FINNISH SCIENCE BAROMETER 2004

Finnish Society for Scientific Information

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1 AIM OF THE SURVEY; CHARACTERISTICS AND REPORTING METHODS

The Science Barometer 2004 survey uses extensive national data to establish how Finnish people relate to science. Subjects surveyed were different aspects of the production, quality and importance of scientific information. The benefits and risks involved in scientific and technological development and the moral and ideological perspectives of science were also assessed in the study. Even though the perspective is primarily national, an international and global frame of reference was used in the study.

Changes in opinion are also studied. This comparison was made possible by research data collected three years ago. The Science Barometer 2001 contains methods and data which are comparable with this year's data. The survey will be carried out repeatedly in the future and the project will monitor changes in national opinion in the longer-term.

The study is empirical and the data was produced using scientific methods. There is no definition of what is and what is not science in the questionnaire. Conceptually, the study uses the colloquial language of public debate and the media.

The survey data was collected with a written questionnaire between April 21 and June 30, 2004. The target group was 2,500 people randomly selected from the population register. The people were aged 18-70 and represented the whole country (except Åland). The sample covers 42.2% of the gross sample. The internal structure of the data is correct and representative. The data is relatively representative of the average population in Finland in terms of the key demographic, social and regional factors. The confidence interval, i.e. the error margin for the entire study on the breakdown, is about 2-3 percentage points each way. The margin is greater in the results of sub-groups, depending on the size of the group.

The study was commissioned by the Finnish Society for Scientific Information and carried out by Yhdyskuntatutkimus Oy. The researcher in charge of the study was Pentti Kiljunen. Like the previous study, the research data of this study will be stored in the Finnish Social Science Data Archive (FSD, Unit at Tampere University). The material stored there can be used for scientific research and teaching.

2 INTEREST IN AND INFORMATION ON SCIENCE

In the report qualitative and quantitative interest in scientific subjects and sources of scientific information are examined first. The latter part of the study is made up of opinion, attitude and the evaluation of comments on science.

2.1 Interest in scientific issues

The relationship of Finns to science was first established by mapping interest in scientific issues. Respondents were asked to explain how interested they were/how actively they followed news, programmes and writings on a variety of topics.

There are a number of paradoxes relating to the issues which are considered the most and least interesting. Societal affairs are generally considered to be interesting (73% reported strong or average interest), but running them is not; only two out of five (40%) are interested in politics. Economics and related issues come even below politics. All in all, 'heavy' and 'light' subjects of interest were very mixed up in the comparison (Figure 1).

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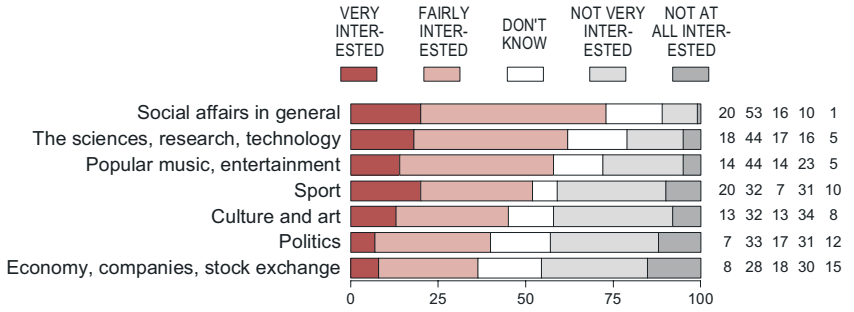
Figure 1. HOW INTERESTED ARE YOU IN/HOW ACTIVELY DO YOU FOLLOW NEWS, PROGRAMMES AND WRITINGS ON THE FOLLOWING TOPICS IN THE MEDIA? (%)



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A clear majority (62%) report that they are very interested in science, research and technology issues. Although this figure may be boosted slightly by the social acceptability of the sciences, the fact that the subject areas overlap to a certain extent should also be taken into account when they are compared. Science is a broad phenomenon, in the same way that history is (even though not everything is history, everything has its own history), and extends to all areas of life.

There are also differences in the nature of the subjects to be assessed that must be taken into account when the results are interpreted. The rate of activity involved in following the different subject areas varies. For example, following sports and popular music is often more a case of 'being subjected to it' than an active self-motivated activity. Even the extent of what is on offer within the different subject areas is completely different. The definition of 'technology' may also have a certain significance in the assessment: some people may consider the definition to refer to all types of interesting technical equipment.

Interest in economic issues is strongly linked with interest in science. Interest in politics, social affairs and culture also clearly increases when interest in science grows, but interest in sport, light music and entertainment decreases. Differences are not, however, especially great.

Change in how actively scientific issues are followed

Changes are rather insignificant compared with the results of three years ago. The most significant change affects sport, which people are less interested in than before. There is also less interest in the economy, corporate affairs and issues related to the stock exchange. The break-down for science is now exactly the same as it was in 2001.

Differences between population groups

Interest in science (science, research and technology) is slightly greater among men compared with women. Younger people are the most interested in scientific issues; interest grows steadily in an almost linear fashion. There is a clear link with level of education. The highest amount of interest is shown by those with an academic education of which more than four out of five (85%) report following scientific issues. Of the educational sectors, those who have an education in technology/natural sciences showed the highest amount of interest.

2.2 The distribution of interest in science

Interest in science was also measured from a qualitative perspective. Respondents were asked how actively they followed/were interested in different types of issues associated with science and research. In addition to the scientific fields that were mentioned, issues that indicated a general interest in science were also assessed.(Figure 2).

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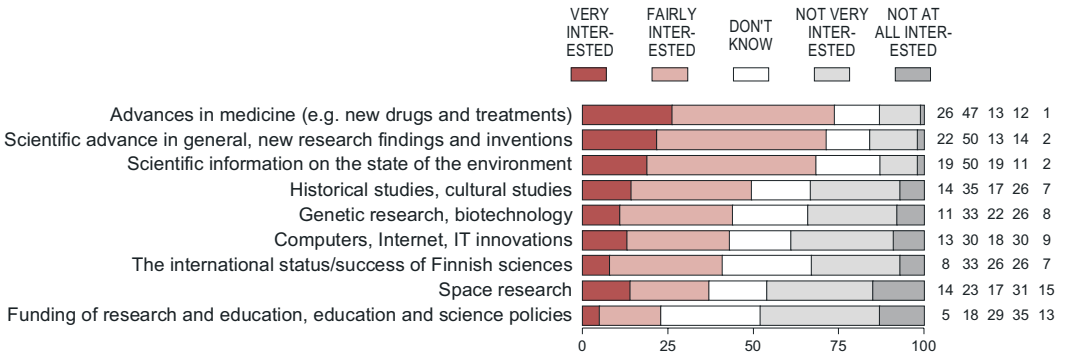
Figure 2. WHAT ABOUT MORE SPECIFIC ISSUES RELATED TO THE SCIENCES AND RESEARCH? HOW INTERESTED ARE YOU IN/HOW ACTIVELY DO YOU FOLLOW THE TOPICS LISTED BELOW? (%)



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Medicine is considered to be the most interesting subject area.Three out of four (73%) reported an interest in this subject and were interested in the development of new medicines and types of treatment, for example.

Environmental research was considered almost as interesting as medicine (69%).The great majority of Finns have a general interest in developments in science, new research results and inventions(72%). There was slightly less interest in historical and cultural studies (49%), genetics and biotechnology (44%) and information technology (computers, Internet, advances in information technology, 43%). The least interesting discipline (of those named) was space research (37%). Interest in issues related to science policy (funding of research and education, education and science policies) was comparatively low (23%).

Changes in the distribution of interest in science

A fairly stable order emerges when these results are compared with the previous ones. The most significant change is within information technology ('computers, Internet, advances in information technology). Interest in this area has slightly decreased from 2001, which is interesting if you take into account the information technology developments that have taken place at the same time. The reason for this may well be the fact that information technology has become less exciting as it is now part of our everyday lives.

Differences within population groups

There is considerable variation in the results within population groups. Even gender is a factor that clearly divides results. Medicine and genetics, in particular, and even cultural and historical research and environmental research interest women more than men. Men are clearly more interested than women in information technology and space research and to some extent also in new inventions and research results in general.

All population groups have a broad interest in developments in medicine. Interest in information technology increases with level of education and decreases with age. In comparison, there is relatively little difference in the amount of interest in information technology in different regions and municipalities of different sizes. Interest in research data on the environment is relatively widespread and comparatively equal throughout the entire population.

Interest in genetics is most common among women, the highly educated and those with an education in social welfare and health care. There is proportionally more interest in historical and cultural studies among the more educated and those who have been educated in the humanities. More men, young people and those with a technology/natural sciences education are on average more interested in space research. People with academic educations were pretty much the only people who followed issues related to science policy.

2.3 Sources of scientific information

In addition to amounts of information and subject areas, respondents were also asked to assess how important different sources of information were for providing information on science and research (Figure 3).

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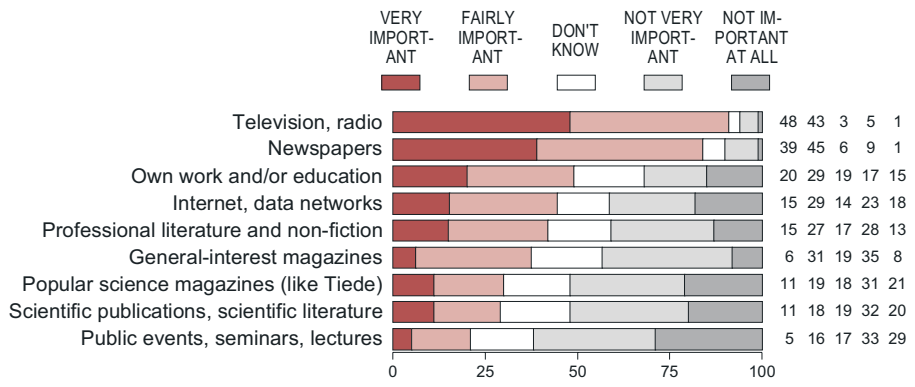
Figure 3. THE IMPORTANCE OF SOURCES OF INFORMATION AS SUPPLIERS OF INFORMATION ON SCIENCE AND RESEARCH (%).



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Mass media are by far the most important source of information. Radio and television (91% consider these at least fairly important) are considered to be slightly more effective than newspapers (84%) as a source of information. One in two respondents (49%) name their own work or education as their information source. The role of professional literature and non-fiction is, likewise, not unremarkable (42%). Just ahead of this is the Internet and data networks (44%). 37% name general-interest magazines as their information source. By this yardstick, the least significant sources include various public events, seminars and lectures (21%), plus scientific publications and scientific literature (29%).

This finding should not be interpreted as an indication that tabloids are better sources of science-related information than academic libraries. The figures only reflect the channels' usage frequency, and not the informative content offered.

Changes in information sources

There is also very little change in the results in this section compared with the earlier study. The most significant change is with the status of the Internet and data networks. The percentage stating these to be their source of information has grown by 7 percentage points over the past 3 years (from 37% to 44%). Scientific publications are also mentioned slightly more often than previously. The importance of mass media (newspapers, television and radio) — while still by far the most important — has decreased rather than increased. Interest in general-interest magazines has also decreased. Interest in magazines reporting on advances in science, like *Tiede* ('Science'), has remained the same.

The increase in the importance of the Internet can be seen in the values held by all population groups. Its importance has grown for men and women, the young and old and people with different educational backgrounds (Figure 4).

Differences within population groups

Gender does not affect the use of information sources very much. The importance of data networks is related to age. Young people clearly rely on the Internet. The importance of work, education, profession and scientific literature as well increases more for the younger age groups on average.

Level of education correlates with the use of most sources of information. Those with a high level of education get their information from studying and work and professional literature. The significance of data networks also clearly grows as level of education increases.

The Internet has increased in importance as a method of communication. The breakdown of population groups shows that in addition to age and level of education, which have already been mentioned, interest in the Internet is also strongly dependent on factors linked with socio-economic position and demographic factors. Even at its current level, use of the Internet is a factor of inequality that strongly divides the population and groups within society.

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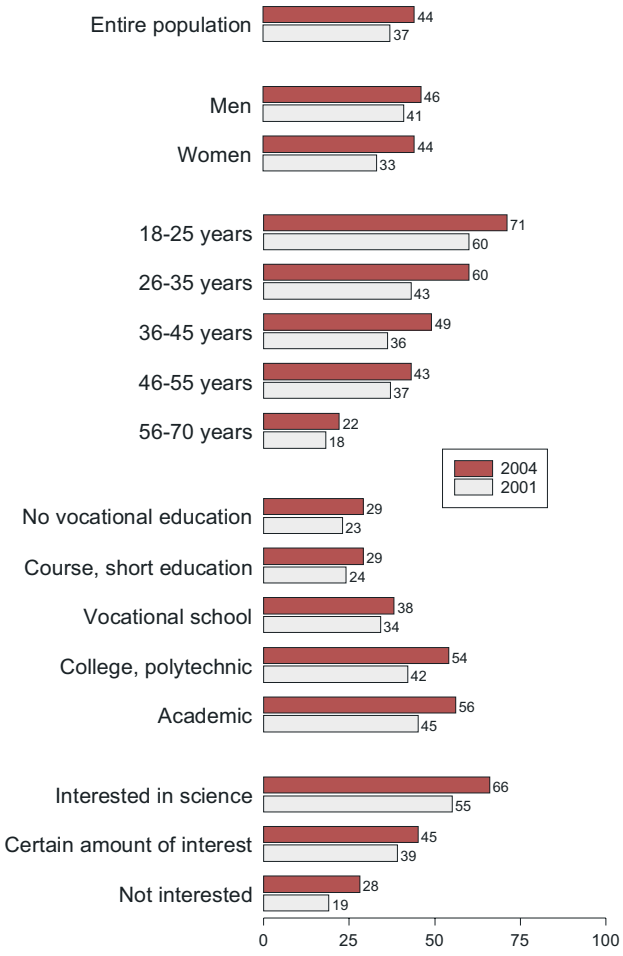
Figure 4. THE IMPORTANCE OF SOURCES OF INFORMATION: INTERNET WITHIN DIFFERENT POPULATION GROUPS IN 2001 AND 2004 (very interested or fairly interested, %).



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3 OUTLINE OF SCIENTIFIC ACTIVITY

The latter part of the report is made up of the evaluation of various issues. It focuses on numerous subjects such as the appreciation for science and scientists, confidence in scientific information and the producers of this information, the standard of Finnish science and research and the consequences, benefits and risks to society from scientific advances.

3.1 Confidence in science and research

The degree of confidence that respondents have in science was studied first to provide background information for their concrete opinions on science. The respondents were asked how far they trusted various national institutions and actors. The location of extreme points on the confidence profile graph was similar to the usual findings of national and international studies. Organizations in charge of security inside and outside Finnish borders enjoy most confidence: 83% of the respondents have fair or average confidence in the police, while 8% have little confidence, and the corresponding figures are 75%/10% for the Defence Forces (Figure 5).

Science, both as an institution and as named organizations, enjoys what could be called great confidence. All of the bodies associated with science and research that were assessed scored top marks in the comparison. Universities and other institutions of higher learning take pride of place and enjoy almost as much confidence as the Defence Forces. More than two out of three (70%) respondents express great confidence in institutions of higher education and only one in ten (9%) expressed little confidence. Among the scientific and research organizations mentioned, the Technical Research Centre of Finland (VTT) has the highest score (64%/8%). The results for the Academy of Finland (50%/12%) and the National Technology Agency (Tekes) (48%/14%) show that respondents also have considerable confidence in them, but their position in the comparison is undermined by the lack of public awareness (a lot of "don't know" answers).

Changes in confidence in science and research

The comparison of the results as a whole demonstrated that confidence has increased slightly. There is at least a slight increase in confidence in many of the different actors. Even the figures for political parties and institutions (political parties, government, EU), while they still show lack of confidence, show more overall approval than three years ago. Confidence in science and research has remained widespread and strengthened rather than weakened.

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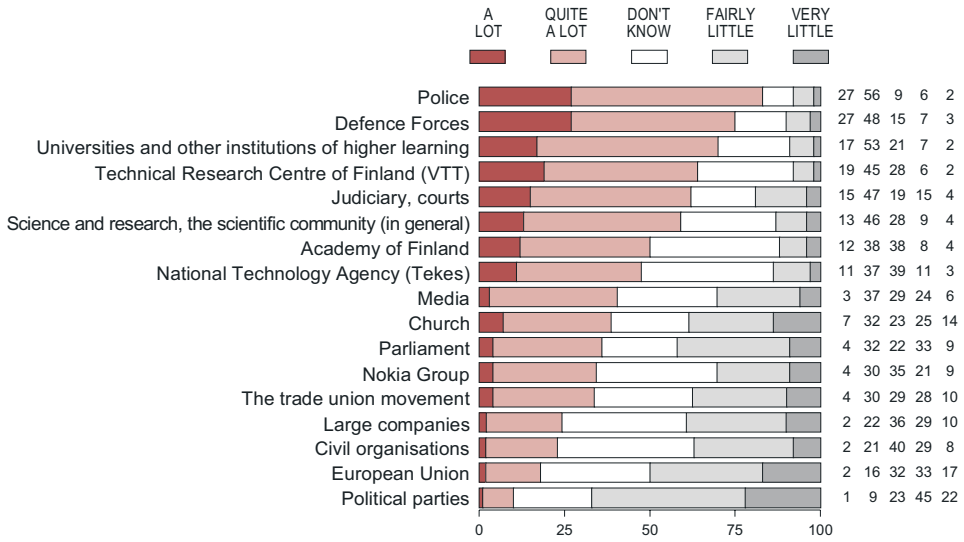
Figure 5. THE FOLLOWING IS A LIST OF NATIONAL INSTITUTIONS. HOW MUCH CONFIDENCE DO YOU HAVE IN THEM? (%)



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Differences within population groups

Confidence in different actors is consistent throughout all population groups and confidence in science is also consistent in general.

3.2 The state of science — how good or bad things are

A series of questions assessing the standard of the sciences provides a somewhat more tangible and defined idea of people's attitudes towards the sciences.The general image is unambiguously positive.The standard of medicine (88% of the respondents thought it to be good or very good, 1% to be very bad or rather bad) and technology (85%/1%) were valued highest. The standard of the sciences and research in Finland is also thought to be good overall, with almost four out of five (78%) respondents giving them good overall marks and only very few (2%) giving bad marks. Seven out of ten (71%/3%) believe that the sciences are well capable of standing up to international comparison (Figure 6).

This positive view is also evident when the general development of science is assessed. Half of all respondents regarded development in recent years as positive (50%). About the same number (51%/6%) have positive expectations of the future developments in science.

The ability of the sciences to produce reliable and valid results is widely accepted (61%/4%%). A question asking whether respondents believe these results concern the right issues creates more uncertainty; only one in three (31%/16%) think that research is targeted at essential, important issues.

Respondents were mostly unanimous in their assessment of the usefulness of the sciences to society and the economy (57%/9%). There are, however, reservations concerning the usefulness of sciences for people's everyday lives and wellbeing (43%/15%).

The main trend for the assessments of the ethics and morals of the sciences is also positive. There was a considerably greater number of positive assessments (48%) than negative assessments (8%). A considerable number (44%) have no opinion on the subject. There seems to be a lot of uncertainty about the independence and impartiality of research, too (47%/8% while 48% refrain from taking a stand).

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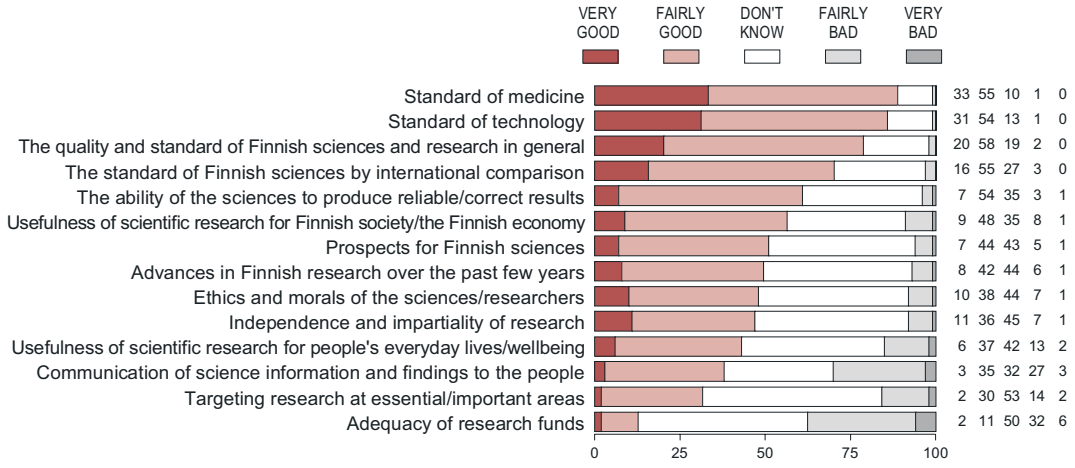
Figure 6. HOW GOOD OR BAD DO YOU FIND THE FOLLOWING ISSUES RELATED TO THE SCIENCES AND RESEARCH IN FINLAND? (%).



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The sciences themselves are not directly 'responsible´ for the issues that were less positively assessed. There is clearly more negativity in assessments linked with adequacy of research funds (13%/38%) and whether people were informed sufficiently about the sciences and their findings (38%/30%).

Changes in assessments of the state of science

The most obvious change compared with the figures of 2001 can be seen in the assessment of ethics and morals. The proportion of positive results has increased by 13 percentage points and negative results have decreased by 12 percentage points. A shift that is almost as obvious as this can be seen in opinions on how independent and impartial the research is.

There is a slight increase in confidence in the ability of science to produce reliable results. The same is also true for perspectives relating to the usefulness of science to people's everyday lives.

Differences within population groups

There is practically no difference in the way that men and women rate the quality of science. Men are slightly more positive about the usefulness of the research and quality of technology, among other things. Women are slightly more positive in their assessment of the quality of medicine and things related to how information on science is provided. Age also has relatively little significance on opinion. Education affects opinions slightly more and figures generally become more positive the higher the level of education.

3.3 The ability of science to solve problems

The survey also charted expectations concerning the import of scientific research. The issues to be assessed were related to the great questions concerning humanity from a global perspective without concentrating in particular on Finnish science.

Expectations were optimistic, but not excessively hopeful. Even though science is expected to benefit many important issues, there is also great pessimism regarding certain issues (Figure 7). The greatest consensus was on the ability of science to help mankind overcome illness (cancer, AIDS and SARS were mentioned as examples). More than four out of five (82%) consider the chances to be (either very or quite) good, less than one in ten (7%) consider that there is no real chance of this.

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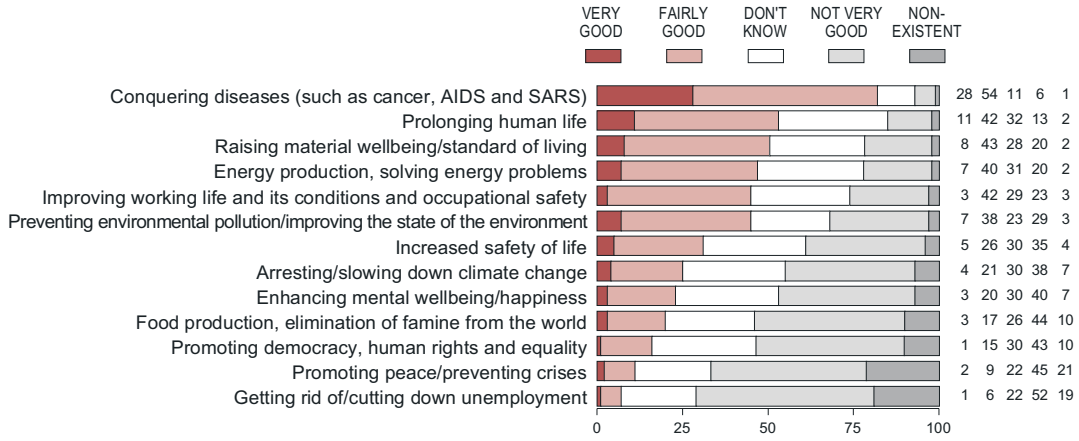
Figure 7. THERE ARE MANY OPINIONS ON THE SCIENCES' ABILITY TO SOLVE PROBLEMS OR IMPROVE PEOPLE'S LIVES. HOW DO YOU VIEW THE SCIENCES' CHANCES OF SOLVING OR RELIEVING THE FOLLOWING PROBLEMS? (%).



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The subject area which took second place is also health-related: increasing the length of the human lifespan (53%/15%). Remarkably many think the sciences capable of improving people's wellbeing. However, these optimistic views concern material wellbeing and standard of living(51%/22%); as enhancers of mental wellbeing and happiness, the sciences are considered fairly ineffectual (23%/47%). The sciences are not really expected to improve the safety of life; the results for that are more pessimistic (39%) than optimistic (31%). The reason for this is likely to be the notion that even though advances in science remove many threats, new ones are brought along with it.

Nevertheless, science is considered to have the potential to improve occupational safety and working conditions in general (45%/26), but science is not expected to be able to get rid of/cut down unemployment (7%/71%).

The findings on the state of the environment are perceptibly polarized. People who believe that the sciences can prevent environmental pollution or even improve the condition of the environment (45%) outnumber those who do not share that opinion (32%). Asked to assess concrete environmental threat, the respondents grow gloomier; only 25% think science may be able to find the means to arrest or slow down climate change. Nearly half the population (45%) are sceptics.

People are more positive in their assessment of science's chances of solving energy questions. About one in two (47%) believe that science will be able to provide significant help for problems associated with energy production. A good fifth (22%) are sceptics.

Like their views on unemployment, Finns are least hopeful about the chances of science promoting peace and preventing wars and crises (11%/66%). They are almost equally pessimistic about food production and elimination of famine from the world (20%/54%). The same can be said about the advancement of democracy, human rights and equality.

Changes in the ability of science to solve problems

There are only a few changes here compared with the results of 2001. Opinions on food production, elimination of famine from the world and curing illness are slightly more optimistic than before. The same can be said for the ability of the sciences to improve mental wellbeing/happiness.

There is a slight increase in scepticism in the figures concerning the chances of science promoting peace, preventing wars and crises and improving working life, occupational safety and working conditions.

Differences within population groups

Opinions on science's chances of solving problems are very similar within different population groups. Men are slightly more confident that science will be able to solve problems to do with the environment and energy production and to improve the material quality of life. Women are more confident that science will be able to cure illness. Results are not especially dependent on age but younger people on the whole are rather more optimistic than older people. This can be seen most obviously in the assessment of science's ability to solve energy questions and produce material wealth.

This assessment is exceptonal in that opinions do not become more positive in all areas with an increase in the level of education. For example, the more educated are less likely to believe science's chances of improving life security, increasing happiness and preventing wars and crises.

3.4 Other opinions on science — putting things into specific terms and additional perspectives

The research data includes a section made up of an extensive range of questions in the form of statements. The aim of this, in addition to trying to determine Finnish attitudes on subjects related to science, was to supplement and check the information gained from the other questions and map the subject areas that were not included.

The thirty-three statements for gauging opinions that were presented to the respondents in random order have been put under seven sub-headings. Because the subject area is typically one in which "everything is connected", areas of assessment unavoidably contain data which are interrelated. When assessing the statements, it is important to keep in mind the fact that it is the wording of the statements that prompts the reactions and this does not happen for direct questions. The formulation of the questions, as is usual for this type of research, is sometimes very direct and populist — exactly like the debate from which they are taken.

3.4.1 Evaluation of science and its relevance to wellbeing

The questionnaires produced results showing that the population in general have a high degree of confidence in the sciences and that they value the standard of scientific research in Finland. The results from the reactions to the statements support these observations. As many as four out of five (80%) agree with the statement that "*effectiveness and high professional skill are characteristics of sciences and research in Finland*". Hardly anyone disagreed with this (3%). The break-down of opinion has pretty much remained unchanged since 2001.

There are more differences in opinion regarding the general significance of science to wellbeing. Almost every other respondent (46%) agreed that "*wellbeing in Finland depends significantly on the level of our scientific and technological research*". About one in four (23%) disagree with this. The same results were produced three years ago.

The concern that science is not used to its full advantage is indirectly connected with the valuation of sciences. More than one in two (61%) believe that "*not enough information from scientific research is used in political decision-making*". The opinion that research data is 'wasted' has become slightly more widespread, it has increased by five percentage points since the last survey. Even though this shows slightly more criticism to-

wards society, it can also be interpreted as positive towards scientific communities because it points to a growth in the demand for scientific data and the desire to benefit from this data.

When the level of Finnish science was officially assessed (Academy of Finland study, 2003), the relatively low level of participation by foreign researchers in Finnish research and development was regarded as being one problem area. At the same time there is concern for the fact that Finnish researchers are leaving the country to go abroad. More than half (55%/19%) agree with the statement *"the brain drain of the highly educated is a serious threat to Finnish science"*. The more educated do not consider this to be as real a threat as other respondents on average.

A majority (53%) also agree with the statement that *"an increase in the number of foreign researchers would be advantageous for the development of science in Finland"*.

3.4.2 Science funding, the focus of resources

A clear majority (70%) believe that *"despite the fact that scientific research uses a lot of economic resources, it is worth investing in as it is beneficial for society"*. Those who disagree with this are few and far between (5%). Over the past few years there has been no decrease in the numbers of those who agree with this statement. There is most widespread agreement with this argument among academics. Not one group of people consider spending on sciences to be a waste of money.

Even though it is understood that science needs funding, which it also receives, the question is what kinds of research these funds should be directed into first. Short-term and openly profit-seeking research is heavily criticised. The statement that *"research funds should be directed exclusively towards the most economically profitable and beneficial areas of science"* is clearly rejected (19%/59%).

At the same time basic research is strongly defended. Three out of four (74%) agree with the statement that *"even though so called basic research does not produce direct economic benefits it is vitally important because it is essential for all types of applied research"*. Only a very small minority disagree with this (2%).

Those who prefer basic research do not necessarily believe that science should function separately from the rest of society. There is widespread

agreement (62%/5%) that *"the increased cooperation of universities with businesses has provided a big boost for the development of Finnish research".*

3.4.3 Risks and threats

Science is not always considered to be a good thing. A general worry has always been that developments take place too quickly and people and society are not able to keep up with these changes. There was more agreement (49%) than disagreement (26%) with the statement that *"developments in science and technology change people's lives and way of life too quickly".*

There are visible differences in the opinions of population groups. Fears decrease with the increase of educational level. Young people are less bothered by the speed of change. Effects on way of life caused by scientific and technical developments worry women more than men. Another general statement according to which *"the development of science and the use of new inventions creates as many problems as it solves",* has an almost equal amount of support as opposition (33%/30%). Three years ago there was significantly more support (8 percentage points) for the statement.

One main type of worry about science has traditionally been based on the idea that advances in science, in particular technology, will give science the upper hand over people. Even the statement according to which *"science and technology are becoming a ruler over humans rather than their servant"* is not especially disputed. On the contrary, more respondents (41%) agreed with the statement than disagreed (34%).

A new statement partly linked with this theme was included this year; *"computers will become as intelligent as humans in the next few decades".* More people disagreed (44%) than agreed with this statement (21%). The disagreement is fairly strong as the statement says that the computer will become as intelligent, not more intelligent than the humans who programme it.

There is a wide spectrum of fears associated with public debate on science ranging from the outbreak of killer viruses to loss of democracy. A good third (35%) agree with the opinion that *"the development of science will lead to the increase in technocracy (domination by experts) in society".* About one fifth (21%) disagree with this. Concern has weakened slightly

compared with the previous survey. At the same time, having an opinion on this issue has become even more difficult than it was before with 44% having no opinion.

3.4.4 Science and world view

About one in four (28%) are of the opinion that *"there is no conflict between a science-based world view and religion"*. Significantly more people disagree with this opinion (42%).

Another statement was directly linked with the conflict in values connected with scientific development. Every third respondent (33%) was of the opinion that *"the belief in science has become a new religion which directs the human set of values in the wrong direction"*. The same amount of people dispute the argument(33%). Criticism of this argument has decreased rather than increased.

3.4.5 Ethics and morals of science

The ethics and morals of science can be examined from the perspectives of research subjects and aims, methods of research used and researchers' individual ways of working.

Of all areas of research, genetics has become by far the most topical subject. Public opinion varies considerably for this issue. A good two-fifths (43%) agree with the statement that *"even though there are risks involved in genetic technology (e.g. genetic modification), research activities linked with this are of great benefit to the human race"*. About one in three disagree (30%). The result is pretty much the same as it was three years ago.

On average, the highly educated have a more positive attitude to genetic technology. In all the educational fields, the highest number of positive results come from those with a technology/natural sciences educational background. Men are more positive than women. Criticism increases noticeably the younger the respondent.

The other statement on genetic research produces a more unambiguous result. The great majority (79%/10%) believe that *"human cloning projects should definitely be banned in every country"*. Consensus on this issue even extends to those who agree with other areas of genetic research. Women are more outright in their opinions than men.

The third statement for measuring opinion on genetics was new and mapped the attitude to genetically-modified food. There is little support (16%) for the statement *"there is no need to fear genetically-modified food as it is safe for humans and the environment"*. Even though 35% didn't know what to think, the largest percentage of respondents disputed the statement (49%). Women and young people are more reserved in their opinion than men.

The statement on animal testing has more approval. Two out of three (66%) agree with the statement that *"even though there are ethical problems associated with animal testing, the tests produce such valuable results that they should not be banned completely"*. Slightly more than one in five (22%) disagree.

The statement on the individual actions of researchers, *"cases of misconduct by scientific researchers are exceptions and all researchers should not be tarnished by this"* is agreed with by more than three out of four (77%). Only one in twenty disagree (5%).

Differences in opinion depending on population groups are rather few. All groups broadly agree with the idea that cases of misconduct are exceptions. The highly educated most strongly agree with the statement.

The statement according to which *"the scientific community in Finland operates responsibly and knows its social responsibilities"*, is agreed with by almost two out of three (63%). Hardly anyone disagrees(5%).

3.4.6 The status of alternative science and quasi-science

In addition to science and the information that it brings with it, there is a wide spectrum of doctrines of a quasi-scientific and religious nature that compete for people's attention. These so called quasi, pseudo, false and alternative sciences all have in common the fact that they all present a convincing, scientific-sounding argument and eloquent explanations for even the most curious phenomena.

The study investigated the credibility of six doctrines which are not recognized by science. The results suggest that the doctrines have a certain power of penetration among respondents. About every other respondent

(52%) agrees with the statement that *"so-called nature healers have knowledge and skills that medicine does not have".* About one in four (23%) disagree with the idea.

Two new statements were added for the subject of alternative medicine. Most respondents do not know what to think about the statement *"even though homeopathy is not recognised by medical science, it is an effective way to care for illnesses"* and 42% have no opinion on this. Slightly more (31%) agree than disagree (25%) with this opinion.

The new statement which measures opinion on natural remedies does not produce any clear opinion. *"Natural remedies are in many cases better than medication from the pharmacy which has been prescribed by a doctor".* About one third (30%) agree that natural remedies work and more than a third disagree (39%).

The majority (61%) disagree with the statement that *"even though horoscopes printed in newspapers are mainly entertainment, there are also reliable horoscopes which are based on in-depth astrological knowledge".* Almost every fifth respondent (18%) agrees with the statement and there is also a significant number who are unsure what opinion to take on this issue (22%).

A majority of respondents also do not believe in UFOs. About one in five (17%) agree that *"even though sightings of UFOs have not been scientifically verified, it is clear that we have had visitors from outer space".* Every other respondent (47%) disagrees while 35% don't know.

Telepathy is dealt with under the subject of parapsychology. The new statement for this, *"telepathy is a real phenomenon even though it has not been possible to scientifically verify it",* divides the respondents into three almost equal groups. A good third (36%) agree, another third (33%) don't know and the last third (30%) disagree.

Another statement has also been added to this year's survey, *"climate change is a real and serious threat and political decision-makers need to take effective action against it".* The great majority agree (84%) with the seriousness and validity of the statement. All population groups agree with the statement to the same extent. Disagreement with the statement does not rise above 10% in any of the population groups.

3.4.7 Science, Finnish people and civil society

The final part of the survey investigates opinions which are linked with the relationship between science and Finnish people on a general level. Interaction is assessed from the perspectives of mutual distance, influence and communications. The statement according to which, *"science is too isolated from the rest of society in its 'ivory towers' and does not have enough contact with people's everyday life",* is agreed with by almost one in two (49%). About one in five respondent (21%) believes that science does have enough contact.

Empirical evidence shows that there has been development in the right direction. Science is not considered to be as distant as it was three years ago. The percentage of critical responses has noticeably decreased by 6 percentage points.

Lack of opportunity to affect science does not greatly account for the feeling of distance. The reaction to the statement *"NGOs, consumer organizations and other organizations which represent the needs of citizens should have more influence on the focus areas of the research funded by public money than they do now"*. Slightly less than half (45%) agree with the statement (which is a science policy goal of the EU) while almost the same amount have no opinion (40%) and the remaining small proportion (15%) are openly against the idea. The results are pretty much the same as in the previous survey.

Even though there are large numbers of respondents per se who want greater opportunities for co-determination, the breakdown can not be considered indicative of a particular need to have influence. The most significant relationship is linked with level of education. Negativity towards the role of NGOs gradually grows as education level rises. This correlation corresponds in a wider sense with the opposition between popular opinion and expert opinions in societal decision-making.

The capacity of respondents to take on scientific knowledge in principle has proved to be significantly broad. This is demonstrated by the opinion held by three out of four respondents (73%) that *"the media should offer more information on science than it does now"*. This demand has remained as strong as it was in the previous survey. This opinion is broadly agreed with throughout society.

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