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REVIEWS

Special Eurobarometer 401: survey summary on responsible research and innovation, science and technology, coordinated by the European Commission, ec.europa.eu

The Special Eurobarometer 401 is an opinion poll undertaken in Spring 2013 at the request of the European Commission (EC 2013). A “special” report is one that focuses on a specific thematic area. In this case, the Directorate-General for Research and Innovation commissioned the survey as a follow-on to the 2010 survey that examined European citizens’ general attitudes towards science and technology (S&T). The Eurobarometer¹ was established in 1973 and is meant to measure European attitudes on a variety of issues at both a European Union (EU)-wide and national level. For this survey, more than 27,000 participants from different social and demographic groups across the 28 EU member states took part in face-to-face interviews. The 32-page summary reviewed here includes findings analysed both at the EU level and by country.²

Even though the data set is quite large, there are several caveats in attempting to understand and review a summary of large-scale survey data where no presumption can be made that data quantity has a direct correlation to data quality. For instance, there have been criticisms of the “black-boxed methodology” of Eurobarometer surveys. Concerns that render the reliability and validity of published results limited (Nissen 2012) include uncertainties about the composition of the sample; the wording, translation and back-translation of survey questions; the analysis, interpretation and presentation of results; and the Eurobarometer’s potential use as a political tool to promote EC agendas. Indeed, Special Eurobarometer 401 was conducted “to better engage citizens with science, research and innovation and promote responsible research and innovation”,³ thus making the goal of the exercise not just to collect data but also to facilitate greater public inclusion in, and communication of, S&T.

Special Eurobarometer 401 has integrated topics related to responsible research and innovation (RRI) into a survey that had previously attended to broader issues in science in society. The current survey has seven sections, with the first three focused on engagement, impact and attitudes and the remaining four focused on ethics, young people, gender and open access.

In Section I (engagement), two questions are particularly relevant to RRI in which participants were asked: “What is the level of involvement citizens should have when it comes to decisions made about science and technology?” and “Which people or groups are the best qualified to explain the impact of scientific and technological developments on society?”

The analysis reveals support for citizen involvement, with 37% feeling that “public dialogue is NOT required” and 55% feeling that “Public dialogue is required”. Roughly two-thirds of respondents also indicated that scientists at university and government laboratories are best qualified to explain the impacts of S&T to society. Thus, there appears to be an appetite amongst EU citizens for greater engagement with those well-qualified scientists themselves.

Such broader engagement has been piloted in the UK through “town halls” in which experts and citizens come together to discuss novel research including nanotechnology, synthetic biology and geoengineering. In some cases, feedback from these meetings has reshaped funding calls specifically in the area of nanotechnology. Additionally, in the EU the VOICES consultation⁴ is beginning to examine techniques for including citizens in dialogue on a large scale.

Even while new approaches to RRI are being developed and implemented, at times their outcomes can be opaque. Therefore, it is important to include mechanisms to render procedures like participant selection more transparent and ascertain the provenance for how citizens' feedback is actually incorporated into policy and practice. In other words, RRI – as an emerging discipline with a community of scholars and practitioners developing around it – should be reflexive regarding its own research practice to ensure that RRI activities are embedded into RRI research itself, to the same standards that other scientific disciplines might be expected to embed them. This reciprocity is especially important as RRI activities increasingly become a requirement for research funding across the EU.

In addition to the development and use of RRI principles and techniques, attention to geographic variation in its presentation is also important. When respondents were asked if they were either interested or felt informed about S&T, a geographical divide between Western and Northern countries on one hand and Eastern and Southern countries on the other became evident. The results show a majority in Eastern and Southern countries felt that they were not sufficiently informed, while a majority in Western and Northern countries felt informed. Half of Europeans said they were “interested” in S&T, even if some do not feel informed. Overall, the divide between Eastern and Western countries occurs in both the “information available” and the “level of interest” of respondents. This result might be attributed to the wide variation in the distribution of wealth, standards of living, political infrastructures and social opportunities across the EU (cf. Epstein and Jacoby 2013). Although this distribution is not explicitly raised as an issue in the survey, it does invite questions of how RRI might be implemented to meet the requirements of each country within its specific cultural and economic contexts.

In Section II (impact) of the survey, there are two questions related to RRI. To the first question, “Do you think that the overall influence of science and technology on society is positive or negative?”, 77% of respondents thought the influence to be positive. To the second question in this section, “Do scientists and organisations behave responsibly towards society by paying attention to the impact of their science and technology related activities?”, 82% responded that they think scientists working at university and government laboratories do try, while 44% (a relative minority) felt that government representatives try to behave responsibly. This result suggests that citizens have more trust in scientists rather than policymakers, an interesting and potentially even ironic result considering that government representatives (along with a small group of scholars) in the EU and elsewhere are leading the development and implementation of RRI; and that many scientists offer initial resistance to the idea of expanding upon current requirements for professional accountability and responsibility. We might also infer from this result that the concept of RRI needs to be communicated more broadly not only to institutions and individuals within the scientific community but also to organisations and individuals within civil society.

Section III asked participants four questions about their attitudes towards S&T. Strong majorities believe that S&T makes life “easier, more comfortable and healthier” (66%), and that S&T will “provide opportunities for future generations” (75%). In a sub-question about the future, 57% “totally agree” that “if we attach too much importance to risks that are not yet fully understood, we could miss out on technological progress”. One could infer from these findings that the perceived benefits of S&T outweigh risks for a majority of EU citizens.

In contrast, a majority of respondents expressed some tentativeness around S&T when asked if “Scientific and technological developments can have unforeseen side-effects that are harmful to human health and the environment” (74%). There appears to be a tension between this result and the one above asking about the implications of attaching too much importance to risks we do not fully understand. When asked, “We depend too much on science and not enough on faith”, respondents were more divided, with 39% agreeing and 32% disagreeing. While understanding

relationships amongst rationalism, superstition and belief is important, the survey question seems to suggest, first, that science and faith are in opposition and, second, that scientific thought should have primacy over other modes of thinking. While there are stark areas of disagreement, for example, between creationism and evolution, there are nevertheless instances where both scientists and citizens find no contradiction between holding a personal faith and conducting or supporting scientific activities (Gieryn 1983). Also, the socially constructed aspect of S&T means that ideology and indeed belief permeate both the day-to-day activities scientists engage with and the results they report (Woolgar 1991). Moreover, there are often debates about what counts as authoritative knowledge (Jordan 1997) and, in such instances, local knowledge and S&T developments may be at odds with one another. Although not addressed in these findings, adding these types of sub-questions to future surveys may provide an added layer of insight currently unavailable.

Section IV, “ethics and science”, has nine questions, and here I highlight a sample of those related to human rights. A majority of respondents (54%) agree that S&T “can threaten human rights”, although respondents are not asked how, or in what manner this threat might manifest. In another overly general result, 76% agreed “the EU should take measures to address ethical risk raised by new technologies like biotechnologies”, although respondents were not asked how these ethical risks could be addressed in either biotechnology or other emerging areas. A smaller majority (61%) said that S&T research should not “be allowed to violate fundamental rights and moral principles in order to make a new discovery”. Additionally, large majorities (76%) agreed that “European funding of scientific research outside the EU should be forbidden if that research would be illegal in the EU”, and (80%) that the EU should actively promote European ethical principles around the world.

On the whole, the inferences that can be made about each of the responses in the survey are limited because the questions are asked and analysed as discreet units and not in relationship to one another in the summary report, although some correlations between questions and analysis of socio-demographic variables are made in the full report. For example, 70% agreed that “respect for ethics and fundamental rights guarantees that scientific research and technological innovations will meet citizens’ expectations”, while 84% agreed, “all researchers should receive mandatory training on scientific research ethics (e.g. on privacy, animal welfare, etc.)”. Might it be inferred from this that most citizens expect researchers to receive some training in research ethics and that such training should be sufficient for ensuring respect for fundamental rights? If this inference is correct, then a clear explanation is needed for how RRI might be distinct from current training under the heading of “research integrity”⁵ with its focus on plagiarism, conflicts of interest, authorship, compliance and scientific rigour, as well as how RRI might augment or be integrated into training that focuses upon traditional notions of professional responsibility. Moreover, as RRI takes on global significance, we need to consider what lessons the RRI community could learn from the experience of the World Conference on Research Integrity as it developed global standards while taking into account social, political and economic differences across countries (Resnik and Shamoo 2011).

The last three parts of the survey, Sections V, VI and VII, are related to current EC priorities that focus on young people, gender issues and open access in science, respectively. Although only some concerns in these areas may fall under current notions of responsible research, they are being integrated into the wider remit of RRI in the EU.⁶ In these sections, the Eurobarometer finds that 65% agreed that “too little is being done to stimulate young people’s interest in S&T”, while S&T education is seen as improving young people’s creative thinking, job prospects, cultural life and contributes to developing well-informed citizens. Large majorities believe that “men and women should have equal weight in scientific research” (86%) and also that “the results of publically funded research should be available online for free” (79%).

In sum, the survey data set is quite large and yet there are important limitations to interpreting its results. Even so, the generalised results provide an opportunity to reflect upon how RRI might be positioned within the larger context of “Science in Society” and “Research Integrity”. Additionally, we might begin to think about how RRI scholars and practitioners integrate RRI activities into their own work, how to attend to the specific cultural and economic contexts of each country when implementing RRI, and how to effectively communicate the concept of RRI to scientific communities as well as civil society.

Notes

1. http://ec.europa.eu/public_opinion/index_en.htm.
2. The full report can be found at the Eurobarometer website: http://ec.europa.eu/public_opinion/archives/eb_special_419_400_en.htm.
3. http://europa.eu/rapid/press-release_MEMO-13-987_nl.htm.
4. <http://www.voicesforinnovation.eu>.
5. http://www.wcri2013.org/Montreal_Statement_e.shtml.
6. http://ec.europa.eu/research/science-society/document_library/pdf_06/responsible-research-and-innovation-leaflet_en.pdf.

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