

High-level Meeting on February 26 2013

'Using e-Science to Strengthen the Interface between Science, Policy and Society'

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Citizens participation in Science, Technology and innovation policies

It has already been proven that citizens are not just data providers for e-Citizen science projects. Citizen volunteers participate in the extended scientific process. They help analyze data gathered by professional researchers. They design, build and operate their own instruments to gather data for their own experiments or as part of a larger project.

At policy making level the citizen volunteer is engaged in true policy-making decisions that have technical or scientific components, working alongside research scientists in the democratic and policy process (Lewenstein, 2005). While we have not found such eCS projects that include citizen scientists in the design of scientific policies at national or regional levels, we have witnessed how citizens can influence international and national Science and Technology policies through representative NGOs, such as in the WSIS process. Which is the role for citizen scientists in the WSIS + 10 process?

Use of Mobile Technologies

Technology is a main driver of the recent explosion of Citizen Science activity (Hand, 2010). As Newman et al. (2012: 291) state: "Over the past 20 years, several new developments in information science – especially in data informatics, graphical user interfaces, and geographic

information system-based web applications, which can now be ported to smartphones and other hand-held devices – have been vital to the emergence of citizen science”.

The use of mobile technologies for scientific purposes is not only a relevant emerging trend in eCS: it may also be considered as the trend of the future in the short and medium run.

This tendency relies upon the ubiquity of mobile devices and the introduction of mobile-broadband services in the majority of countries in the world, combined with the availability of smartphones and tablet computers. It has been mentioned the use of solar phones in Uganda. This is without doubt a solution for countries where electricity networks are scarce and unevenly distributed.

Women

There are numerous participatory research projects addressed to women, in which women collaborate as scientists or as information providers, particularly in the social and humane sciences with an accent on community development. Health research projects are another fertile area for participative research with a focus on women.

Women are active participants as volunteers in eCS projects. In Mexico, the current results of health eCS project Reporta¹, focused on citizens monitoring of respiratory conditions, signal that in contrast with the relative balance existing at national level between the number of men (49%) and women (51%), in Reporta women represent 58% of the participants, and men 40% (2% of the participants do not provide this data).

Women participate frequently as scientists in eCS projects, as in Cybertrackers, Africa@home, May Beespotter², among others. Nonetheless, we have not found in the available literature any E-Citizen Science project specifically addressed to women.

1 <http://reporta.c3.org.mx/Resultados.php>

2 (<http://beespotter.mste.illinois.edu/>)

Women are active participants as volunteers in eCS projects. However, we have identified very few E-Citizen Science project specifically targeting women. One exception is The Uganda Mama – App project, and Cybertracker³, which has a programme to fast-track tracking skills of women.

Participatory research projects directed to women, in which women play a part as scientists or as information providers, are abundant. However, most of these projects do not use ICTs or mobile technologies as participative research tools. Even if eCS is a prolific ground for gender studies, and that many women scientists work in participatory research, eCS projects focused on women are still extremely rare.

Which reasons explain the existence of this vacant area?

One of the explanations could be that participatory research on women and with women are generally developed in relatively small universes, using in-person research techniques (Baffour and Chonody, 2009; Meyer et.al. (2003). Another is that eCS on Social and Humane Sciences (the knowledge universe in which gender related research is generally inscribed) are scarce compared to research on biology, astronomy, and environmental sciences.

Which other reasons can we identify, and how to can we stimulate women's higher participation in eCS projects?

Concentration of eCS cyber scientists and funds in developed countries

We have not found statistical studies on E-Citizen Science showing the number of projects per scientific area. Nevertheless, the consulted literature and experts suggest that eCS projects are strongly concentrated in the Natural Sciences, Geography, Environmental Sciences, Astronomy,

³ <http://www.cybertracker.org/uses/citizen-science>

Software development. A lesser number of projects are focused on health (such as Ufahamu⁴ and Reporta⁵),) and urbanism.

Again, there seems to be no statistical studies on E-Citizen Science that document their geographical origin and regional concentration. According to Francois Grey, (Citizen Cyberscience Centre, in his opening Keynote for OTA12) citizen cyberscientists, which amount to hundreds of thousands, are at present mainly concentrated in Europe and North America.

A survey of the existing current and past eCS projects and literature supports this declaration. Not only are most cyberscientists and eCS projects concentrated in the most developed regions, but also the majority of the initiatives and funds regarding eCS in developing countries are generated in Europe and North America. This could suggest that there is a direct correlation between explicit public policies regarding the development of science, technology and ICTs, and the number of eCS projects. However, eCS projects are emerging in Oceania, Asia, as well as in African and Latin American countries.

The reason for this concentration may be based on regional scientific policies.

OECD (2012:6) advises its member countries to encourage Open science. The European Union has developed explicit scientific policies through it's Digital Agenda.

Most National Digital Agendas in developing regions include Science and Technology policies as key factors to build local Knowledge Societies. Nevertheless, seldom match the investments and political engagement shown by the European Union.

The Latin America and the Caribbean region, for example, does not feature Science and Technology among the areas to be dealt with in the next years. In November 2010 was approved the new Plan of action on the Information society for Latin America and the Caribbean (eLAC2015), which asserts that information and communications technologies (ICTs)

4 <http://www.talenthouse.com/creativeinvites/show/submission/detail/8E5QHT>

5 <http://reporta.c3.org.mx/Resultados.php>

are instruments of economic development and social inclusion. This Plan is in line with the Millennium Development Goals (MDG) and the World Summit of the Information Society (WSIS). The eLAC2015 Plan of Action (2010: 10) has 8 thematic areas, 10 lines of action, 6 priorities and 26 goals⁶. The area of Science, Technology and Innovation is subordinated to “Productive development and innovation”. The main reflection on the C&T+i field is: “Development policies should be created to provide training for, support and even co-finance ICT intensive research, development and technological innovation projects in universities, research institutes and technology-based enterprises that generate local value added⁷.”

Universities could also begin training scientists to co-coordinate eCS projects with citizen volunteers.

It would be interesting to invite Geographic and economic regions such as the European Union, Mercosur, Unasur and others to identify, through diagnostic processes, priority areas to use eCS for regional integration, and to implement appropriate regional scientific agencies and their funding for eCS programs.

6 <http://www.cepal.org/cgi-bin/getprod.asp?xml=/elac/noticias/paginas/0/44210/P44210.xml&xsl=/elac/tpl-i/p18f.xsl&base=/elac/tpl-i/top-bottom.xslt>

7 http://www.cepal.org/socinfo/noticias/documentosdetrabajo/5/41775/2010-820-eLAC-Plan_of_Action.pdf