including doing science.
- Some people indicated that there is a pedantic element in saying ‘I am a scientist’ that ultimately will separate the person from the public.

Participants were presented with the data collected previously among university students and professors about the question: ‘Are the terms researcher and scientist the same?’ and where invited to give their opinion as well.

One of the participants was categorical in saying that the term ‘scientist’ is hardly ever used in the media, as opposed to ‘researcher’, unless it refers to a generic term for many scientists rather to name a specific investigator. Another participant stated that the term scientist is mostly adopted by the media and usually refers to someone who has made a really great contribution to Science. The overall opinions towards media coverage reinforce the importance of the notion of ‘scientist’ as a ‘license’ to perform scientific consensus among peers, e.g. in the sentence “scientists have shown that phosphoethanolamine did not prove to be efficient in all cases”.

Another participant think that researcher and scientist do not differ in terms of what they do, such as scientific method and rigor, but, perhaps, what differentiates them is the magnitude of their contribution: “a scientist would be more related to someone who breaks paradigms or such”. This idea is similar to the one mentioned in the previous paragraph inputing a greater responsibility for the name scientist.

A question used in the 2015 Brazilian survey of public perception of S&T - “Do you remember the name of an important Brazilian scientist?” - was presented to the participants and the overall

answer of respondents was also shown (i.e. only 12% of them said that they could name an important Brazilian scientist).

They were not especially surprised with this answer and one of them said that if the question was to be replicated in any other country the responses would be similarly correspondent. Some pointed out to the word 'important' as being related to fame, suggesting a bias in the question. And another participant noted that there is also a matter of memory related to fame and recollection of names from different generations.

A very different discussion was started after the presentation of these data and the motivation of our research to them - meaning, do we university professors that don't call ourselves scientists contribute for a deficiency of knowledge about science and lack of interest for science in young people.

Low investment in science popularization in Brazil was pointed out as one reason for the lack of visibility of the scientists. The discussion was naturally drawn to the idea that science should be more publicized, that scientific journalists should be more numerous and better prepared and that public science communication is incipient; also, they pointed that scientists and university professors should be supported to go public and be backed by a trained set of media professionals in their university routines.

The ideas that came about in the discussion shed some light on our study since they pointed out to many directions that we have not anticipated. Other questions arise from this research. Although the inexistence of the profession of scientist was pointed out as the main reason for the choice of the term by their colleagues and themselves, there were few interventions about whether it should or should not be regulated by official professional organizations.

Since we focused on a specific group related to the field of Biology, we still do not know whether not calling oneself a scientist when asked which profession one has is a general trend for university professors in Brazil and elsewhere. Different country regulations and culture would interfere with this behavior? Is this similar in other science areas, such as other 'hard sciences' and humanities?

Conclusions

Considering the sample analyzed in this work, we can say that biologists that work as full professors at the Instituto de Ciências Biológicas of UFMG find it a natural choice not to use the term 'scientist' to designate their job in scientific research since they have been hired as professors and not something else.

Although the group could not list, at first, the impact of this attitude on the general public or a gap between science and the public, as the data was introduced to them and discussion progressed, some elements emerged linking the lack of visibility of the scientist with low investments on public science communication, including poor training of science professionals and journalists.

It became evident that this theme should continue to be investigated among other university professors especially in different areas of 'hard' science and also in social sciences.

References

- Barbour, R. (2009). Grupos focais. Porto Alegre: Artmed.
- Chambers, D. W. (1983). Stereotypic images of the scientist: The draw-a-scientist test *Science Education* 67(2): 255-265
- Diniz, M.C.P. & Schell, V. (2003). O conceito de ciência e cientistas – Análise do discurso e escolha profissional de alunos de um programa de vocação científica no âmbito de uma instituição de pesquisa na área de saúde. In: *Encontro nacional de pesquisa em educação em ciências*, IV, Bauru, São Paulo, p. 51-74.
- Gomm, R. *Social Research Methodology: A Critical Introduction*. New York, Palgrave Macmillan, 2008, 2nd Ed.
- Leite, M. (2014). “Em 20 anos, país vai da 24a a 13a posição em ranking de pesquisa”. Folha de S. Paulo, 01 nov. Retrieved 13 nov 2014 from: <http://www1.folha.uol.com.br/ciencia/2014/11/1541834-em-20-anos-pais-vai-de-24-a-13-em-ranking-de-pesquisa.shtml>.
- Losh, S. C. (2010). Stereotypes about scientists over time among U.S. adults: 1983 and 2001. *Public Understanding of Science* 19(3)372–82.
- Maia, B. A. et al. (2012) “Cientista ao Vivo”: Análise das percepções de alunos das séries finais do ensino fundamental sobre a figura do cientista. In: Encontro Nacional de Ensino de Ciências da Saúde e do Ambiente, III, Niterói, Rio de Janeiro, 11 p. Retrieved from: <<http://www.ensinosaudeambiente.com.br/eneciencias/anaisiiieneciencias/trabalhos/T120.pdf>> Acesso em: 18/08/2014.
- National Science Board (2014). *Science and Engineering Indicators 2014*. Arlington VA Retrieved from: National Science Foundation (NSB 14-01). <http://www.nsf.gov/statistics/seind14/content/etc/nsb1401.pdf>
- OECD (2014). Evolution of student interest in science and technology studies. 2006. Global Science Forum. Policy Report OECD. OECD Science Forum. Series OECD Global Science Forum Reports. Retrieved Sept 01, 2014 from: <<http://www.oecd.org/science/sci-tech/36645825.pdf>> ..
- Oliveira, T. S. et al. (2015). Profissão cientista: um olhar dos estudantes de graduação e de professores universitários sobre ‘ser cientista’. *Anales de La reunion RedPop* 2015. Medellin, Colombia.
- Oliveira, T. S. (2014). Qual é a sua profissão? Depende! Uma análise da autodenominação de profissionais do Instituto de Ciências Biológicas da UFMG. 27/11/2014. 39 f. *Trabalho de Conclusão de Curso de Ciências Biológicas*. Instituto de Ciências Biológicas, Universidade Federal de Minas Gerais, Belo Horizonte. 2014.
- Oliveira, T. S., & Vilas-Boas, A. (2014). Qual é a sua profissão? Depende! Uma análise da autodenominação profissional de professores universitários. Comunicação Oral II Colóquio Internacional Tendências Contemporâneas da Comunicação Científica: desafios e perspectivas. 1 a 3 de Dezembro de 2014, Florianópolis.

Vogt, C. & Polino, C. (2003). *Percepção Pública da Ciência: Resultados da Pesquisa na Argentina, Brasil, Espanha e Uruguai*. Campinas, SP: (orgs.) Editora da UNICAMP, FAPESP, 190 p.

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