

SCIENTIFIC RESEARCH AND PUBLIC OPINION IN EUROPE. A PRELIMINARY STUDY*

VALENTINA PRICOPIE**

ABSTRACT

This study aims at identifying, starting from the questions and response variants proposed in the questionnaires of the Eurobarometer surveys, the forms of operationalisation of the concepts specific for the scientific research, that have been used from 1973 until 2011, without a preliminary preparation of the sample investigated in this respect. The main objective of this approach is to identify the evolution of the specialised vocabulary of the Eurobarometer, which accounts to a great extent for the forms of ambiguisation of the European discourse on scientific research and its results. Our concern is also to identify the intrusion of the scientific vocabulary in the European common language, which is in fact an unavoidable perspective, given the EU approach at interrogating the frontiers of knowledge.

Keywords: EU, public opinion, perceptions, scientific research, science and technology.

1. INTRODUCTION

The study of European citizens' perceptions on the current themes which are subject to European public debate is undoubtedly a consistent and fundamented approach, which may explain EU public opinion on issues of interest at a certain time, but may also allow for transversal and diachronic comparisons which facilitate the assessment of the impact of European policies on citizens, along with the adjustment of emerging initiatives at European central level, in order to account for the principle of participatory democracy. As regards the EU approach to scientific research and its results, perception surveys have been conducted in most Member States, which allow for a comparative analysis of public opinion on the matter. Nevertheless, specialized vocabulary fails to designate specific concepts and this gives rise to doubts concerning the results of this attempt at measuring the impact of research policies in the EU, and also the interest shown by EU citizens in the topic of research.

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** Correspondence address to Valentina Pricopie: Institute of Sociology of the Romanian Academy, sector 5, Bucharest, e-mail: valpricopie@gmail.com.

In this context, this study is aimed at identifying the manner in which the concepts underlying scientific research are materialized from 1973 to 2001; we base our study on the questions and answers included in the Eurobarometer surveys, without a prior preparation of the sample under review. The main purpose of our approach is to identify the evolution of the specialized Eurobarometer vocabulary, which mainly accounts for an ambiguity in the European discourse on scientific research and its results. This is the first study performed in Europe which questions the manner in which a certain type of discourse on scientific research has been exposed to European public debate, without an attempt at clarifying beforehand the specialized concepts by way of common language. We are also concerned with identifying the intrusion of scientific vocabulary in the common European language, which is an unavoidable consequence of the European Union's attempt at questioning the frontiers of knowledge.

2. STUDIES ON PUBLIC OPINION IN THE EU

The attempt to make public the topic of scientific research through media channels is a critical concern for the departments of policy and strategy of the European Commission. The first survey of European public opinion on science was conducted in 2001, followed by the *Candidate Countries Eurobarometer on science and technology*¹, whose results were released in January 2003. This latter survey ranks Romania two before the last as regards the level of information about science and technology. Romania only outranked Turkey and Estonia. The level of interest in scientific research was at 35 percent in Romania as compared to 58 percent in Cyprus, with women being less interested in scientific topics than men in all candidate countries. At the same time, 40% of the Romanian respondents considered in 2003 that scientific developments are presented too negatively by the media, while 73% of the same respondents considered that journalists have no sufficient background to report on science.

Interestingly enough, results are different in 2005: Europeans rely more on TV than on newspapers for science reports, and have relatively low confidence in the ability of politicians to report on scientific developments, while Romanian respondents consider that national authorities should nevertheless spend more money on scientific research (58% of respondents are more likely to agree).

The year 2005 was also the year of the first *Science in Society Forum* in Brussels. The forum presented the opinions of both European journalists and researchers. The conclusions of the Forum revolved around the requirement for a mutual recognition of the two professions, while at the same time identifying two major issues: insufficient communication of scientific developments on the part of

¹ Gallup Organisation, *Candidate Countries Eurobarometer CC-EB-2002.3 on Science and Technology*, January 2003, http://ec.europa.eu/public_opinion/archives/cceb/2002/2002.3_science_technology.pdf, last on line visit 23.01.2010.

researchers and insufficient reporting on the part of the journalists, caused by their inability to grasp the actual significance of scientific innovation.

It is nevertheless true that most researchers agree to the fact that insufficient communication of scientific developments to the media is to be blamed. One of the major barriers identified in the communication process between researchers and journalists is that researchers consider that reporting of scientific developments falls outside the scope of their duties. As a consequence, researchers only report their findings to their national and international peers, through specialized articles and academic conferences and engage in a dialogue solely with journalists specialized in their specific field of research.

The recommendations advanced by the Forum focus on the responsibilities which both parties should undertake as well as on the setting up of a partnership between journalists and researchers with the aim of building public awareness concerning scientific developments, considering that one may no longer deny the reality of the fact that there is a need for public information concerning scientific research, while researchers can no longer stay distant and unapproachable.

Six years after the first Science in Society Forum, information on scientific developments is still absent both in Romanian newspapers and the audio-visual media.² There is also a certain lack of awareness in the Romanian media as regards the role of science journalism as “translator” and “promoter” of the scientific message delivered by the non-transparent and apparently remote research community. Researchers are mostly concerned with their international rating and recognition or with the new concepts they develop and forget that the media-research partnership may reinforce their academic achievements and provide them with the opportunity of gaining public support or exposure to research and development projects with the business environment.

The survey entitled *Special Eurobarometer 282: Scientific Research in Media*³ was released in December 2007. The survey focused on the interest of European respondents in scientific research and innovation. Fieldwork in all the 27 Member States of the European Union was conducted between 10 April and 15 May 2007. Interviews were conducted in the respondents’ national language. It is worth mentioning that for the very first time, the term previously used by Eurobarometer – i.e. “scientific discoveries” – is replaced by the more appropriate term “scientific research.” This may explain the apparently low interest showed by Europeans in *research*, while in the previous 2005 survey, EU citizens expressed more interest in *scientific discoveries* than in politics or sports news. Under the circumstances, we wonder to what extent European citizens (especially in the new

² There are two encouraging exceptions: *Un minut de știință (One minute of science)* – Europa FM radio news and *Ziarul științelor* <http://www.ziarulstiintelor.eu/> (an online scientific journal). See *Jurnalism de știință. O perspectivă istorică* (Science journalism. Historical perspectives) by Cătălin Mosoia, Tritonic, Bucharest, 2007.

³ European Commission, *Special Eurobarometer 282: Scientific Research in the Media, December 2007*, http://ec.europa.eu/public_opinion/archives/ebs/ebs_282_sum_en.pdf, last online visit – 23 January 2010.

Member States) understand the term “scientific research”, given that Eurobarometer EB282 showed that the interest expressed by EU15 citizens in the topic of scientific research in the media was twice higher than the interest showed by EU citizens in the new Member States.

The survey of 2007 shows that the interest of EU citizens in scientific research in general ranks fifth after sports, entertainment and celebrities, politics, arts and culture and before economy. In socio-demographic terms, age and gender seem to determine the interest of the younger respondents in entertainment, the interest of the older respondents in politics, of women in celebrities, arts and culture and of men in sports, politics and economy. European citizens also seem more interested in news related to scientific research in the field of medicine and environment, energy, information technology, biology, space and telecommunication. It is worth mentioning that European citizens in new Member States are more interested in scientific research in the field of information technology and space, while their interest in scientific research in the field of energy is half the average of EU15.

In Romania, interest in entertainment is at a staggering 57%, the highest in the European Union, followed by interest in sports (39%) and economy (27%), while interest in scientific research is expressed by 17% of the Romanian respondents.

As regards the more specific question concerning interest in scientific research, only 13% of respondents say they are very interested, while 16% say they are not at all interested and 44% prefer not to answer this question. The gap between EU15 citizens and citizens in the new Member States is yet again high, as 62% of EU15 respondents claim interest in scientific research, compared to only 38% in the case of respondents in the new Member States. In Romania, 32% of the respondents say they are interested or fairly interested in scientific research, while in Sweden the same figure goes as high as 80% and in Bulgaria as low as 24%.

As far as the extent to which journalists and the scientific community decide on the media reporting of the findings of scientific research, things are a lot clearer: European citizens consider that journalists mostly decide on the matter, while Romanian citizens consider that the scientific community is the one who has the power to decide on the same matter.

According to this survey, Romania ranks 26th in Europe as regards interest in scientific research, followed only by Bulgaria. The topic under discussion has three main actors: journalists, the scientific community and the public. Journalists are the ones who set the agenda, the scientific community is the one who is encouraged to provide news and the public is the one who gradually becomes aware of the topic of research, as consistent news is reported.

3. THE VOCABULARY OF SCIENTIFIC RESEARCH IN EUROBAROMETER REPORTS

The analysis of the specific terms and expressions used in European opinion surveys is a significant stage in the study of the interest and knowledge in science of European citizens, given that the results of such surveys differ significantly among various reports. This analysis is new in the field of international research on the

vocabulary of transnational opinion surveys. Sometimes, this vocabulary can cause confusion in the mind of the public as regards a certain field, with direct impact on the social and economic environment. A certain doubt arises concerning the manner in which questions are asked in opinion polls, so we have chosen to focus on the three basic concepts used in the Eurobarometer reports between 1973 and 2010, i.e. *science, scientific research and technology*. The differences noticed are many times the reason for the reluctance of respondents who are faced with new concepts.

The first Eurobarometer reports in the 1970's referred to science as "scientific research" (see the reports released in 1973 – *L'Europe vue par les Européens* and 1977 – *Science and European Public Opinion*). This latter report presented the findings of the fieldwork conducted in April and May 1977 in the nine Member States of the European Community on a representative sample of 9,044 persons. The survey involved nine national research institutes under the coordination of Hélène Riffault, Head of the French Institute of Public Opinion; the final report was endorsed by the survey coordinator and by Ms. Sylvie de la Beaumelle. The report considers a number of general issues⁴, still considered in present day Eurobarometer reports. The second chapter reported spectacular findings: 78% of respondents considered that European states should join their efforts in the field of scientific research. The first Eurobarometer report of 1973 also showed that 69% of interviewees considered that scientific research should be coordinated at European level. As shown in the Eurobarometer report of 1977, the initiative of a single European policy on research was brought forward by the Commission Member responsible for research: As Dr. G. Brunner, the Commission Member responsible for research, science and education, said (...): "We shall not be able to implement such a European scientific policy unless the people of Europe, and the individual citizens, understand the important role it will play in shaping their future lives"⁵.

Starting with the report of 1977, we may notice the wide variety of expressions used to refer to scientific research: *scientific research*⁶ / *research*⁷, *scientific discoveries, applications of science*⁸. At the same time, the preliminary

⁴ The key issues considered in the 1977 report: the image of science, the future of science, national or European support of scientific research, the priorities of scientific research and the interest of the European public in science as reported by the media.

⁵ *Eurobarometer Science and European Public Opinion*, October 1977, p. 1.

⁶ Q 6: "In your opinion, should the government subsidize **scientific research** or not?" („În opinia dumneavoastră, guvernul ar trebui să subvenționeze **cercetarea științifică** sau nu?"). *Ibid.*, p. 7.

⁷ Q 14: "**Scientific research** is extremely expensive but it can bring advantages and prestige to the country where it goes on. In your opinion, would you prefer that: **1.** European States should get together to pool their **scientific research**; **2.** each country should do its **research** for itself; **3.** don't know." („**Cercetarea științifică** este extrem de costisitoare, însă poate aduce avantaje și prestigiu țării în care se realizează. În opinia dumneavoastră, ați prefera ca: **1.** statele europene să-și reunească **cercetarea științifică**; **2.** fiecare țară să-și facă **cercetarea** proprie pentru ea însăși; **3.** nu știu."). *Ibid.*, p. 12.

⁸ Q 3: "Considering the changes that have come about in the last 25 years, how important a part do you think that those connected with **scientific discoveries and applications of science** have been playing?". (Având în vedere schimbările care s-au produs în ultimii 25 de ani, cât de important

results of the Eurobarometer report on the opinion of European citizens concerning science and research were interpreted in conjunction with the interest shown by European citizens in scientific research in their day-to-day live and presented under the expression “Science and Society”⁹: “Consequently, the Commission of the European Communities, following the opinion of the European Committee for Research and Development (CERD) which advises it on R&D matters, decided to devote particular attention to the problem of the relations and interactions between Science and Society. This decision is also in line with the more general declared intention of the Commission to study the question of life in “present day society”¹⁰.

This report also highlighted a certain degree of uncertainty as regards science; nevertheless, the survey also showed high levels of hope as regards the future of science and concern about potential, yet sometimes inherent, risks. As a consequence, the Eurobarometer report of February 1979 – *Les attitudes des Européens face au développement scientifique et technologique* – mostly deals with the opinion of European citizens as regards technology risks. This report advances a number of specific expressions derived from specialised scientific vocabulary, such as *développement scientifique et technique* (scientific and technical developments)¹¹, an expression used in several questions which focus on conceptual developments:

Q. 133–143: „On entend souvent parler du développement scientifique et technique. Je vais vous énumérer différentes opinions à ce sujet. Voici une échelle à sept points. Pour chaque phrase que je vais vous lire, vous me donnez une note de 1 à 7 suivant que vous êtes d’accord ou non avec elle. La note 1 signifie que vous n’êtes pas du tout d’accord et la note 7 que vous êtes tout à fait d’accord ; les notes intermédiaires servent à nuancer votre jugement.

133. Dans l’avenir comme dans le passé la **science** continuera à être un des principaux facteurs de l’amélioration de la vie.

134. Actuellement, certaines **découvertes de la science** sont mises en **application** avant qu’on en ait suffisamment étudié les conséquences futures.

135. Les **connaissances scientifiques** sont bonnes par elles-mêmes ; seule l’utilisation que l’on en fait pose souvent des problèmes.

136. Le **développement scientifique et technique** comporte parfois pour la société des **risques** de plus en plus grands que l’on aura du mal à maîtriser.

137. On trouvera toujours **de nouvelles inventions** pour venir à bout des **conséquences nuisibles de la technique**.

138. Ce serait bien si l’on pouvait arrêter de construire tant de **machines** et revenir à la nature.

credeți că a fost rolul pe care acestea l-au jucat în relație cu **descoperirile științifice** și cu **aplicațiile științei?**)”. *Ibid.*, p. 5.

⁹ Meanwhile, this expression has slightly changed to *Science in Society*.

¹⁰ *Eurobarometer Science and European Public Opinion*, October 1977, p. 1.

¹¹ Q. 133–143: “On entend souvent parler du développement scientifique et technique...” *Eurobarometer Les attitudes des Européens face au développement scientifique et technologique*, February 1979, p. 80.

139. Pour **orienter la recherche scientifique et technique**, il faudrait *davantage tenir compte de ce que pense le public*, c'est-à-dire des gens comme vous et moi.
140. Dans notre pays, on veille suffisamment à ce que les **découvertes de la science** soient mises *au service de l'intérêt général*.
141. Les députés et sénateurs et tous ceux qui prennent les décisions sur le plan politique n'accordent pas assez d'importance aux *choix* à faire dans **les recherches et les réalisations scientifiques**.
142. J'ai des difficultés pour parler des **sciences**, parce que je n'ai pas la formation pour ça.
143. Par mon travail, je suis en contact avec **l'évolution** d'une partie **de la science et de la technique**¹².

The survey of 1992 involved a sample of 13 000 persons and was entitled *Europeans, Science and Technology – Public Understanding and Attitudes*¹³. It was conducted by INRA (Europe) and Report International and released in June 1993, starting from the results of the survey Standard Eurobarometer 38.1; this survey came up with additional more elaborate expressions, such as: "new medical discoveries, new inventions and technologies, new scientific discoveries" (Q50 and Q51), "science and technology, scientific and technological advances, scientific and technological research, technological progress, application of science and new technologies" (Q 62), as well as "new technologies, new inventions, basic scientific research"¹⁴, "frontiers of knowledge"¹⁵, "scientific and technological progress" (Q 66).

In December 2001, Eurobarometer released another report – *Special Eurobarometer 154: Les Européens, la science et la technologie*¹⁶ – a survey on public opinion in the 15 Member States of the European Union conducted between 10 May and 15 June 2001 in a representative sample of 16,029 persons. The expressions used are more or less the same, with an emphasis on the opinion of European citizens as regards the role of research in their day-to-day lives: "Il faut donc ici distinguer entre trois sous-ensembles de propositions : la lutte contre les maladies, l'amélioration de la vie quotidienne et l'intérêt du travail sont encore

¹² *Ibid.*

¹³ Special Eurobarometer 76, *Europeans, Science and Technology – Public Understanding and Attitudes* http://ec.europa.eu/public_opinion/archives/ebs/ebs_076_en.pdf, last online visit – 10 August 2011.

¹⁴ „New technology does not depend on basic scientific research.” („Noua tehnologie nu depinde de cercetarea științifică de bază”). *Ibid.*, p. 74.

¹⁵ „Even if it brings no immediate benefits, scientific research which advances the frontiers of knowledge is necessary and should be supported by the government”. („Chiar dacă nu aduce beneficii imediate, cercetarea științifică care depășește frontierele cunoașterii este necesară și ar trebui să fie suportată de către guvern”). *Idem.*

¹⁶ Results as of 2010, when another report shows the conclusions regarding the issues under review in 2001: “En octobre 2001, une étude Eurobaromètre sur la science et la technologie a montré un clivage entre les citoyens de l'UE et les objectifs fixés par l'Union européenne en matière scientifique et technologique, de même qu'elle a souligné le besoin de développer la connaissance scientifique afin de motiver les citoyens européens à s'impliquer davantage dans la science”. Special Eurobarometer 340 “La science et la technologie”, June 2010: 3.

largement mis au bénéfice de l'activité scientifique. Le bilan général de la science (c'est-à-dire la balance entre effets positifs et conséquences nuisibles) demeure également positif. Mais l'on ne conçoit plus désormais que la science et la technologie puissent constituer des remèdes absolus à une série de problèmes dont une bonne part relève en réalité d'autres instances et notamment des politiques publiques sociales ou d'environnement"¹⁷.

The difference in terminology which can be noticed in the report of 2001 is that between *basic research* and *applied research*: "Two questions referred mainly to the benefits of basic research. Results show that most Europeans see the benefits of basic research for the development of "new technologies" (83,2%). There is general agreement as regards the opinion that science and technology "have an important role in industrial development" (84,4%). About two thirds of the sample (i.e. 63,6%) are also aware of the need "to utilize state-of-the-art technology for a more competitive economy" (nevertheless, in the case of this questions, the percentage of respondents who gave no answer is higher: 19,8%)"¹⁸.

Later on, in June 2005, the European Commission published Special Eurobarometer 224 "Europeans, Science and Technology" which reinforces the results concerning the progress in basic scientific knowledge. With reference to the same results, Special Eurobarometer 340 "La science et la technologie" of June 2010 pointed out to the following: "The gap between science and society was shown to still exist, although the survey revealed a very positive and optimistic perception of what science and technology can actually do for humanity in terms of medical research, the improvement of the quality of life, as well as the opportunities for future generations"¹⁹.

The pan-European Eurobarometer report "Qualitative Study on the Image of Science and the Research Policy of the European Union Conducted among the Citizens of the 27 Member States", published in October 2008 is the only qualitative study on the image of science, research and technology among European citizens. The study points out as follows: "European citizens show their

¹⁷ *Special Eurobarometer 154*: „Les Européens, la science et la technologie”, 2001: 28.

¹⁸ "Deux questions portaient en premier lieu sur la valorisation de la recherche fondamentale. Les résultats montrent qu'une très large majorité des Européens valorisent la recherche fondamentale pour le développement "de nouvelles technologies" (83,2 %) et aussi, mais dans une moindre mesure, pour faire "progresser la connaissance" (75,0 %). Plus généralement il y a un accord très large avec l'opinion selon laquelle la science et la technologie "jouent un rôle important dans le développement industriel" (84,4 %). Deux tiers de l'échantillon environ (63,6 %) adhère aussi à l'idée de la nécessité "d'utiliser les technologies les plus avancées pour rendre l'économie plus compétitive" (mais ici le taux de "sans réponses" est assez élevé : 19,8 %)." *Special Eurobarometer 154*: „Les Européens, la science et la technologie”, 2001: 30.

¹⁹ "Néanmoins, le fossé entre la science et la société s'est encore creusé, bien que l'étude ait révélé une perception très positive et optimiste des bénéfices de la science et de la technologie pour l'humanité en termes de recherche médicale, d'amélioration de la qualité de vie, ainsi qu'en termes d'opportunités pour les générations futures". In *Special Eurobarometer 340* „La science et la technologie”, June 2010: 3.

grasp of science either by trying to give conceptual definitions of its purpose (in summary, knowledge) or more rarely by making reference to the rationality and rigor of scientific method, or frequently through the results of scientific research and the concrete benefits that can result from it. They tend to categorize the *sciences* in the plural as “*exact*” sciences (sometimes referred to as “natural”), sometimes “application” or “technological” sciences, and human and social sciences – which are however not equally considered to belong to the sphere of science as such (as their results are not very tangible or “not provable”). A notion linked to science, *technology* (which forms an application branch of it and moreover provides it with tools that enable it to progress) is firstly perceived through the products and services that it creates – this often means that it is regarded as more tangible and accessible, as it provides facilities or improvements in the living conditions of citizen consumers. As regards *research*, this is viewed as a component or “basis” of science. Depending on the individual, this may be a more abstract, remote notion (as it involves methods and processes more than results) or on the contrary one that is more accessible (with references to experiments, tests and the verification of hypotheses which are all areas that are easier to grasp than theory)²⁰.

This last report on the matter – Special Eurobarometer 340 “La science et la technologie” – published in June 2010, reiterates expressions such as “scientific discoveries” and “technological developments” and highlights the fact that European citizens are only moderately informed about scientific discoveries and technological developments and hardly ever attend conferences and public debates in science and technology²¹. European citizens feel that “scientists should take decisions about science but the public should be consulted” and “feel that they should be more informed about scientific issues”²². As regards the expression “scientific discoveries”, the statement presented under QC7.9 – “A scientific

²⁰ „Qualitative Study on the Image of Science and the Research Policy of the European Union Conducted among the Citizens of the 27 Member States”, October 2008: 8, http://ec.europa.eu/public_opinion/archives/quali/ql_science_en.pdf, ultima consultare on line în data de 9 august 2011.

²¹ Europeans “mostly feel moderately (50%) informed about new scientific discoveries and technological developments, with few feeling very well informed (11%)” and „are not active in public issues science and technology, where 91% of respondents never or hardly ever attend public meetings or debates” („ont le sentiment, pour la plupart, d’être moyennement informés (50%) des nouvelles découvertes scientifiques et des développements technologiques, contre une minorité qui pense être très bien informée (11%)» et «ne sont pas actifs dans les domaines de la science et technologie, puisque 91% des répondants n’ont jamais ou rarement assisté à des conférences ou débats publics». In Eurobarometru Special 340 „La science et la technologie”). Special Eurobarometer 340 „La science et la technologie”, June 2010: 8, http://ec.europa.eu/public_opinion/archives/ebs/ebs_340_fr.pdf, last online visit 8 August 2011.

²² *Ibid.*

discovery is in itself neither “good” nor “bad”, it is only the way the discovery is used which matters”²³ – is validated by 78% of respondents. Respondents are also in favour of imposing limits in science: “Europeans feel, albeit not very strongly, that science should have limits and operate between defined boundaries. Any enthusiasm for no limits to science is on the whole low. Only 35% of respondents agree that there should be **no** limits to what science is able to investigate while 44% of respondents disagree. Latvia at 71% of respondents in agreement is exceptionally high and at 14% also has the lowest proportion of Respondents disagreeing”²⁴.

4. PRELIMINARY CONCLUSIONS

The intrusion of scientific discourse in the European common language as a result of the European initiative to test and measure European public perception on scientific research shows an inherent ambiguity in the choice of vocabulary for the presentation of this topic to the European public arena. This study questions the manner in which the results of Eurobarometer surveys give an accurate and consistent description of the issues under survey, considering the insufficient explanations provided with regard to the terminology used to designate research. This is a preliminary study which requires further specific analyses geared at the manner in which the media featured the various surveys conducted by Eurobarometer on this matter, as well as further analyses on the perceptions of European citizens on the results of the same surveys. Nevertheless, our questioning is valid and genuine and allows for the statement of another assumption concerning a potential educational approach by the European Union with regards to its citizens.

²³ *Ibid.*

²⁴ “Les Européens ont le sentiment, dans une moindre mesure, que la science devrait avoir des limites et fonctionner dans un cadre limité. La volonté de ne mettre aucune limite à la science est généralement faible. Seuls 35% des répondants conviennent que la science ne devrait avoir **aucune** limite en matière de recherche, contre 44% qui ne sont pas d’accord. Le taux de réponses favorables de 71% enregistré par la Lettonie est exceptionnellement élevé ; c’est également en Lettonie que l’on enregistre le taux le plus faible de réponses défavorables, soit 14% des répondants.”, *Ibid.*, p. 83.

The scientific vocabulary of Eurobarometer (1973–2011)

	1973/1977	1979	1992/2005	2001	2011
RESEARCH	“Scientific research” “Science and technology”	“Scientific research”	“Basic scientific research”	“Basic research and applied research”	“Scientific and technological research” „Science and technology”
SCIENTIFIC DISCOVERY	“Scientific discoveries”	“Discoveries of science”	–	–	“Scientific discovery”
DEVELOPMENT	“Research and development”	“Development of science and technology” “Scientific and technological development”	“Scientific and technological developments” “Scientific and technological progress” “Scientific research which advances the frontiers of knowledge”	“Scientific research which adds to knowledge” “New technologies”	“Science which adds to knowledge” “Scientific and technological progress”
INNOVATION	–	–	“New medical discoveries, new inventions and technologies, new scientific discoveries” “Scientific and technological progress”	–	–
RESULTS	–	“Scientific achievements”	“Applications of science and new technologies”	“Industrial development” “Technological development”	“Applications of science and new technologies” “In favour of animal testing” “Impacts of scientific and

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					technological developments on society”
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