Publications of the Academy of Finland 3/07

Civilisation cannot be imported

Researcher commentary on the impact of cultural and social research

Academy of Finland
Research funding and expertise

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Academy of Finland in Brief

The Academy of Finland provides funding for high-quality scientific research, serves as an expert in science and science policy, and works to strengthen the position of science and research. The Academy's operation covers all scientific disciplines.

The Academy's development efforts are geared to improving the career opportunities of professional researchers, creating high-quality research environments and taking advantage of international opportunities in all areas of research, research funding and science policy.

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Translated by David Kivinen
Layout PixPoint ky
ISBN 978-951-715-640-5 (print)
ISBN 978-951-715-641-3 (pdf)
Edita Prima, Helsinki 2007

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Kuvailulehti

Julkaisija	Suomen Akatemia	Päivämäärä 5.2.2007
Tekijä(t)	Kulttuurin ja yhteiskunnan tutkimuksen toimikunta, Suomen Akatemia	
Julkaisun nimi	Sivistystä ei voi tuoda. Tutkijapuheenvuoroja kulttuurin ja yhteiskunnan tutkimuksen vaikuttavuudesta	
Tiivistelmä	Kulttuurin ja yhteiskunnan aloilla vaikuttavuus on monisyinen ilmiö, joka ei ole helposti sovitettavissa pelkistettyihin malleihin tai mittareihin. Tutkimuksen vaikuttavuuden tarkastelussa onkin syytä valottaa yhä enemmän laajan ja monimutkaisen ilmiön niitä ulottuvuuksia, jotka saattavat jäädä hämärään vaikuttavuudesta puhuttaessa. Vaikuttavuuden arviointia ei tee helpommaksi se, että vaikuttavuus on lähtökohtaisesti osa kulttuurin ja yhteiskunnan tutkimuksen alojen tutkimustraditioita: tutkimustoiminta näillä aloilla itsessään on yhteiskunnallinen interventio. Raportin metodi, tapauskertomukset toimikunnan rahoittamista tutkimushankkeista, on haasteellinen. Miten tunnistaa yhteiskunnallista vaikuttavuutta, kun käytettävissä oleva aineisto ei helposti tähän taivu. Vaikuttavuuden tasot ja tyylit ovat myös moninaisia, eikä kulttuurin ja yhteiskunnan tutkimuksen kenttä muodosta yhtä homogeenista maailmaa. Raportti on vuoropuhelua tiedeyhteisön kanssa. Yhteiskuntatutkimuksen tuottamat käsitteet näkyvät yhteiskunnassa esimerkiksi erilaisina jäsennyksinä (sosiaalinen pääoma ja luottamusverkostot, tapausesimerkki professori Kirsimarja Blomqvist), joita käytetään myös ohi tieteenalojen. Ne siirtyvät välineiksi arkipuheeseen, kansalaistoimintaan, mediaan ja viranomaistoimintaan. Ne suuntaavat yhteiskunnasta tehtäviä havaintoja ja päätelmiä sekä vaikuttavat esimerkiksi lainsäädäntöön. Yhteiskuntatutkimuksen tieto ja metodit vaikuttavat siihen, miten yhteiskunta toimii, eli niillä on valtaa, mutta niitä ei voi mitata ja niitä ei voi erottaa verrattaviksi tuloksiksi. Tutkimus tuottaa teoreettisia ja metodisia välineitä yhteiskunnallisten ongelmien tarkasteluun, kulttuuristen ilmiöiden jäsentämiseen ja tulkintaan, perustellun ja kriittisen tiedon tuottamiseen ja soveltamiseen. Vaikutus ei ole pelkästään vaikuttamista tutkimus- ja siihen liittyvän asiantuntijatiedon avulla, vaan vaikutusta tapaan, miten yhteiskunta ja toimijuus yhteiskunnassa ymmärretään (tapausesimerkkinä professori Lea Pulkkinen). Raportissa tarkastelun kohteena on ennen muita kulttuurin ja yhteiskunnan tutkimuksen toimikunnan rahoittaman tutkimuksen vaikuttavuus, ja sitä tarkastellaan niin tieteellisen kuin yhteiskunnallisenkin vaikuttavuuden näkökulmista.	
Asiasanat	tutkimuksen tieteellinen ja yhteiskunnallinen vaikuttavuus, kulttuurin ja yhteiskunnan tutkimus, arviointitoiminta, tapaustutkimus, tiedepolitiikka	
Julkaisusarjan nimi ja numero	Suomen Akatemian julkaisuja 3/07	
ISSN	0358-9153	
ISBN	Painetulle kirjalle annettu tunnus 978-951-715-640-5	Pdf-versiolle annettu tunnus 978-951-715-641-3
Sivumäärä	56	
Julkaisun jakaja	Suomen Akatemia, PL 99, 00501 Helsinki	
Julkaisun kustantaja	Suomen Akatemia	
Painopaikka ja -aika	Edita Prima, 2007	
Muut tiedot	www.aka.fi/julkaisut	

Description

Publisher	Academy of Finland	Date: 5 February, 2007
Author(s)	Research Council for Culture and Society, Academy of Finland	
Title	Civilisation cannot be imported. Researcher commentary on the impacts of cultural and social research.	

Abstract

In the fields of cultural and social science research, impact is a highly complex phenomenon that does not lend itself to simple and straightforward models or measurement. Studies into the impacts of research must therefore aim to shed more light on those dimensions of this broad and multifaceted phenomenon that often tend to remain in the dark. The challenge of impact assessment is made none easier by the fact that impact is an inherent and integral part of the research traditions in these fields: research in humanities and social sciences is in itself a social intervention.

The method adopted in this report, i.e. to compile case studies of research projects funded by the Research Council, is a challenging one. How can social impacts be identified when the data available do not easily lend itself to such assessments? The levels and styles of impact are also many and varied, and the fields of cultural and social science research do not constitute a single, homogeneous world. The report is an exercise in dialogue with the science community.

In everyday society, the concepts produced by social science research find expression, among other things, in different kinds of analytical categories (social capital and networks of confidence, the case example of Professor Kirsimarja Blomqvist), which also spread beyond the academic realm. They are adopted in everyday parlance, in civic activity, by the media and by the authorities. They influence the observations made about and conclusions drawn about society and influence legislation, for instance. The knowledge and methods of social science research influence the way that society works: they wield power, but they cannot be measured and they cannot be set aside as comparable results.

Research produces theoretical and methodical tools for purposes of examining social problems, analysing and interpreting cultural phenomena, for producing and adapting justified and critical information. Impact consists not only in exercising influence by means of research and expert knowledge, but also in influencing the way that society and agency are understood in society (case example of Professor Lea Pulkkinen).

The main focus of the report is on the impact of the research funded by the Research Council for Culture and Society, and that impact is considered in terms of both scientific and social impacts. .

Key words	Scientific and social impacts of research, cultural and social science research, assessment, case study, science policy	
Name and number of series	Publication of the Academy of Finland 3/07	
ISSN	0358-9153	
ISBN	Print: 978-951-715-640-5	Pdf: 978-951-715-641-3
Number of pages	56	
Distributed by	Academy of Finland, POB 99, FI-00501 Helsinki, viestinta@aka.fi	
Published by	Academy of Finland	
Place and date of printing	Edita Prima, 2007	
Other information	www.aka.fi/publications	

Foreword: Impact assessment at the Academy of Finland

One of the key challenges set out in the Government 2005 resolution on the structural development of the public research system is to promote world-top R&D in fields that are most relevant to the national economy, to social development and to the well-being of individual citizens. Funding agencies for research are called upon to work more closely in an effort to strengthen the impact of research and innovation funding. The Academy of Finland and Tekes – Finnish Funding Agency for Technology and Innovation, are charged with the task of developing the impact assessment of research and innovation in Finland. Furthermore, the two agencies are to work closely in assessing the impacts of the structural development of the public research system.

The new University Act that took effect in 2005 creates a new task for universities alongside their existing missions of free research and provision of education: this is to have closer exchange and interaction with the rest of society and to promote the social impact of research results and artistic activity. This so-called third function of universities makes impact assessment an integral part of academic research and therefore will have major implications for the Academy – after all over 80 per cent of Academy funding goes towards supporting research at universities.

Assessing the impact of basic research

The main difficulties in assessing the impact of basic research come from the longevity, indirectness, complexity and unpredictability of that impact. The key challenges are as follows:

- Time lag: When should the impacts of basic research be assessed?
- Attribution: What is the precise role and contribution of research to the impacts observed?
- Appropriability: Who benefits from the research funded?
- Complexities: What are the mechanisms and processes involved in generating the impacts of research?

A distinction is often made between the scientific, techno-economic, social, cultural and environmental impacts of research. Most of the work to develop assessment tools has concentrated on scientific and techno-economic impacts.

The assessment of scientific impacts and the development of the necessary tools and methods are among the Academy's basic missions. The most important method of assessment used by the Academy is the peer review by experts in the field concerned. Peer reviews are primarily used for *ex ante* assessments of the scientific quality of research, but they can also be used for *ex post* assessments of the (social) impacts of research and research funding; this is known as the modified peer review. In this case the panel will consist of members who have the expertise and experience to assess the relevance and value of research or research funding from the vantage-point of the end-users and society at large.

Bibliometric methods have become well established over the past ten years as a useful tool for assessing the scientific impact of basic research. They are based on the use of publication data. The Academy has used these methods since the late 1990s in its

assessments of the state and quality of scientific research in Finland. In addition, the Academy applies various other methods for purposes of assessing the social impact of research, such as case study methods, survey methods, science and technology indicators as well as analyses of social networks.

Academy of Finland and the impact assessment of research funding 2005–2006

The aim of the impact assessments conducted by the Academy is to develop the research and innovation system and to develop the Academy's own operation and funding instruments. The Academy works closely with the Ministry of Education to develop methods and procedures for effective impact assessments of research funding. It is committed to respond to the growing need to develop a system that demonstrates the impacts and effectiveness of the Academy's operations in terms of its social benefits.

The Academy has close and well-established cooperation with other actors in the research and innovation system – particularly with research funding agencies, universities and research institutes – to further develop the tools and methods of impact assessment. The Academy is also committed to continue with its proven practices of compiling assessments of the state and future of scientific research in Finland.

As for the development of its own operation, the Academy's primary goal is to integrate impact assessment more closely with the use and development of its funding instruments as well as other activities. In this way the results of impact assessments will have greater influence on key agency operations than could be achieved with periodic ad hoc assessments. The Academy is also keen to integrate assessments of past developments with future forecasting.

This publication is part of the SIGHT 2006 project which is concerned with diverse aspects of the state, quality and impacts of Finnish scientific research. Below is a list of all SIGHT 2006 publications to date.

SIGHT 2006: Evaluations and assessments of the state, quality and impact of Finnish scientific research

Sivistystä ei voi tuoda – tutkijapuheenvuoroja kulttuurin ja yhteiskunnan tutkimuksen vaikuttavuudesta. [Civilisation cannot be imported – Researcher commentary on the impact of cultural and social research.] Suomen Akatemian julkaisuja 5/2006.

Suomen Akatemian rahoittama luonnontieteiden ja tekniikan alojen tutkimus: Arviointi hankkeiden vaikuttavuuksista. [Academy-funded research in the natural sciences and engineering fields. An assessment of project impacts.] Suomen Akatemian julkaisuja 6/2006.

Tutkimuksen vaikuttavuus biotieteiden ja ympäristön tutkimuksen aloilla. [The impacts of research in the biosciences and environmental research.] Suomen Akatemian julkaisuja 7/2006.

Strategisella rahoituksella vaikuttavampaa tutkimusta? Kolme esimerkkiä vaikutusten ja vaikuttavuuden arvioinnista terveyden tutkimuksen alalta. [Can strategic funding increase the impact of research? Three examples of impact assessment in the field of health research.] Suomen Akatemian julkaisuja 8/2006.

Methods for Evaluating the Impact of Basic Research Funding: an Analysis of Recent International Evaluation Activity. Kanninen, S. & T. Lemola. Publications of the Academy of Finland 9/2006.

Akatemian tutkimusrahoituksen vaikuttavuus. Professori Jussi Huttusen johtaman riippumattoman ulkopuolisen paneelin arviointi. [The impact of Academy research funding. Evaluation by an independent panel under Professor Jussi Huttunen.] Suomen Akatemian julkaisusarja, elokuu 2006

Level and structure of Finnish scientific research
Lehvo, Annamaija & Nuutinen Anu: Finnish Science in International Comparison – A Bibliometric Analysis. Publications of the Academy of Finland 15/2006.

Impact at the research system level
Changes in the level and orientation of Finnish competencies: indicator development. Academy of Finland and Tekes. Work to continue in 2007.

Foresighting: FinnSight 2015
Identifies and explores the challenges surrounding the research and innovation system, the development opportunities opened up by these challenges, the focus areas of competence that hold the most promise in terms of their level and impacts, as well as the necessary strategic choices. The joint Academy-Tekes project was organised in ten projects and involved 120 experts from different fields. Two publications in June 2006 and a report in English in August 2006.

Impact in cultural and social research

This report is a joint effort by a working group on impact assessment appointed by the Research Council for Culture and Society and the Culture and Society Research Unit. The working group was chaired by Professor Juha Sihvola and its members were Research Director Päivi Hovi-Wasastjerna and Professors Urpo Nikanne and Anna Raija Nummenmaa. The Chair of the Research Council, Professor Arto Mustajoki, was also closely involved in the preparatory work. At the Culture and Society Research Unit, work was supervised by Senior Science Advisor Hannele Kurki with the assistance of project secretary Marko Niemi. The team from the unit included Science Advisor Tiina Forsman, Science Advisor Siru Oksa, Director Liisa Savunen, Senior Science Advisor Maija-Liisa Toikka and Science Advisor Helena Vänskä. The report was accepted by the Research Council for Culture and Society at its meeting on 16 February 2006.

The process of drafting this report unfolded in several stages. Based on close interaction and exchange with the research community, it included a seminar in spring 2005 under the heading "There's no harm in research being useful", a questionnaire among historians and linguists, and two discussion panels in autumn 2005. The impact report also includes two case descriptions (Professors Kirsimarja Blomqvist and Lea Pulkkinen) solicited from the researchers themselves.

This report explores the meaning of "impact" in the humanities and social sciences: how it is manifested, how it can be identified and also how it can be promoted. Impact is an integral part of the tradition of cultural and social research: research in these fields is in itself a social intervention.

President Raimo Väyrynen
Director Paavo Löppönen

1 The unbearable difficulty of identifying and measuring impact

This report is intended as a contribution to the debate and discussion on the impact, on how to define and measure and above all how to understand impact in different disciplines, particularly in the fields of cultural and social research. Work to compile this report has been conducted as part of a major project dealing with the impact of research, but at the same time it is part of an ongoing debate within the fields concerned. It does not purport to answer all the questions surrounding the impact debate, but it is part of a process aimed at identifying and better understanding the various dimensions of impact and its manifestations.

Questions of impact are particularly complex and multifaceted in the field of cultural and social research, which lend themselves poorly to crude and simplified models and indicators. Future analyses and discussions might help to shed light on those aspects and dimensions of this broad and complex phenomenon that often remain concealed in discussions of impact. The Research Council for Culture and Society first embarked on this debate in its 2003 review of the quality and impact of scientific research in Finland, and the present report is an extension to these early discussions.

In the fields and disciplines hosted by the Research Council for Culture and Society, the identification and measurement of impact is extraordinarily difficult. The task is made none easier by the fact that impact is an inherent and integral part of the research traditions in cultural and social studies: research in these fields is in itself a *social intervention*.

Research produces theoretical and methodological tools for the investigation of social problems, for the analysis and interpretation of cultural phenomena, for the production and application of well-grounded and critical knowledge. Impact is not just a matter of exercising influence by means of research and expert knowledge; it is also about impacting the way that society and agency is understood in society (see the case example of Professor Lea Pulkkinen, Chapter 2).

In everyday society, the concepts produced by social science research find expression in various kinds of analytical categories (social capital and networks of trust, see the case example of Professor Kirsimarja Blomqvist, Chapter 4.1.2), which also have application beyond academia. They are adopted in every parlance, in grassroots civic activity, in the media and by the authorities. They impact observations and conclusions made about society and they impact legislation. The knowledge and methods of social science research impact the way that society works and in this sense they wield power. However, they cannot be measured and extracted out as comparable results. They do not translate into today's language of assessment.

The method chosen in compiling this report – case descriptions of research projects funded by the Research Council for Culture and Society – is extremely demanding. On the one hand, there is the difficulty of how to piece together the various strands into one coherent whole, and on the other hand, the difficulty of identifying social impact in the material available. The levels and styles of impact are many and varied: cultural and social research is far from being a unified and

homogeneous field. The outcome is a dialogue with the scientific community, in which individual researchers are given a strong voice.

The impact of research can be understood in a multitude of different ways if the focus is on the social or scientific impact of research. The main focus in this report is on the *impact of research funded by the Research Council for Culture and Society*, which is studied from both a scientific and social point of view.

1.1 The challenges of identifying and measuring impact

The concept of impact in science and research is in itself very vague and difficult. The problems are only compounded when we turn to the measurement of impact. The risk here is that the main attention goes to secondary, concrete achievements that can be measured with some degree of accuracy, while the truly significant impacts remain sidelined in the absence of reliable quantitative methods. While this does satisfy the thirst for impact indicators, doubts arise as to whether these indicators really describe relevant phenomena and chains of impact. A further difficulty in demonstrating longer chains of impact is that research results never shape and steer social development in a vacuum; whenever such impacts occur, they are the combined effect of many contributing factors. However, for science and researchers it would be extremely useful if we could gain a clearer insight into the chains of impact that are at work in research. Many studies that are seemingly "useless" will in fact prove to have at least secondary impacts even outside academia – so long as we are prepared to take this point of view.

Measurements of impact are usually confined to whatever is thought to be measurable. Within academia, publications are widely regarded as an indicator of the standard of research and, indeed, as a condition for scientific progress and development. And of course this is true – no unpublished idea can count as science. However, the true test of publications lies in their reading and citation. Science does not develop through publications that other researchers do not find interesting. It is also noteworthy that even within the scientific community, publications are not the only channel of exercising influence. One of the ways in which researchers can significantly influence the development of their discipline is through various evaluation and review assignments. A particularly important channel of influence both on society and on the scientific community is through one's teaching and one's own students.

The channels and avenues of impact in research are highly complex: everything has an impact on everything else. It is probably safe to say that there is a consensus about the ultimate aim of social impact, which is to increase welfare and well-being among people. The welfare of the environment, business and industry, and the public sector are secondary to this objective. So how does research contribute to the achievement of this aim?

There are various different areas and objects of research, such as the *natural environment*. Then there is the *human-made physical environment*, which includes at least buildings, villages and cities, machinery and equipment. The *mental environment created by humans* comprises various organisations, such as businesses, the school system, public administration units, the church and other collective human activities. The activities that are known as culture, arts and science also fall under this heading.

Furthermore, *humans* themselves constitute an object of research, both as a biological phenomenon and as an intellectual creature with different sets of values and patterns of behaviour. In addition to these areas of research, there is still a range of basic sciences that impact people's world-view but first and foremost lay the groundwork for research. These include mathematics, basic physics and certain philosophical disciplines. Cell and genetic biology can also be included in this category, although these lines of research could be seen as an investigation of the natural environment as well. Although these disciplines rarely have a direct impact on society, this does little to undermine their weight and impact, quite the contrary: the secondary impacts of research may often be much greater. In general, it is difficult to think of any research result that has no use at all. If there is any inclination to think otherwise, that probably has to do not so much with the futility of the research and its results as with a lack of imagination on the part of their end-users.

Who, then, can make use of research knowledge? Again, end-users can be crudely divided into such categories as *business and industry, the public sector and the individual* (private citizen and employee). There is no direct correspondence between objects of research and their end-users, but anyone can use the research knowledge extracted from different areas. Business and industry needs not just technical research on the human-made environment or research in the natural environment, but it is equally interested in information about how different kinds of organisations work and about the laws of human behaviour. In the same way, the public sector makes use of research in a wide range of different disciplines. This should be reflected in decision-making and legislation at different levels.

The choices and lifestyles of individual citizens are also impacted by knowledge about the human being, about the values of other people and the laws of nature. Indeed, the most direct route to promoting the welfare and well-being of people is by targeting people themselves. The development of people's world-views is bound to have an impact on their behaviour as well. This is not, however, only about the individual's best interests, but the best interests of society as a whole. If people behave sensibly, that will have a positive impact not only on their life, but it will also benefit public administration, services and production plants. Furthermore, if people behave sensibly in their roles as citizens, that will reflect favourably on democracy, which in turn creates a solid foundation for sensible action on the part of society. This, obviously, is a simplified description of the causal mechanisms involved – but this is nonetheless the principle.

Research knowledge does not flow to its end-users out of its own accord, but intermediary agents are needed to carry and communicate that knowledge. Schools and the media have an important role in this. It is clear that the impacts of education in the school system in particular take a long take time to filter through. On the other hand, if schools succeed in this task, then the social impacts can be huge. When research does not automatically generate the information required by end-users, the process can be speeded up by means of commissioned research, which is a favoured strategy especially in business and industry. The broader adoption of that same strategy in the public sector would certainly be useful. Knowledge is also exchanged among end-users themselves. However, the information provided by public organisations often fails to get through, primarily because of intense competition from entertainment noise.

In some cases it is possible to trace the research result behind a new innovation. It can also be patented. On the other hand, even these achievements are rarely the work of an individual researcher or research team, but they are usually grounded in a wider stock of knowledge and skills. An innovation does not automatically translate into practical impact either; impacts do not come about until that innovation is converted into a product or service that is actually used by people. This development effort requires a knowledge and understanding of the laws that govern people's behaviour, and for purposes of cost-effective production it is also necessary to know how human organisations work. A good example of this kind of innovation is provided by the cholesterol-lowering margarine product *Benecol.* The journey from the scientific breakthrough to the breakfast table has been a hard and tortuous one. Obstacles have been posed not only by consumer attitudes, but also by legislation and the rules that govern the marketplace.

More often than not, the chains of impact are even more complex than described above, or than the story of *Benecol* suggests.

Let us take another example, that of smoking, which is not about the development of a new product but about demonstrating the adverse health effects of a product that is widely used. In this case the temporal and economic frameworks are of a different magnitude altogether. The medical evidence on the health hazards of tobacco has been the vantage-point for everything, but true social impacts have been achieved only when this evidence has affected people's behaviour. This has required a great deal of legislative work and education. Nonetheless, there is still a long way to go before the ultimate goals are reached. The demonstration of the health hazards of smoking provide a useful example for the consideration of how the impacts of research can be measured. Those impacts cannot be achieved simply by the publication of the relevant research results, but that must be coupled with a political will and a sense of collective responsibility. Now that the medical evidence on the risks of tobacco is beginning to reach saturation point, the achievement of greater impact will require more research into why this evidence is not reaching its targets – or if it is reaching its target, why are people not responding. We do, of course, have some everyday knowledge about the mechanisms at play, but it is useful to compare the situation with the medical evidence: early suspicions that tobacco might be harmful go back quite some way, but it was only with the findings from large-scale surveys that the legislative work got under way.

Recently, a lot of research has been published on Finland's relationship with the Soviet Union. Did Finland cozy up to the Soviet Union; to what extent did it do so and why? What possibly could be the significance of this research, apart from inspiring debate within the research community? The impacts may be very significant indeed. If this kind of knowledge can have even a minor impact on the nation's self-esteem, that alone implies huge secondary impacts. If, on the other hand, this kind of research opens up new perspectives on Finland's geopolitical position, that may have a bearing on the future choices and decisions made by our country regarding both alliances with other nation-states as well as disputes and the resolution of disputes with other states. These kinds of issues tend to be especially acute in situations where a nation is fighting for its independence. However, every nation is in a constant process of redefining its relationship with other countries. New knowledge produced by research is extremely valuable in weighing the credibility and viability of different

viewpoints. This is also an example of research knowledge that is never unambiguous; but that does not mean it is futile and inconsequential.

These examples are purposely selected to represent areas of research that have huge potential social significance. Similar examples could be provided by the development of the Finnish school system or dental care. It is quite obvious that it is impossible to quantify these kinds of impacts at any meaningful level, for two reasons. First of all, it is impossible to establish the specific contribution of individual research results, or even major research programmes to the developments concerned. Secondly, the economic implications related to these questions are composed of thousands of small trickles, and the power of the huge flow that is created out of those trickles are beyond calculation.

The examples above should suffice to make clear the difficulties in measuring the true impacts of research. So what should be done? Should we just forget about the impact perspective? No, because the perspective itself is right and it benefits science. So should we content ourselves with measuring what can be measured, even at the peril of using parameters – say the number of patents – that do not really measure the social impact of research at all? This would really be to descend into trivialities; it might easily blur the concept of impact and alienate researchers from the whole way of thinking. So is there some other solution? There is certainly no easy one. However, the following outlines a few ways of thinking that might help us forward:

- *It should be recognized that* the single most important impact exercised by researchers on society comes through the education of a new generation of experts. Society benefits from having these people as its employees and citizens. However, this impact will not be felt until several electoral periods down the road.
- *Mechanisms should be set up to monitor* to what extent Finnish researchers influence the development of their own discipline on a global level. This is also relevant from a social impact point of view, because major social impacts usually come about through the collective efforts of the scientific community.
- *It should be accepted that* in most cases the social impact of research is not seen until years, and often decades later. This impact can be seen and predicted, but not measured. It can, however, be explicated by demonstrating causal relations.
- *Quantitative data should be collected* on the concrete innovation effects of research. At the same time, it should be recognized that the data obtained in this way only represent a small part of all impacts.
- *Researchers should be encouraged* to consider the secondary impacts of their research and to report on them.

1.2 From measurement to understanding – the changing forms and methods of impact assessment

The concept of measurement refers to quantifiable units that allow for direct comparison. In the context of cultural and social research, it is justified to introduce the concepts of knowing and understanding alongside that of measurement. This, however, is no easy task within the established terminology. But even established terminologies can be changed. The present impact project is an extension to the Academy's previous report on the state and quality of scientific research in Finland. It is hoped that it will be able to contribute to a deeper understanding of impact both

within the fields of cultural and social research and in Finnish society more generally.

The 2003 report on Finnish scientific research included a pilot project by the Research Council for Culture and Society to identify and describe the mechanisms and channels via which impact could be transmitted in research. At the same time, the project highlighted the difficulties of measuring impact. The social impacts of research and the diverse ways in which those impacts could be demonstrated were already touched upon in the Research Council's 2000 report on the state and quality of Finnish scientific research, but it was only in the next report in 2003 that impact was raised as a major theme of analysis.

Rather than making use of traditional models and indicators of scientific impact, the 2003 report was focused on the various mechanisms of impact. In practice, this meant that researchers were asked to describe in their own words the kind of impact mechanisms that they identified in their own projects involved in research programmes and targeted calls in 2002. This yielded some 50 descriptions that were such a heterogeneous collection that it was impossible to provide a systematic and inclusive account of the impact of cultural and social research – though, on the other hand, this was never the purpose of the project in the first place.

The original targets set for the project were nonetheless achieved. First of all, the project gained a good picture of the diverse forms of impact that can exist within the fields of cultural and social research. Secondly, the very process of compiling the report also encouraged the research and science community to give closer thought to the impact of their work. Furthermore, the project paved the way to new ways of understanding the impacts of research and of discussing the kinds of impacts that were typical of cultural and social research.

It may be difficult to detect in cultural or social research any impacts or applications that offer immediate answers to practical problems. Very often the social impacts of research in these fields only come to light after long periods of time, as an outcome of several different factors, and therefore they are very difficult, if not impossible to trace. The identification of scientific impacts and the methods of assessment are also exceptionally challenging in cultural and social research. The appearance of impacts, the identification and understanding of those impacts and the development of appropriate indicators and models is indeed a major challenge for cultural and social research.

This report takes a closer view on selected research funded by the Research Council for Culture and Society. This research includes projects from a number of different disciplines, research programmes and other funding instruments. In addition, discipline assessments are examined from an impact point of view. Apart from Academy background materials, data have been compiled by questionnaires sent out to project leaders and researchers, by organising seminars and round table discussions on impact and, where necessary, by interviewing the people concerned and asking them to submit more detailed written accounts on the impact of research. This work produced an extensive background material on the impact of research through different kinds of funding instruments, in different fields of research and in a variety of different kinds of research projects.

A whole multitude of views have been offered of the various manifestations of impacts and of the ways in which they should and could be approached and analysed. On the one hand, there are certain similarities across different disciplines, indeed,

even across basic and applied research; on the other hand, it is quite clear that similar criteria cannot be applied in comparisons between those disciplines, or even within the field of cultural and social research. In any event, substantial efforts are still needed to debate and to understand the processes of identifying and assessing social and scientific impact. The same goes for the role of impact assessments in research funding decisions and in planning research careers. All this requires that the diversity of this phenomenon is better understood and that impact assessments are not confined to whatever is easily measurable, but that other perspectives are considered as well.

2 Impact in different disciplines – focus on history and archaeology, and linguistics

In May 2005, the Research Council for Culture and Society hosted a public debate under the heading of "There's no harm in research being useful". The invitation was extended to people working in all disciplines funded by Academy Research Councils. The debate attracted a full house of participants. A broad consensus was voiced that it is not possible to develop simple indicators or models of impact that are universally applicable across various disciplines. Even within cultural and social studies, impacts should not be weighed and assessed using the same set of criteria. For one thing, different disciplines have different functions and are at different stages of their development.

This report has chosen to focus on two disciplines within cultural and social studies: history and archaeology, and linguistics. This choice was motivated, firstly, by the fact that these disciplines differ so widely in terms of their impacts and the measurement of impacts; and secondly, by the fact that they account for such a large proportion of the research funded by the Research Council for Culture and Society during the period under review (see page 45).

The impacts of historical sciences and linguistics, the channels of impact and the difficulties of measurement and the significance of impact were addressed by means of both questionnaires and discussion events. A questionnaire was sent out to the directors of research projects that received funding in 1996–2000 or to researchers involved in those projects. Select groups of researchers were invited to attend the discussion events.

An examination of two disciplines and a sample of research projects and researchers is obviously not enough to produce a systematic overview of impact in all fields of cultural and social research. However, the material collected does allow us to sketch a picture of what impact may mean in these fields, how impact is manifested and how it can be understood.

Both of the disciplines in focus here comprise a diverse range of research, and both lie at the very core of cultural and social research: they are concerned to

understand humans and human society. Understanding the scientific impact of both is a challenging task indeed. At the same time, historical and archaeological research may be thought to have only limited significance in terms of its social impact; on the other hand, research in linguistics may lead to direct applications that have economic value and benefits. Yet both of them influence and impact every one of us: their aim is to understand who we are and where we are headed.

2.1 Impact and historical sciences: researchers' views

A questionnaire was sent out to directors or researchers in projects funded in the field of history and archaeology in 1996–2000. They were asked to consider the impact of research on the basis of the following questions:

1 *What is the scientific and social impact of research in your own field of research, how does that impact manifest itself, how can it be studied and measured, what are the channels via which impacts are conveyed in society?*
2 *How is the scientific and social impact of research visible in your own research project?*
3 *Does the scientific or social impact of research matter in general – does impact matter, is there any reason why research should matter and have an impact?*

The questionnaire was sent to 25 researchers, 17 of whom replied. The way in which they responded varied widely. Some addressed and answered the questions directly, the majority dealt with the question of impact in broader terms and in their own words, some provided highly elaborate responses and even included a number of appendices. Overall, the responses were well reasoned and well thought-out, providing a comprehensive treatment of impact within one's own research projects or in general terms from the researcher's point of view. Almost all responses included some discussion about the difficulties of identifying impact in such disciplines as history.

In addition to the questionnaire responses, the present report makes use of materials from free-form discussions among a select group of historians. The Academy sent out invitations to Academy Professor Marjatta Hietala, Professors Petri Karonen, Kimmo Katajala, Laura Kolbe, Juha Siltala and to Docent Anu Korhonen. Among the questions covered in this discussion were the following:

- *How does the impact of historical research manifest itself in science and in society?*
- *How can the a) scientific and b) social impact of historical research be measured?*
- *How can the impact of funding for a research project be measured (e.g. degrees, publications, education)?*

Historical research as the nation's memory

Historical research can sometimes raise sensitive and painful questions that may have been erased from the nation's memory, but that nonetheless have been an underlying factor in various kinds of decisions. In this sense one may refer to a purifying effect. Research may also draw attention to influential individuals or groups who in their day or even in ours have been more or less forgotten, but who can still make a

difference in their own field in the world today. Nevertheless, it is certainly not easy to understand the mechanisms of impact in historical research.

> *"As far as history is concerned, the social impact of research is above all an exercise of influencing collective memory. They (research results) may also help to dispel false notions that are brimming in the popular historical consciousness. Even though research cannot find and offer any absolutely accurate picture of the past (and by the same token of the future), this is ultimately the only yardstick against which those false notions can be dispelled and corrected."*

> *"Through its impact on the general image of countries and societies, research also exercises quite a strong influence on the present day, even on political decisions and international relations. It may be difficult or impossible to measure the impact of individual studies, but research and scientific debate and discussion as a whole certainly is a major influence in and on society."*

> *"Impact can appear in various guises, and it is not necessarily easy to establish. Nor can impact be converted into numerical format, unless one wants to rely on citation statistics."*

Scientific and social impact

Historical research can be considered to exercise an impact in two ways. Firstly, its subject-matter is of interest to the general public and to decision-makers; this applies not so much to its monographs as to the popular-interest articles and lectures produced on the basis of that work. Secondly, research provides evidence on the phenomenon concerned as a basis for decision-making and for the evaluation of past developments.

> *"In historical research and many other lines of social inquiry, impact is demonstrated above all in decision-makers and citizens reading the mass media commentaries published by researchers on the basis of the work they have done. Historical/ Social research offers new perspectives for political decision-making above all by demonstrating what kinds of values are advocated by what kinds of policies."*

> *"It is necessary to have both science for its own sake, science that is discussed among small groups of experts and science that has practical application and wider appeal in the general public. Impact matters, but it is not the only criterion of the value of research."*

Researchers often make a distinction between scientific and social impact; that is why they need to be measured separately, with different instruments. However, scientific and social impact are intricately and intriguingly intertwined; research results rarely have just one or the other type of impact. Without scientific impact, however, there apparently would be no social impact, either. In other words, scientific quality and impact are necessary conditions for social impact.

“In some cases it’s possible that even good research has no direct social impact. This may either be the kind of basic research that has no immediate practical application, or ‘purely’ theoretical research that is aimed at developing new scientific methods. In these cases, even though the impact is primarily confined to the scientific community, it may in the longer term, and via numerous intermediaries and end-users, transform into a social impact.”

“In my own field of research, as in the humanities and cultural and social sciences more generally, the exact measurement of impact is very difficult, but I don’t know whether it really is as big a problem as it's often made out to be by people working in (more) applied research. I would suggest that research always has an impact when its quality standards are high, when it's rated highly in international peer reviews. Beyond that, there is no reason to worry; the results will have an impact, sooner or later.”

“Impact within academia is the easiest to identify: raising a new generation of researchers, promoting the research careers of people at different stages of their career (e.g. five doctorates), a huge input in basic and further education at the department, etc.”

“The most senior members of our research team have been appointed to numerous expert positions on the strength of their having become leading experts in this field in Finland. They've been in demand both in the media and at seminars where lectures are given to the general public.”

“Scientific and social impacts are important objectives that are set for the research project at its early stages. The research results should be relevant not only to science itself, but they should have interest value from the point of view of other disciplines, they should inspire new ideas and possibly have practical application. Research should also have social impacts. It should provide answers to questions, problems, challenges emerging in society. On the other hand, research can also provide a foundation for decision-making and future solutions. There is no question that research should have not only scientific impact, but also social impact.”

History, the present and the future

From an impact point of view, the significance of historical research lies not in the past; the significance of the past, of historical research, lies in its meaning to the present. Research cannot, however, be geared simply to satisfying the needs arising from today’s society. Research can also have a relevance and meaning that only manifests itself over much longer periods of time. It follows that any efforts to harness research to short-term interests can even have detrimental effects.

“In general, historical research helps to put the treatment of current and future problems in perspective.”

“Research should not start out from current needs of impact, but of course in reality those needs do steer and influence research. After all, the researcher lives in the here and now, and is confronted with the problems and challenges of the here and now.

If all research were aimed at scientific and social impact in the present day, it would certainly be impoverished, innovations would be ever scarcer on the ground."

"*But why bother with research if you don't believe it can have an impact? It might be necessary to resort to the old-fashioned sounding belief in the civilizing effect of knowledge´. Civilisation at least is something in which we can still have faith. Even though the focus of research is on the past, I'm confident that present research will benefit future researchers as well – even though more slowly, but in some layers of knowledge."*

"*I'm a historian interested in exploring the immediate past, or the history of our own age. In fact, I'm a social scientist using the methods of historical research. I'm looking for answers to problems facing today's society and world by studying the immediate past. I'm not content to try find out what happened, or even why it happened, but I'm always interested to know what kind of (political or other) uses interpretations of the past might have in modern society, what kinds of meanings are ascribed to phenomena of the past, etc."*

Even though history and historical research certainly have a role to play in the present, it is important not to focus too heavily on their current significance when choosing one's research subjects. In spite of the problems that are often associated with the assessment of impact, historians agree that it is reasonable and understandable that research is expected to show an impact – what they reject is the idea that it should be expected in advance, that research is specifically geared to achieving impact. Somewhat surprisingly, research that is aimed first and foremost at producing new scientific knowledge may well find itself to be in high social demand, whereas research projects that fail to show scientific credibility may fail to have any social impact at all, no matter how astute the design of the research project. Researchers are also confident that research which shows sufficiently high scientific standards will also have an impact on society.

"*If you don't understand or want to understand the power relations prevailing in society, its dependencies and mechanisms, then you're bound to become a helpless victim. I for my part have always tried consciously to choose my research objects in such as way that the results have some novelty value where the problems of modern society and the modern world are concerned."*

"*It's rarely that research itself inspires interest in social issues, but once that interest has been established by a variety of reasons, then the need for research knowledge will emerge. That's why it's so difficult to look and prepare ahead with this in mind when research projects are set up. This means that projects must be planned and designed from a purely scientific vantage-point, but in many cases it's easy to find additional arguments of a 'social demand', i.e. there is a clear need for work on certain themes that is not based just on changing fads and fashions."*

"*In research we ought to allow thousands of flowers to bloom, and not expect an otherwise clever project proposal to generate great scientific impact – we can never know in advance what trivial observation will eventually grow into a whole new*

scientific way of thinking. Although it's said that he who increaseth knowledge increaseth sorrow, the truth of the matter is quite the opposite. New knowledge always has value in and of itself."

"*On the other hand, the scientific impact of research, and of course its social impact in particular, gives added value to research. If it's to be expected that a particular line of research can help to unravel and provide a deeper understanding of the structures and conflicts in our society and to set them right, then there is no question about the value of supporting that work – but I'm not sure whether that's only the responsibility of funding agencies for basic research?"*

"*No doubt all significant research studies that include new knowledge and new perspectives, regardless of their subject, impact our image of history in the long term, as their results are put to use in other studies and as they find their way into textbooks, the media and people's mindsets."*

In a new age, the questions once formulated and addressed in historical research may take on entirely new meanings and perspectives. On the other hand, each era has its own questions, addresses old issues from new angles. The impact perspective does fit in very easily with this aspect either.

"*In general terms, the choice of research subject, in my field of historical research, is itself a value choice. The subjects can be roughly divided into two categories: those that are related to the prevailing research tradition; and those that call into question prevailing views and opinions. Both tendencies exercise an influence in science and in society. Impact cannot in itself be the objective. The main question is this: How do we want science to exercise an impact, in what direction do we want to develop science/society. That, in turn, requires conscious, explicit value choices on the part of whoever is making that assessment."*

"*You don't do good research in a vacuum; it's always an integral part of a broader debate that grows out of current, topical questions. In my opinion good research is always international, internationally interesting and internationally influential. History is an important field because research here often serves to legitimise the existing social/economic/cultural situation. That's why the historian who is exploring new perspectives and forgotten questions is also making a significant civic contribution to society by challenging old and clichéd views."*

"*I should like to remind, however, that impact is not value-free. Not all impacts serve the best interests of science. Sensations don't support rational deduction. It's important to bear this in mind when indicators are being developed."*

The significance of humanities research

Cultural and social research ties in very closely, almost inseparably, with society and the social context. Finnish culture and society cannot be researched without the Finnish context. Humanities research also has a significance in and of itself: it produces knowledge about people and the society around them. Even though research may have direct channels of influence into society, perhaps the most

significant channel of all is through the education of students and the next generation of scholars. It is through these people that civilisation and the tradition of humanities is passed on.

> *"In my opinion social impact should be understood in broad terms. It's not just a matter of research results having a direct influence on everyday life; it's also about giving exposure to the business of doing research, the humanistic world-view and their value in society. The results of pouring money into research in technology and biosciences can be considered to have a direct and literal impact on people's life, for instance by adding years to our life. Yet the thing is that those extra years are of no use to us unless we have a world that we can enjoy and that we can understand. Humanities research is what provides that understanding."*

> *"Good research and good education are prerequisite for each other."*

> *"Perhaps in the end the most important channels of influence are the people who are taught by researchers, those who leave university and move on to work in various jobs in society and who carry forward the education they have received. Teachers, media and communications professionals, journalists, museum people are obviously in a key position in this respect."*

> *"The university cannot exist without research, because it is research that creates the university. Without the university system it's hardly possible to imagine a civilised society."*

2.2 Impact and linguistics

Linguistics researchers were sent a similar questionnaire as was completed by historians. Again, the focus was on projects funded in 1996–2000. A total of 17 questionnaires were sent out, nine researchers replied. The respondents were first presented with a few orientating questions, which otherwise were identical to those asked of historians and archaeologists except that linguists had one additional question: *What is the social impact of basic research when it does not lead to direct applications?*

The answers received were succinct and dealt extensively with questions of impact, usually along the lines indicated by the background questions. However, as well as addressing the impact of their own projects, the respondents also offered their views on the theme of impact more generally.

The linguists were also invited to a round table discussion. The discussion was attended by Professors Arvi Hurskainen, Lea Laitinen, Matti Leiwo, Jussi Niemi and Pirkko Nuolijärvi. With the exception of Professor Nuolijärvi, all of them had also had received and replied to the questionnaire.

Scientific and social impact of linguistics research: manifestations and channels, analysis, and measurement and understanding

> *"Linguistics is one of the human sciences and therefore part of research into human behaviour, history and the human condition more generally. As such it has an impact*

on scientific concepts of humans as societal beings and contributes to shaping people's self-understanding of their actions in society."

The picture that emerged from the responses was one of a highly intricate and complex phenomenon that is very difficult to capture and nail down. It was considered virtually impossible to produce reliable and comparable measurements of the impacts of linguistics research. On the one hand, it is usually considered difficult, sometimes impossible to concretely demonstrate impacts; on the other hand, these impacts could sometimes be discussed and considered in very concrete terms.

Overall, it seems that it is particularly difficult to recognize and establish impacts happening outside the scientific community. As for impacts within the scientific community, it is possible to draw at least some conclusions, even though that means relying on traditional indicators. However, sometimes the applicability of these indicators to the analysis of impact or to comparisons between different disciplines is dubious. It might be possible to conduct some indirect comparisons, with certain reservations, for instance on the basis of reviews of scientific publications, citations, school and university education, scientific positions of trust, the development of research environments, congress participation, lectures and papers, mobility, etc. However, even assessments of scientific impact may prove problematic if they are based on the popular method of international publications or citations. It should be quite clear that the role and place of Finnish language studies in the world of linguistics is all but prominent and well-established. Indeed, this problem of small languages often means that the research object itself presents an insurmountable barrier to researchers who do not know the language.

Impact beyond the scientific community, i.e. within society more generally, may be even harder to establish. One of the channels of impact, if not one of the most important channels, may be through education as graduates leaving university take what they have learned out into society. Tuition obviously has a significant impact within academia as well in that it contributes to the education of a new generation of scientific experts. Another important channel of influence is through popularisation. This is an area where efforts could certainly be stepped up, although from a time use point of view this might be rather problematic: it is very rarely, if ever, that popularisation can be given precedence over research itself. It is not impossible to envisage some kind of direct impact on society and its decision-makers, but in most cases impacts are nonetheless channelled via various intermediaries and after some time lag – although these are factors that could possibly be influenced. In addition to the channels just mentioned, social impact may find expression in textbooks or manuals, in popularised lectures to the general public or special groups, through open days or exhibitions, radio or television presentations or even organised cultural trips.

A good example is provided by the field of language technology, which may have an exceptional degree of social impact. Its applications are used by virtually everyone.

> *"Spell-checkers, hyphenation programs, thesauruses, electronic dictionaries, online language teaching programs are some of the examples of present-day applications in this field. Automatic translation, text-to-text and speech-to-speech are also realistic targets, although some early releases have not been up to scratch and given a distorted picture of the state of the art. In this field there is no questioning the existence of social impact."*

Social impact of basic research without direct applications

> *"Should basic research have a direct social impact? Basic research is done within an expert community and it's only this community that can assess whether that research will have any subsequent applications. A sensible research community will no doubt consider this when it is planning its research."*

Understandably, the assessment of the impact of linguistics research was considered particularly difficult and challenging in areas where there are no immediate practical applications. Some even questioned the whole exercise of assessing basic research from the limited point of view of social impact or social benefits. Nevertheless, the view that historical linguistic research, for example, is a line of inquiry that can lead to no applications and that therefore can have no impact, is simply and plainly wrong. Historical linguistic research currently has great appeal and interest, and the general public is positively devouring this kind of information that has tremendous importance to people's identity and self-understanding. Indeed, this is humanities research at its most genuine, helping as it does significantly to increase our knowledge and understanding of ourselves and others. However, the results of this kind of research require further elaboration and comparison and only gain their full value once embedded in a broader framework. The achievement of this kind of impact can easily take decades or a lifetime, and it is extremely difficult to foresee.

Over the course of history, linguistics has had a huge influence on the way that communities and nations have viewed their own histories – so much so that in many countries language research has directly contributed to the awakening of national consciousness and by the same token to the development of nation-states. Language research is thus an integral part of the creation and transmission of cultural knowledge. Closely related to this is the sense of national responsibility and duty: without proper research here into the Finnish language or the small Finno-Baltic languages, this whole area would remain in the hands to just a small group of interested researchers or amateur scholars with very limited resources.

> *"We're researching the state's second official language and in doing this we're responsible for publishing our results to the whole Finnish language community and separately to the Finnish scientific community. Our social duty as linguistics researchers is to produce information on the Finnish language as well as to maintain the position of the Finnish language not only as the country's official language (e.g. in education), but also as the language of science that can be used to present and deal with any scientific problems, not just applications."*

> *"The question of how to weigh and assess 'duty' and 'impact' in relation to each other, that is a more complex matter which depends on the perspective adopted: is science about producing marketable commodities or is it about producing basic necessary services for society?"*

If instead of Finland we turn our attention to humankind as a whole, one of the key missions of basic research in the humanities is to preserve, analyse and shape the

cultural heritage and to make critical use of it. This kind of supranational responsibility extends beyond the national cultural heritage and concerns the shared heritage of the whole of humankind. The boundary line between the two is becoming increasingly narrower and blurred in our global world today, where the identity of local communities and its individual members nonetheless continue to have an important function. For example, the presence of minority languages as a recognized object of research in international linguistics is in itself a demonstration of social impact. Raising the status of rare and minor languages as credible alternatives to the "all-pervasive tyranny of English and French" may in itself be a significant impact of research.

Linguistics may have a major role to play in the search for answers to the problems of nation-states. Working closely with other disciplines (such as anthropology, sociology, psychology, cognitive science, etc.), linguistics addresses some of the most fundamental questions to humankind: how does human interaction work, why don't people understand each other? Many other social and economic questions are subordinate to this major problem. If people can learn to better understand one another, that will inevitably have a major influence on societies, on relations within and between societies. It is here that linguistics can exercise a very considerably influence.

Genuine basic research always involves risks, but risks may also be hidden in the excessive application of the results of basic research. The importance of identifying false applicability and anticipating the risks of premature application as well as their prevention may be highlighted in situations where the hypotheses and premises of basic research suddenly collapse during the course of the research process. This may easily remain hidden in an examination of impact where applicability is emphasised. The reality is that it is quite impossible to know in advance which results will have practical application and how.

A change in the premises of basic research may also lead to surprising impacts and unpredictable applications. A good example is provided by psycholinguistic basic research that out of methodological necessity has led to extensive collaboration with commercial companies, public authorities and non-profit associations. When linguistics research has played a major role in developing criminal investigation methods and in developing text-to-speech software for the visually handicapped, for instance, there is no way its impact can be called into question.

At the same time, research may also have significant impacts within academia, for example through the promotion of national and international research collaboration and networks, or upon new generations of experts through entirely new subjects, study courses or posts and positions. Internationally, one example of surprising impacts is provided by early-twentieth-century American structural linguistics, which initially had a key role in documenting and saving Indian languages that were on the verge of extinction as well as in creating written forms of those languages. Later, the same methods were applied to language education in the US army during and after the Second World War. Modern theoretical phonology and morphology have for their part found surprising but useful and necessary applications in language technology, which in turn serves the needs of modern communications technology via automatic speech recognition and speech production, for example.

Impact within one's own research projects

Linguistics projects included a wide range of studies in a number of different fields. Some of the projects were expressly aimed at generating immediate social impact and applications, for others the primary object was scientific excellence and high-quality research whose potential impacts would only become apparent after a longer period of time. Research directly aimed at social impact might set problems for itself that deal with immediate practical challenges, or transfer its results into practice through textbooks and manuals, via various methods or in software, for example.

Especially in the case of minor languages the impact of research is often confined to the scientific community. Nevertheless, even though there would seem to be a genuine interest, the research knowledge does not necessarily reach large numbers of researchers, particularly at the international level. At the same time, volumes by respected publishers and edited by respected experts have included outdated or even entirely false and inaccurate information from this field of research.

> *"With respect to scientific impact, then, it's essential that international contacts are strengthened. This may be down to just a few personal contacts and a couple of English-language sources that have been accepted for publication in major forums; as the volume of research grows, it may be down to little more than coincidence as to which studies are cited in the internationally most widely read works and which therefore reach the majority of researchers. And it may then be down to this kind of coincide whether international researchers ever learn about the existence of a language called vepsä."*

In spite of the future challenges in both national and international cooperation and networking, the projects reviewed here made important progress. Some of them established new practices of cooperation between different research units as well as with business and industry. Some projects recorded significant results from dialogue across the boundaries of scientific disciplines.

Does impact matter?

As far as the research community is concerned, impact is often an inherent feature of high-quality research. A key motive for the work of every researcher is to make sure that that work has some tangible effects and benefits; it is not thought that very many researchers, if any, set about their work without a felt need to exercise an impact on the world. However, the assessment of impact as a distinct separate issue from research, as it were, has a special meaning of its own.

> *"And the explicit assertion of impact nowadays is particularly important, given the fierce competition for funding. Humanities research in particular is having to go all out to explain and convince people of its impact."*

> *"It's a brutal fact that if you cannot prove that research has social or even scientific impact, then it's virtually impossible to secure any competitive funding. […] For purposes of motivating the research team it's also important if you can show that research has relevance not only to the individual researcher but to others as well.*

Sometimes that impact may not be real at all but simply psychological, but it can have a major impact in terms of maintaining the team's enthusiasm."

High-quality and meaningful, good research always has an impact – at least a potential impact. However, it may be very difficult or even impossible to anticipate or steer that impact, and therefore an overly anxious preoccupation with impact may have the exact opposite effects to those aimed at.

In most cases the impact of research unfolds in a slow and frustrating process that seems to be very hard to capture in the present day. It even seems to be extraordinarily difficult to steer and manage impact, even with deliberate and conscious efforts.

"If you look back at research from the 1980s, you can see that knowledge did accumulate with new studies and gradually spread to education and textbook applications, but much more slowly and less consistently than you would have wanted it to and ever believed, even though I've been actively involved in these efforts of dissemination and application. Sometimes it's frustrating to see how things we knew ages ago are rediscovered, or how knowledge fails to spread into new applications (education at school), but the old tradition carries more weight. This means that the transfer of knowledge into practical applications has not succeeded as we would have wanted it to. – Has there been any research into how knowledge is transferred and adopted in society and into how this process could be improved?"

When the knowledge produced in basic research never reaches the speakers of a language, its teachers and other specialists but for various reasons remains the exclusive property of a small research community, possibly even outside the area where the language is spoken, the impact of research upon language use remains potential, possibly forever. This may already have happened in the case of some smaller language, which by now may well be beyond recovery.

"Part of the blame has to rest with researchers, research institutions and research traditions: the interaction between the researcher and object of research has often been regarded as a one-way road, and there has not been enough respect and support for the popularisation of research results. However, the attitude of political decision-makers is also crucial: how the results of science are appreciated, how decision-makers talk about these results, how science is taken into account in political decision-making."

It seems there is a growing need and demand for knowledge about impact, the transfer mechanisms of research knowledge and the concrete, practical impacts of that knowledge.

Research should not be done for its own sake, and the same goes for the application of its results and for the quest for impact. Generally speaking, every researcher no doubt believes that the work they have done is of at least some use to other people. Without that conviction, research can hardly be very meaningful.

"As I've tried to make clear, scientific and social impact is a matter of great importance to every researcher, simply out of principle. Without it, the researcher remains

locked up in the proverbial ivory tower. It's important to seek active interaction and exchange with the scientific community and the society around, and this needs to be emphasised in researcher training as well, unless it's taken as a matter of course."

"*But the question is what 'benefit' or 'application' means. It's typical of humanities research that these concepts are understood via a scientific and intellectual ideology and less often via a techno-economic ideology. An entirely separate but nonetheless important aspect of impact has to do with the researcher's own growth and development as a scholar. This may be hugely important, irrespective of the potential applicability of the research results. If this is all in place, i.e. if there is intellectual growth as a researcher, who knows what good might come out of the next study."*

3 Impact through social agency: integrated school day as a case in point

Researchers exercise an impact not only directly by means of their expertise and knowledge, but a well-respected researcher may also have a significant influence on applications, legislation, society's practices etc. The following illustrates the transfer into practice of new knowledge generated in a longitudinal research project by Professor Lea Pulkkinen. The basic research in this project was conducted with funding from the Academy of Finland, but the application of that research has been funded by other sources. The case of the integrated school day goes to show how the individual researcher can exercise a significant influence in society.

The most significant result of psychological research is the growth of knowledge and understanding about the human condition. Psychological research approaches its mission of constructing a picture of the human being from a variety of different perspectives. The emphases in research have shifted. Right now, the allocation of research funding all over the world is focused on exploring the biological foundation of human behaviour. Our knowledge of the human being is still one-sided and insufficient. This is not to underestimate the existing psychological knowledge about human action and its foundations. That knowledge is a valuable asset that can be used to increase human well-being – provided the desire is there to do so.

One of the areas of this research is concerned with development. Development begins at the moment of conception and continues through to the moment of death. This implies a rather loose definition of development, referring to certain types of more or less predictable changes as functions of the individual's life course and experience. Not all of these changes are an indication of growth and development towards something bigger or more valued. Development may also involve undesired changes; examples include trends of asocial development or adverse changes in the speed of perception with advancing age. Developmental psychology is not just about child research or child psychology, but it is interested in development throughout the life span.

The ultimate focus of research at the University of Jyväskylä Department of Psychology is on human development. A much appreciated recognition of the Department's long-standing research efforts was the nomination of the Research Programme on Human Development and Its Risk Factors as one of the Academy's 17 Centres of Excellence in Research for the 1997–1999 term. This Centre of Excellence was the first ever at the University of Jyväskylä. The Academy of Finland reinstated the Centre of Excellence status for the 2000–2005 term on the basis of an international review of applicants. The research programme includes three major longitudinal studies, one of which is the Jyväskylä Longitudinal Study of Personality and Social Development under the direction of Professor Lea Pulkkinen.

Lea Pulkkinen started her longitudinal research in 1968 with her doctoral dissertation. Like many other older longitudinal research projects, the first stage was a cross-sectional study focusing on a certain age cohort, but it later expanded into a follow-up study. The research team have monitored the development of the same people from childhood to adulthood.

The specific concern in the Personality and Social Development project has been with the development of personality and socio-emotional behaviour from age 8 through to age 42. Other areas of interest include education and job careers, family and education, health habits and health as well as adjustment to society and crime. In addition, the team have studied the intersections and links between these trends in development. The results have shown that a major factor in explaining and interpreting the continuity of development is the child's ability to control his or her emotions and behaviour. Problems with self-regulation and self-control tend to lead to an accumulation of difficulties, including maladjustment at school, alcohol use, and exclusion from the labour market. Accordingly, a strong ability to control and regulate emotions and behaviour promotes the individual's social and psychological competence. The child's capacity for emotional and behaviour control is associated with their upbringing and with the social capital available at home.

The publication of the project's results in the mid-1970s drew attention to the key influence of the home background on the adolescent's development. At that time, with the upheavals that were sweeping the family and other social institutions, there was much uncertainty about the role and responsibility of parents in the upbringing of children. Drawing on these results, Lea Pulkkinen published a book under the title 'The Psychology of Home and Upbringing', which brought her countless lecture invitations. Professor Pulkkinen was also invited to serve as an expert member on the parliamentary committee for the development of day care education. She had a very prominent influence on the contents of the 1980 committee report. Day care was defined as a service that supports children's upbringing at home, and the targets for day care were defined from the vantage-point of children themselves. Legislation was amended accordingly.

In 1981, Lea Pulkkinen joined up with a few other people to start the Society for Home and Upbringing, which actively lobbied on legislative issues concerning education and upbringing in the early 1980s. Any interpretation of causal relations must be made with caution because legislation is always a compromise of multiple influences, but

the section of the Comprehensive Schools Act dealing with cooperation between home and school was formulated in line with the initiative made by the Society for Home and Upbringing, which said that families were to be able to rely on the support and cooperation of schools in upbringing their children. The right of children to meet their absent parents had been raised in the Psychology of Home and Upbringing, and that was entered in the Child Custody and Right of Access Act. The Society for Home and Upbringing was also instrumental in making family and consumer education a compulsory school subject in comprehensive school. Support was provided for the training of domestic science teachers in this new subject. (In the International Year of the Family 1994, the popular school subject of home and upbringing was quietly removed from the compulsory curriculum as teacher organisations became embroiled in a battle over lesson quotas. This effectively put an end to the whole subject at school – although certainly not for the lack of demand.)

Another area of applied work for Lea Pulkkinen has been the social institution of school, with which the whole age cohort comes into contact. The school has its own ways in which it can strengthen children's resources for social and emotional development and in which it can provide protection when there are problems at home. It was already known from early results in the 1970s that involvement in organised leisure activities was more beneficial to child development than just aimless hanging around with mates. In the mid-1970s, Pulkkinen published newspaper articles on the use of leisure time, highlighting some of the problems of unsupervised leisure. She returned to this subject in the early 1990s, when economic recession led to schools closing down many of their leisure and hobby clubs and to day care centres discontinuing their afternoon services for younger schoolchildren. By that time the results of the Personality and Social Development project had clearly demonstrated the close links of social behaviour at school and early onset of alcohol use with the social competence of adults.

In autumn 1996, Mrs Eeva Ahtisaari, wife of the then Finnish President, invited Professor Pulkkinen to give a talk on a family-related issue of her choice at a session held at the presidential residence. Pulkkinen opted to focus on children's lonely afternoons under the heading 'Children's and adolescents' relationships with adults and the supervision of time use.' The process that unfolded with the publication of this lecture is described in Pulkkinen's book 'Nice together: Initial social capital and the child's socio-emotional development' as well as in an article under the title 'A longitudinal study on social development as an impetus for school reform toward an integrated school day' (European Psychologist 2004, 9, 125–141).

One of the proposals put forward by Professor Pulkkinen in her lecture concerned the restructuring of the school day to include leisure and hobby activities. The idea of a longer school day was published by the country's leading daily Helsingin Sanomat, where it was flatly rejected by schoolchildren. Nonetheless, a debate ensued in which most of the attention was grabbed by a leader article by Professor Pulkkinen. In this article she highlighted the results of a major international survey among 14-year-olds according to which having to spend just 10 hours a week alone increases the risk of substance use, depression and poor school performance. In Finland, children in the lower grades of school were spending twice as much time alone. In autumn 1997,

Mrs Ahtisaari expressed her interest in supporting efforts to reduce the amount of time that schoolchildren had to spend alone.

As a result of these efforts, plans for the expansion and development of afternoon activities for schoolchildren were included in Prime Minister Paavo Lipponen's second government programme in 1999. Lea Pulkkinen had made the point in her lecture that "if the OECD's attention could be drawn to the lonely afternoons of Finnish children and to the rigidities of Finnish school and leisure institutions, then we might stand a chance of seeing something happen". As it turned out, the OECD did pay attention: the OECD's 2001 country report made note of the fact that children in Finland were spending long periods of their leisure time without any supervision, and the Ministry of Education promptly appointed a working group to address the matter. The memorandum was completed in 2002, offering alternative models for combatting lonely mornings and afternoons.

In autumn 2001, the newly completed Agora building at the University of Jyväskylä received a visit from the parliamentary Committee for the Future. In connection with their visit, Professor Lea Pulkkinen took the opportunity to talk about the results of the Personality and Social Development project on socio-emotional development and its implications for adult social competence. Following the visit, MP Kyösti Karjula got in touch with Professor Pulkkinen, saying the lecture had addressed very similar issues as were the focus of a group of MPs and business representatives he had convened. Their specific concern was with the lack of social skills among schoolchildren and the projected adverse effects this would have in the increasingly networked world of work. He invited Professor Pulkkinen to attend a group meeting in Parliament and to report on the results of her studies. Consequently, Lea Pulkkinen was asked to submit a national pilot and research plan to support the social development of Finnish schoolchildren, which she did later the same year, in the autumn of 2001. The plan has been published in her book 'Nice together.' The project (which became known under its Finnish acronym MUKAVA for 'reminders on responsibilities in upbringing') is made up of seven component projects, some of which are directly concerned with schoolchildren, others with the school as a learning environment and others still with the relationship between school and the surrounding society.

Lea Pulkkinen was invited to take charge of the experiment. Initial funding was provided by business companies. In addition, the Finnish National Fund for Research and Development (Sitra) decided to sponsor the core project which was aimed at restructuring the school day so that it included not only teaching in class situations, but also games and playing in supervised situations as well as other leisure and hobby activities. This project was supported by another task that Lea Pulkkinen was asked to take on by the Committee for the Future: an analysis of social capital in relation to ICTs development, with special reference to children and adolescents. The preliminary report of this project was published in 2002 (together with Osmo Pekonen), the final report in 2003 (with Anu Mustonen). As part of this project the concept of initial social capital was coined to refer to the social relations inherited by children from their home. In the MUKAVA project, it was thought that this inheritance could be supported by giving schoolchildren opportunities to network with adults and other pupils.

The integrated school day project lasted three years (2002–2005) and it was conducted at seven different schools in four municipalities at grades 1–9. The final report of the project was published in 2005 (Lea Pulkkinen and Leevi Launonen, Integrated school day – A child-centered approach to the reform of a school day). The Trade Union of Education in Finland initially took a rather standoffish attitude to the experiment, but eventually came round. The research conducted in connection with the experiment monitored the experiences of headteachers, teachers, parents and schoolchildren themselves. The results have been very good. The Ministry of Education working group on well-being at school has identified the integrated school day as the first development target for comprehensive school.

The experiment received much publicity from the very outset in the summer of 2002, which added to pressures of organising morning and afternoon activities with partial support from central government. The objective was included in the government programme of Prime Minister Anneli Jäätteenmäki, and in response the Ministry of Education began drafting amendments to the Basic Education Act. Precious little material was available apart from the experiences gained from the integrated school day project, but the legislation drafters had access to all that material. The legislative process moved very quickly and by autumn 2004, government-funded morning and afternoon activities have been offered to all first and second grade schoolchildren as well as children with special needs. However, there still remains a huge task ahead to develop and expand these services to cover other school grades as well.

One of Lea Pulkkinen's long-term ambitions has been to provide theoretical education for parents on the development of children and adults, on couple relationships and family life, for example through the network of workers' and civic institutes. This has not yet received enough attention. Perhaps the OECD's attention should again be drawn to the fact that while the job market today requires formal qualifications for just about every job, there are still no qualification requirements for the most important and demanding job of all, i.e. that of upbringing a new generation.

4 Promoting impact through Research Council funding

4.1 Research programmes and targeted calls

Considerations of impact are an integral part of all Academy of Finland research programmes, which are specifically aimed at producing applications and generating impact. Programme coordination, then, is aimed at getting more out of research programmes than would be possible from individual, isolated research projects.

Academy research programmes differ from one another in terms of their premises as well as their objectives. They may be grounded in scientific and/or social premises. An initiative for a research programme may be motivated by development needs within a discipline or field of research, or by a perceived need to support a new

emerging line of research. A programme may also be started up on the basis of an assessment of some discipline or field of research. Furthermore, programme initiatives are also offered by national and international partners from outside the Academy. Initiatives for research programmes may also be prompted by questions or problems that are regarded as having special social significance.

Social impact is in most cases a central and obvious objective in most research programmes, and that is also reflected in the implementation of those programmes. Even so, the true impact of research programmes is almost as difficult to establish as the impact of research in general: the communication of research knowledge beyond the scientific community does not yet mean that research has had an impact.

It is interesting to note that a substantial proportion of research programmes set up in response to initiatives from outside the research community are in fields of research that are hosted by the Research Council for Culture and Society; examples are provided by the research programmes on Russia, economic crisis, and marginalisation and inequality. The projects funded in these programmes are basic research, but because of their thematic focus and the coordination of their efforts, the exposure they gain is usually greater than is normally the case in individual projects. The aims of achieving impact are also explicitly stated.

In research programmes questions of impact are considered both at the blueprint stage, during the course of the programme and upon its completion. The discussion below describes how the requirements of impact were taken into account in the planning and implementation of two research programmes, Power in Finland and Industrial Design.

The *Power in Finland* research programme was mandated at the beginning of 2005 by the Academy Board to outline a proposal for the thematic content of the programme and the implementation of cooperation. In May 2005, as part of its preparations, the programme steering group organised an exploratory workshop aimed at opening a dialogue with the scientific community and to canvass opinions among researchers about the most useful thematic focus for the programme. At the same time, the workshop provided advance information to the scientific community about the forthcoming programme and served as a forum for advance planning of research cooperation. From the very outset, the Power in Finland programme set itself clear objectives in terms of scientific and social impact.

Proceedings at the exploratory workshop were started with a discussion panel. There were six invited panellists representing public administration, the political system, business and industry, culture, the scientific community and the media: author and director Reko Lundán, Permanent Secretary Raimo Sailas, Member of Parliament Osmo Soininvaara, journalist and author Yrsa Stenius, Director-General Vappu Taipale and Chancellor Christoffer Taxell.

Following the discussions that were led by the panel during the morning, the attending researchers were divided into six thematic working groups to discuss the contents of the various thematic areas. The panel discussion in the morning was aimed at introducing a practical perspective into the proceedings, and at the same time it provided an opportunity to offer information about the forthcoming programme outside academia. The workshop in Helsinki attracted an attendance of 180 participants.

Industrial design is a multidisciplinary research programme that comprises both cultural and social research and research in the natural sciences and engineering. It covers the whole system of industrial design, including the practice of design, technological product development, materials research, marketing, consumption and the cultural impact of products. The multidisciplinary approach means that industrial design is examined using the tools of both business administration science and engineering science as well as cultural and social science research. The programme was largely inspired by the government's Design 2005 programme, the mission of which is to create a dynamic design system in Finland and to integrate design with the national innovation system.

The Academy's Industrial Design research programme (2003–2006) and the Tekes Industrial Design Technology Programme (2002–2005) are practical measures of design policy. Both programmes have been geared to achieving social impact. The Academy and Tekes design programmes were designed and they have been implemented in close collaboration, with funding for coordination provided by Tekes. The programmes have involved the whole design chain from basic research through applied research to end-users, providing opportunities for theory to meet practice at various different levels. The coordinator has organised various seminars for researchers involved in the programmes, and several events and strategy seminars have been arranged to introduce the research projects to the general public and to business and industry. The organisation responsible for programme coordination, Technology Industries of Finland, also hosted a series of design seminars targeted at industry representatives. Projects involved in the programme have been introduced in newspaper and journal articles as well as in publications aimed at the industry, and work is underway to produce a manual on design management.

The direction and supervision of the two programmes is coordinated so that the chair of the steering group for the Academy programme (Research Director Päivi Hovi-Wasastjerna) is a member of the Tekes programme steering group (chaired by Christer Ahlström), and vice versa. The officials responsible for the administration of the Academy and Tekes programmes are involved in the work of both groups. This cooperation has also contributed to a more effective exchange of knowledge and understanding about the way that the two organisations work and about how their cooperation could be improved and intensified.

4.1.1 Society impacts the need for research – research impacts the way that society works: targeted call on Power, violence and gender

In 2000–2003, the Research Council for Culture and Society provided funding for nine projects concerned with questions of gendered violence. One of the main incentives behind the targeted call for these projects was an international programme against violence which was grounded in the realization that to achieve any real progress in preventing violence, research needs to start out from its gendered nature.

In the humanities and social sciences, the most basic form of research knowledge is a reasoned interpretation of the phenomenon in question. The aim is usually to gain a deeper understanding of the phenomenon and its underlying mechanisms, or the complexity and diversity of the phenomenon – for instance by looking at what the phenomenon looks like when seen from the vantage-point of different groups, or

what kind of consequences it has for different groups. Knowledge also serves the function of making things visible, which is at once the purpose of describing larger entities or complex relations or impact mechanisms. Often the exercise of making things visible is closely interwoven with the creation of new concepts and conceptual tools. Research in the social sciences may also be aimed at demonstrating connections and thereby at offering explanations, but even then it is rarely about establishing causality: the phenomena explored in social sciences research typically involve multiple variables which have different combined effects. A further feature shared in common by research in the humanities and social sciences is that they are both interested in analysing the social or cultural meaning of human action and in this way aim either to enrich our way of existence or to translate seemingly strange or even irrational actions into familiar, understandable and perhaps assessable actions, even for the members of the culture itself.[1] And further, research in these disciplines may be aimed at giving a voice, at providing opportunities for the kinds of cultural commentaries that otherwise would find no outlet in the public domain.

If we think of the nature of research in the humanities and social research, one of the most obvious means and indicators of impact is the visibility and accessibility of research. Does the research or research programme have a visible presence in public debate? Have its results been accessible to those groups who are perceived as the primary end-users? What plans has the research project had and what has it actually done to bring its results into the public domain? What kinds of texts have been produced, where have they been published, have project researchers been consulted for expert opinion, have they contributed to public debate, in what way? All of these are indicators of impact via which research can be assessed both ex ante and ex post. None of them, however, are straightforward and unambiguous: an extensive debate played out across the media does not necessarily mean greater impact than if the research team provides training for a small specific interest group. But from an impact point of view visibility is certainly something that can be expected and required – although again within the context of the subject-matter and the aims of the research.

A research programme, then, should be expected to achieve broader social impact. In fact, the launch of a research programme is in itself an important science policy achievement, an exercise in social policy by scientific means. Given the huge investments involved, one might well expect to see some visible traces. At the very least, one might expect to see more debate and discussion and more articles about the subject of the research programme. In this sense the targeted call on Power, violence and gender clearly had a social impact, as is indicated by a search on two national databases (Aleksi and Arto).

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1 Social sciences research rarely, and cultural studies even less so, is about providing a full and complete representation of the phenomenon under investigation. Rather, they are about drawing a map that gives more depth and variety to people's life in their historical existence. In this sense they are about more than just providing a representation of reality; they create sense and order by analysing and dressing into words the human condition and people's actions in their social environment.

Newspaper articles on domestic violence

	Aleksi	Arto
1990–1994	34 (6.8/year)	49 (9.8/year)
1995–1999 (19.6/year)	90 (18/year)	98 (19.6/year)
2000–2004 (27.2/year)	208 (41.6/year)	136 (27.2/year)

The figures indicate that at least during the stages of project planning and implementation, the number of articles published on domestic violence increased several times over. This is explained both by the soliciting of researchers' expert opinion, news coverage on the projects and their results and by the involvement of project researchers with their own texts in public debate.

Viewed from a different angle, the impact of the targeted could be assessed in terms of whether there have been any changes in the way that the phenomenon is discussed. One of the major criticisms of the targeted call concerned the concept of domestic violence itself, which was widely regarded as concealing the agent of violence, as if violence just "happens" within domestic settings, as if there were no subjects involved, no experiences and no consequences. This kind of impact analysis would obviously require a more detailed examination of the contents of the debates and discussions, but a crude indication is also provided by the appearance of such new terms as "violence in couple relationships". Prior to 1996, the Aleksi database did not include a single article dealing with violence in couple relationships; in 2000–2004, there were 18, or 3.6/year. The figures from the Arto database are very similar: before 1999 the term was virtually non-existent, in 2000–2004 it is mentioned as a keyword in ten articles.

The analysis above is just a simple experiment of how changes in the visibility of a subject-matter over time and the dissemination of its concepts could be used as an indicator of the impacts of a *research programme.*

Power, violence and gender was by the Academy's standards a small research programme. However, it addressed a sensitive social problem and coincided with nationwide projects launched by the Ministry of Social Affairs and Health. In this sense there was a clear target and an existing channel for the impact of the research knowledge produced. For this reason the targeted call also serves as an example of the mutual dependency of impact and the collaboration among the agents involved. The Academy's project was launched at a time when Ministry-coordinated projects though the National Research and Development Centre for Welfare and Health, Stakes, were at their most active, issuing communications and organising training seminars. This was an opportune time for researchers to act as experts. It is also for this reason that the programme cannot take full credit for the figures quoted above, but the changes came about first and foremost as a result of collaboration.

However, even if a research project has a clear social and cultural impact, it is important not to ignore the theoretical objects mentioned at the beginning. Research exercises an impact above all by doing a good job in generating broad and sound theoretical knowledge. The work that is done by the research community out in the field is only a secondary channel of impact – the targeted call described above also pursued a strategy whereby its researchers took an active role in terms of their social agency.

4.1.2 Weak signals – strong impacts: Targeted calls on Social capital and networks of trust and Intellectual property rights

Social capital

Conducted under the umbrella of the Social capital programme (2004–2007), the impacts of the research project on "Collaborative innovation – trust and cross-border virtual teams as key elements of innovation networks" are discussed here with special reference to scientific impact. The main focus is on the impacts of the project on research, university education and university strategies. The project was set up under the direction of Professor Kirsimarja Blomqvist from Lappeenranta University of Technology (LUT). The funding made available to the project through the Social capital programme has allowed postgraduate students to pursue their research and to attend seminars and training and contribute to a publication produced by the programme. Furthermore, programme funding has had a major role in boosting the credibility and self-confidence of the research team.

Impact of research and university strategy

The research conducted within the project has not directly impacted the strategy of LUT or its Department of Business Administration. Instead, the research team has given active thought to its own role within the university, nationally as well as internationally. In what regard has it been unique, how has its own efforts complemented the work of other research teams?

The debates and discussions within the research team on strategy issues have helped to clarify its own role, identity and objectives. As the team continues to grow and develop and as its research focus continues to sharpen, there is every reason to expect that collaboration with other research teams will continue to increase. Already this collaboration is reasonably extensive, and in many cases the initiative has come from the team itself.

Indirectly, research on the role of trust and network cooperation in knowledge-intensive organisations may well have had an impact on university practices. Professor Kirsimarja Blomqvist has been involved in setting up the multidisciplinary Technology Business Research Center (TBRC) at Lappeenranta, and earlier served as director of the centre. In 2002–2005, TBRC projects led to 15 doctoral dissertations in the fields of business administration, industrial engineering and management and information technology.

The following offers some numeric assessments of the impacts of the Social capital project in 2004–2005:

Scientific impact of research

The scientific impact of research is traditionally assessed in terms of the number of scientific publications and involvement in the work of the international scientific community. In 2004–2005, publication figures for Kaisa Henttonen and Risto Seppänen (who were awarded the first two doctorates in the research team funded under the Social capital programme), Riikka Ellonen and Professor Blomqvist were as follows:

• 7 journal articles
• 4 internationally refereed book chapters and
• 13 conference papers

In addition, Professor Blomqvist is involved in the work of the international scientific community through her reviewership of international conferences and three international science publications. She is also a founder member of the First International Network on Trust (FINT). In response to requests from the EU project EcoLead, she has hosted a workshop in Holland on the project's results. International research cooperation around the Social capital project is currently starting up (comments on research papers, expert visits, joint articles and possibly joint projects) with Danish and US universities.

Positions as external reviewer and opponent of PhD dissertations

Positions as external reviewer and opponent can probably also be counted as part of the scientific impact of research. In 2005, Professor Blomqvist pre-reviewed two Finnish and one Australian dissertation and was the official opponent of one Finnish PhD dissertation.

Formation and development of the research team

In 2005, the research team took onboard new postgraduate students working in the field of information management. The team now includes seven PhD students, Blomqvist and two other professors, one postdoc researcher and one part-time researcher-teacher. Professor Kaisu Puumalainen, Professor in Technology Research who specialises in quantitative methodologies, is the second supervisor of the three postgraduate students in the Social Capital project. In general, the research team works closely with colleagues in the field of technology research and international marketing.

From basic to applied research and vice versa

In 2004, partly in response to the research results from the Social capital programme's project and partly in response to business needs, a Tekes-funded project was set up to explore factors impeding and promoting innovation in major business companies. The initial findings of these projects have in turn led to new Tekes projects at the Departments of Business Administration and Industrial Engineering and Management. One of the talented young researchers involved in a Tekes project proceeded to start up a doctoral thesis project with funding from the Social capital project – providing an example of the links between funding for applied and basic research.

Impact of research on education

A conscious and deliberate effort is made to ensure that students have access to the latest research knowledge generated in the Social capital project. LUT is the only university in the country with an advanced course on Trust and social capital. Lectures have included discussions both on research results and interesting ongoing projects

and research issues, as well as on theory and its practical applicability and the practical challenges of working life. Students are given a choice between an applied project assignment (theory + small empirical application) or a more research-oriented subject, such as the measurement of social capital. The postgraduate students on the research team each deliver a lecture lasting 30–45 minutes on their own research subjects.

In spring 2006, Professor Blomqvist and the other professors set up a postgraduate training course on 'Collaborative Innovation and Organisational Innovativeness'. Organised by the LUT Centre for Training and Development, the courses also make good use of the latest research results; a good example is provided by the advanced information management course during winter 2005–2006 on 'innovative networks'. Furthermore, Professor Blomqvist has also served as visiting lecturer at the Helsinki School of Economics, Helsinki University of Technology and at EDHEC University, France.

The methodology studies under the Social capital programme have benefited LUT postgraduate students more generally as well. Professor Kaisu Puumalainen is currently working to incorporate the network analyses and multidimensional models introduced at Social capital seminars into a postgraduate training course on research methodologies.

Dual knowledge interest and the nature of research

The project has aimed at achieving both theoretical and practical impact. The primary aim is to generate new scientific knowledge, but at the same time to 'popularise' that knowledge and to make it more readily available for commercial application. This dual knowledge interest has its background both in personal ambitions to produce relevant research and in practical reasons. Most of the funding for the research team has come from outside sources (Tekes, business companies), who expect to receive new applicable information in exchange for the money they have invested.

Media popularisation of new knowledge and information

The transfer into practice of the new knowledge produced in project theses, doctoral dissertations and postdoc research is a challenging task indeed, but also hugely interesting and motivating. It allows research to reach a larger audience. Research projects under the umbrella of the Social capital project have compiled their results and findings in printed or CD-ROM publications that include both popularised texts, workshop papers and scientific articles. Ultimately, it is expected that the results will be summarised in a Finnish-language book or books. Project researchers have been attending workshops and other special events hosted by Technology Centre Kareltek in order to learn how to report their findings succinctly. Professor Blomqvist writes regular columns, and together with research colleagues she has also written short popular articles for the in-house journals and intranets of the companies involved in the research project, compiled executive summaries and slide shows. In the media, project researchers have commented on their research themes on several occasions.

Communicating research knowledge via seminars for the general public

Clear and concise communication and reporting that respects its audience may inspire new ideas in its readers and listeners, possibly even call into question prevailing attitudes and practices. Professor Blomqvist has given lectures to top management at major business corporations, entrepreneurs, nurses, firemen, teachers, politicians and shop stewards. The communication of research results to various groups in society requires a keen understanding of the context in which each of these target groups go about their business and an ability to tailor the language and to some extent the message of the presentation accordingly. Business management is often interested in questions of trust from a strategic vantage-point, hospital staff in turn are primarily interested in the context of patient care and internal and/or external organisational cooperation.

How does the impact of research show up?

The impact of research can be approached and studied from several different angles. The scientific impact of research is traditionally assessed in terms of the number of scientific publications and involvement in the international science community. Examples of the social and cultural impact of research may be seen when at lectures and events for the general public research provides new frameworks for analysing and understanding phenomena in business and in working life, such as virtuality and networking. Research can help to make visible and to give a name to the phenomena concealed in organisations and networks, such as fast trust, the importance of the capacity for cooperation to the generation of new knowledge and innovations, or the institutional confidence felt in organisations, and the significance of that confidence to organisational innovation.

In her capacity as senior researcher and director of the research team, Professor Kirsimarja Blomqvist has given dozens of lectures in 2004–2005 at various seminars and events for the general public, outside academia. Research results have also been reported at regional seminars on questions of SME entrepreneurship as well as local and urban development. Popular interest articles and lectures can certainly be expected to have influenced the views and attitudes of business managers, experts and shopfloor workers. This is confirmed by the spontaneous feedback from the floor after lectures to the general public as well as by later contacts. Furthermore, research can influence the development of new generations of researchers and experts through education.

Research can also have an economic impact. In principle, an in-depth understanding of trust and networking can increase the efficiency and effectiveness of organisations both within the company and in larger networks. In addition, the new knowledge created in the applied Tekes projects that have been ongoing alongside the Social capital project (Virtue 2003–2004, and InnoSpring 2004–2005) has directly contributed to building up the knowledge base of two start-up companies and indirectly contributed to the founding of these companies. One of these companies was set up by a researcher who was involved in the Virtue project, the other by an SME expert who was actively

involved in the InnoSpring project.

Exchange and dialogue with people working out in the field helps to maintain contact with the real world and to deepen researchers' understanding of the phenomena and the contexts they are studying. Experience has shown that the most relevant, fresh and interesting research questions arise precisely from the process of dialogue between different stakeholders. This dialogue can concretely lead to joint articles with experts working in business and industry and published at conferences and in newspapers. Furthermore, the project has floated ideas aimed at creating business placements for researchers and fixed-term university placements for people researching their doctoral dissertations in business companies.

The social capital and understanding that develops with these contacts also facilitate employment upon completion of the doctorate. However, it is important that young researchers and those still working on their doctoral dissertation retain a certain distance from this dialogue so that they are not overly distracted from their research. The active influence and impact exercised by the director of the research team is itself a major contribution to marketing the substance of research and education. Adult students may be inspired by a lecture to enroll on a degree course; business companies may get in touch to commission a Master's thesis or research publications. It is also easier to set up joint research projects and to solicit the commitment of business companies, when the professor in charge of the research is known to the research partners.

Impact is always a two-way street. It is crucial that researchers are aware of the boundary conditions of interaction and that they understand their own role and the responsibilities it involves. No matter how active their interaction with the world around, it is imperative that they retain their autonomy and their ability to address research questions that the researcher's intuition says are potentially important but that for the time being attract little attention beyond a limited circle of academic scholars. The researcher's interaction with society and the impact of research could be described by the phrase: 'independently together'.

Targeted call on Intellectual property rights

IPR issues were not yet particularly high on the research agenda in the early 2000s, but there were nonetheless clear indications that there would be a growing future need for research knowledge in this area. The targeted IPR call was largely driven by the needs of the economy and industry and indeed by the scarcity of earlier research in Finland. (Report by the working group on the state and level of research into intellectual property rights in Finland, appointed by the Research Council for Culture and Society, 2000).

The term "intellectual property rights" refers to intangible property, such as copyright, trademark right, rights to a commercial name, patent rights, utility model rights and design copyright. Research in this field is multidisciplinary, ranging from law through economics, engineering, biosciences and psychology to international politics.

The Research Council opened a targeted call for research on intellectual property rights and granted some two million euros to six projects in 2001–2004. Most of the projects focused on legal IPR issues, but some dealt with economic issues. A coordinator was appointed to the project to facilitate cooperation and the attainment of other general objectives set for the project.

Completed in 2004, the targeted IPR call was evaluated in 2005. One of the ways to go about the task of assessing scientific impact is to work from the assumption that the purpose of funding made available to the programme is to facilitate basic research in the field concerned as well as the education based on that research throughout the funding term. In its final report the group of experts who evaluated the targeted IPR call considered this an important impact outcome. Impact can also be considered in broader terms of laying the foundation for a discipline where there is only limited basic investment in both research and education, partly because of the multidisciplinary nature of the subject. With respect to research and university education around intellectual property rights, the assessment group noted that one of the dimensions of impact achieved through the targeted call has been precisely to establish this foundation within the field of study.

The final seminar of the targeted call serves as an excellent example of how to communicate the research results to end-users and to promote the application of those results. The seminar attracted an attendance of around 80 people, at least one-third of whom were representatives of end-users. Much of the comment on the lectures came from this group of participants, who were keen to emphasise the use-value and the direct applicability of the results of the research projects. The seminar discussions were clearly useful to both the researchers and practice experts, and judging by the feedback it was apparent that these kinds of discussions should be held more often and earlier on in the research process – so diverse and different were the views and interpretations offered at the event.

Apart from academic theses and peer-reviewed publications, it is difficult to come up with any unambiguous set of indicators for assessing the national and international significance of research results and weighing their impact. Even where publication data are used, the results will be very much dependent on the time of measurement. The tools of measurement are indeed in need of further development.

4.1.3 Impacting impact – how scientific and social impact can be taken into account at the programme planning stage: Substance Use and Addictions

One of the new ideas floated and discussed at the Academy has been the possibility of lay involvement in the planning and design of research programmes. The idea was first raised in connection with the research programme on Substance Use and Addictions. However, the decision was eventually taken that lay members would not be given permanent seats on the programme preparation group, although they might be consulted: the views and opinions of representatives of civic organisations, patient associations and voluntary organisations as well as family members and possibly abusers themselves could be heard in the exploratory workshop, for example. However, in the end it was decided that the workshop should focus on science issues and that lay people should be consulted at the meeting.

Overall, it was felt that lay involvement greatly benefited the process of programme preparation. The discussions with lay members helped to bring out areas that otherwise would have remain neglected. It is easier to assess the impact of results upon completion of the programme if questions of impact are already covered at the planning stage. As the projects selected to take part in the programme have undergone a scientific review at the application stage, there was some discussion about the point of conducting a second, ex post scientific evaluation: would it make more sense at this stage to turn to questions of impact? It was recognized, though, that impact assessments would have a better chance of succeeding 2–3 years down the road. However, it is important that researchers are not left with the impression that social impact is in itself an adequate scientific criterion in this line of research. The consultation of lay opinion has thus been one part of the pilot impact project. The importance of social impact can be stressed even from the application stage. The programme has already attracted huge social interest among other things on account of recent changes in alcohol taxation.

In connection with ex post assessments it is also possible to ask researchers themselves how they perceive the social impact of their project (whether they can identify some parameter). The elements of impact could be defined in advance: for example, 1) the interest shown by people working in the substance use field in the project's results, 2) the interest shown by researchers in the results, and 3) further training. In addition, one impact issue could be singled out in each of the thematic areas of the programme memorandum.

It is important that the assessment of scientific impact is kept separate from social impact, even though the two are not mutually exclusive in the assessment stage. The quantitative component of scientific assessment (number of degrees etc.) is easy to complete immediately upon completion of the programme. It would be useful to assess the achievement of social impact at the programme level as well, and not only at the project level.

Applications submitted to the Research Council for Culture and Society and funding decisions in 1996–2000, general research grants.

Field of research	Applications		Funding decisions		%	
	no.	eur	no.	eur	(no.)	(eur)
Architecture and industrial design	1	58 792	0	0	0	0
Philosophy	51	13 844 402	10	1 740 614	19.6	12.6
History and archaeology	130	35 419 457	30	4 430 592	23.1	12.5
Economics	22	5 079 074	6	946 579	27.3	18.6
Education	82	19 076 196	18	2 607 023	22	13.7
Linguistics	84	23 457 944	18	3 107 315	21.4	13.2
Cultural research	48	9 875 854	15	1 889 678	31.3	19.1
Business administration, economic geography and production economics	35	12 127 169	6	1 230 415	17.1	10.1
Law	30	8 504 238	12	1 757 370	40	20.7
Psychology	69	17 011 346	11	2 003 259	15.9	11.8
Social sciences	86	19 711 856	28	3 997 276	32.6	20.3
Art studies	76	20 666 288	18	2 523 811	23.7	12.2
Theology	32	9 167 136	10	1 791 410	31.3	19.5
Statistics	16	2 906 044	2	277 514	12.5	9.5
Political science and administrative science	43	11 739 159	11	1 576 837	25.6	13.4
Communication and information studies	19	5 554 964	4	528 576	21.1	9.5
All total	824	214 199 919	199	30 408 269	24.2	14.2

5 Do assessments help to enhance impact?

The first discipline assessments in Finland were conducted in the early 1980s. By the turn of the 1990s, the pace of these assessments had stepped up significantly. The development efforts based on these assessments focused on three main areas. Firstly, the scientific community itself could respond to the assessments and their results; secondly, the Academy could make use of the results in its funding decisions; and thirdly, it was expected that the assessments would provide direction for the development of science policy more generally.

Appendix 1 to this report provides a matrix table of how research programme and discipline assessments in the fields under the Research Council for Culture and Society have been utilised. The analysis shows that these assessments are a necessary process, both for individual researchers, research communities and science policy actors. The assessments always have an impact on learning and they also steer the direction of learning. However, the methods of assessment warrant special attention.

Various reasons have been suggested for the growth of systematic assessment. One explanation has it that the growth of assessment ties in with the common perception that there is an increasing scarcity of research resources and, on the other

hand, that basic research has assumed ever greater importance as a competitive factor. For this reason it has been necessary to identify the contribution of research to social, technological and economic development. To some extent this also ties in with fears of basic research being overshadowed by applied research.

Evaluations may focus on different parts or areas of the research process. Impact assessment has been considered particularly difficult and problematic in the case of basic research. Partly for this reason, the main focus has been turned to outcomes, i.e. usually to the quantity and quality of publications. Discipline assessments have usually been concerned to evaluate the level of research in the field concerned. This, in practice, has implied a reference to publication numbers.

Traditionally, the criteria used in the evaluation of research have been defined with the scientific community, on the basis of expert views on the quality of research. Recently, however, there have been some signs of a shift from internal towards external criteria. This has been reflected among other things in the growth of external demands upon research. The requirement that research should have an impact and produce benefits has thus become a central criterion for high-quality and successful research. This shift is only partly reflected in discipline assessments, because despite the external demands imposed by research funding agencies, the evaluations are conducted by other researchers who are chiefly interested in assessing the quality standards of research. This means that the criteria applied are in effect internal to the scientific community. For example, the shift in the evaluation of research programmes has been more clearly in evidence, because in this case the impact of research has often been a more prominent issue.

5.1 Assessment of business competence

The state and level of Finnish research on business competence was evaluated in 2004 by the Academy of Finland. In practice, the evaluation was conducted by a high-level international panel chaired by Professor Yves Doz from INSEAD in France. The evaluation report, *Research in Business Disciplines in Finland,* was published in January 2005. In addition to visits and interviews, data for the evaluation were collected in a major questionnaire survey. In what follows, the responses to these questionnaires are reviewed from an impact point of view.

The views offered by Finnish units engaged in business research pointed at a wide variety of different types of research impact, indicating that there are not only several channels and manifestations of impacts, but many different aims and objectives in this field of research as well as various means with which those aims are pursued.

A few distinct categories clearly stood out from the responses: education, research, expert posts and positions and other activities in the public sphere. In addition, for purposes of the analysis, scientific publishing was identified as a separate category, in spite of well-documented difficulties in its use as a measure of impact. The difficulties surrounding the traditional distinction between education and research, on the other hand, came as something of a surprise. This became most apparent when studying the units' own views on research funding as well as on their own strengths and weaknesses.

Discipline assessments usually make a strict distinction between education and research, and unit funding is also based on that traditional distinction. Nonetheless, it

is immediately clear from the questionnaire responses that the separation of educational responsibilities from research is not really tenable. The problems of core funding and the scarcity of resources are reflected in research operations, and funding specifically earmarked for research purposes is not enough to fill the gaps in core funding. In this situation it is impossible to achieve the ultimate purpose of research funding, that is to support research and to raise its quality standards. However, the significance of monies invested in education should not be underestimated: many of the respondents agreed that education was an important channel of impact.

Sometimes the perceived shortage of research funding may be primarily attributed to the problems with core funding. On the other hand, another major reason for the sense that there is not enough money for research lies in the scarcity of long-term funding: it may be extremely difficult for the unit to achieve real results and impact if it is spending most of its efforts and energy on trying to secure the funding it needs. One possible way out of these financial straits is provided by private funding, although that may be considered to threaten the autonomy and independence of researchers.

Collaboration with the private business sector was thought to be at a fairly high level as it was. Indeed, industry-academia cooperation has sometimes been mentioned as one of the outstanding strengths of the Finnish research system that benefits all parties concerned: researchers gain access to relevant themes for their work in the shape of real business problems, while companies can benefit from the research results in their everyday operation. There was some variation from unit to unit in the extent and form of this cooperation. Traditionally, at least industrial engineering and management units have been known for their close business contacts, but schools of economics and economics departments at universities have also been working to step up their contacts with business and industry. A good example of successful development efforts in this field is provided by the role of research units and centres as highlighted by the panel of experts. In spite of the prospects and promises of increased collaboration and private funding, it was considered crucial that researchers retain that independent and critical role: universities are not just sites for conducting research commissioned by business and industry, but the scientific community has a broader mission beyond this practical function that directly benefits business and industry or society at large.

Perhaps the most important focus for the development efforts of the units responding to the questionnaire – as often recognized by the units themselves – was internationalisation. The lack of international cooperation was clearly in evidence both in the case of research and publishing and in expert posts and positions and researcher mobility. On the other hand, it is very difficult to assess how genuinely the principles of multidisciplinarity or business collaboration were realized in the projects mentioned by the units.

Overall, the units' responses and descriptions of the impacts of their research were quite a disparate collection; some of the descriptions left an impact in their own right. The image they conveyed was of a discipline where the research units pursue their diverse strategies to achieve their respective goals, with varying degrees of success. All units reported having to contend with the same kinds of challenges thrown up by the escalation of pressures from multiple simultaneous sources.

It is obviously not possible to provide an exhaustive account of the impact of

research conducted at these units solely on the basis of these relatively simple questionnaire items and the concise responses offered. In order to gain a fuller picture it would be necessary to conduct a more in-depth analysis of this research and its background. This kind of material does of course have its uses where questions of research impact are concerned, but it is by no means simple and straightforward to develop and administer such a questionnaire or to interpret the responses obtained.

The questionnaire included an item in which the units were directly asked about the impact of their research. The statistical analysis was confined to the responses to these questions only. If questions of impact were dealt with elsewhere in the responses, these views could be brought up in the text itself. On the one hand, the responses to the questions concerning the impact of research were mixed and varied, because the question offered no set definition of what was meant by impact; on the other hand, the question asked the units to quote examples of any cooperation they had had with business and industry, which prompted responses most particularly on this aspect. However, it is impossible to say whether the concept of impact should be defined or specified in connection with such a questionnaire: if such a definition is put forward, that may have the effect of producing more homogenised responses and make them more easily comparable, but on the other hand, it may produce responses reflecting social desirability effects. For various reasons the responses cannot be considered fully comparable even as they stand now.

One possible option might be to give respondents the opportunity in open-ended questions to define impact themselves: before answering the question of the impact of their work, respondents could be asked to specify what scientific and social impact means, how it is manifested, how it can be examined and measured, what kind of channels it takes. It is unlikely that these definitions would be constructed narrowly to reflect only one's own field of research or project. This could be done until such time as the debate on the impact of research has permeated the scientific community to such an extent that the concept of impact does not always need to be separately defined. These kinds of questions can have the important effect of increasing this kind of consciousness and debate – assuming that people can spare their precious time and go to the trouble to answer these questions.

5.2 Assessment of women's studies and social impact

The Academy of Finland commissioned a discipline assessment of women's studies and gender research in 2002. The assessment was conducted by an international panel, which published its findings in a report entitled "Women's Studies and Gender Research in Finland". The assessment focused on women's studies and gender research conducted in 1995–2001 at centres for women's studies, at university departments and government research institutes.

The questionnaire conducted for the assessment included items on activities of general social relevance. The question was formulated as follows: "Please describe other activities you have been engaged in since 1995 that you regard as significant not only for the scholarly community, but for society at large (e.g. other publications, newspaper articles, radio and TV programmes, acting as an expert or consultant in organisations or public bodies, significant positions in organisational activities)."

The analysis of the social impact of women's studies was very much hampered by the fact that this key question had not been understood as intended. Indeed, it is essential that future inquiries pay special attention to formulating its questions. One option could be to break down the question into a range of different items. This would help to specify what kinds of activities were significant particularly for women's studies, which apparently was the intention of the question in the first place. In other words, the question failed to make clear that in this case impact refers to the impacts of research conducted. Indeed, most of the responses consisted largely of lists of various academic positions and assignments or activities in civil society, which obviously shed very little light on the social impacts of research or the contribution of scientific research to the activities described. These activities referred, for example, to media appearances, publications, speeches and lectures as well as various assignments.

The Academy assessment of business disciplines in Finland also included an item in which respondents were asked about the socio-economic impact of research. Compared to the question in the assessment of women's studies, the questions were far more clearly formulated.

The impact of research on society can find various different expressions and be channelled in various different ways. Publications are the most visible form of impact, but another important way of furthering the impact of research is through expert posts and positions. Impact may also be channelled through students or through the promotion of scientific development. The purpose of the panel of experts was to collect concrete information on the avenues via which researchers can exercise an impact on society, such as decision-makers and the general audience. Indeed, the responses to the questionnaire amounted to a long list, but the absence of the science perspective means that it is impossible to draw any meaningful generalisations. Quite clearly, the majority of respondents did not understand what the question really was about. The report divides the responses into three categories: lay/semi-academic publications, public/media appearances and public/expert posts and positions.

It was interesting to observe that most of the respondents were also active outside the academic world. The responses demonstrated a range of new opportunities to transfer knowledge into society, such as various cultural activities in which the respondents were actively involved. The researchers referred among other things to art and dance productions which they said exhibited a strong feminist/women's perspective: these included traditional poems, women's music, visual arts events, festivals. All of these can also serve as tools for the popularisation of science.

6 The impact of cultural and social research

With the ever more pervasive emphasis today on results, benefits and profits, science and research today is under increasing pressure to show an impact. Investments made out of the public purse are expected to pay back. Although funding for research has increased considerably, competition for that funding has increased even more. This is seen both within the field of science and in the interaction and exchange between

science and other spheres of life. Whenever questions are asked about the allocation of funds, about why science is more worthy of support than health care or the police service, the attention turns to impacts. Every aspect of the debate on impacts is pervaded by money. The investment must generate a worthwhile return. Science is expected to represent a significant force of production whose national function is to strengthen the competitiveness of Finnish business and industry in the global market economy.

People representing disciplines concerned with culture and society have had two strategies in this debate. On the one hand, they have pointed out that not all values can be measured in money terms. The aim is to try and contain the impacts of research within the field of science. Knowledge is considered valuable in and of itself; it is not thought to be necessary separately to identify any instrumental values. The thinking is that civilised society should support and sponsor science in the same way as it supports and sponsors art and other forms of culture. Science is thus protected from the practices and principles of business. The concepts of accountability, benefits, efficiency, performance targets, competition, measurement and impact are rejected by reference to civilisation and scientific autonomy. Dependence on the outside society is a problem, because science has to be able to justify the value of civilisation and autonomy in order to get the funding it needs. Nonetheless, it is accepted that at least within the scientific community, it is necessary to have debate about what is good and worthwhile and what has a positive impact.

The other strategy is to accept the challenge presented by society. Questions of impact and even benefits are discussed and debated, but not without weighing and defining the rules of discussion and debate and interpreting the concepts. The utility and benefits of all research must be open to discussion so long as those concepts are understood in broad enough terms. Specifically, this means that indirect impacts are also taken into account, as are those that evolve over time. In many cases, the significance of individual research results only becomes apparent in a broader context. The debate on the impacts of research must be tied in with the question of quality, because only high-quality research can have a real impact.

The criteria for impact need to be defined more closely. It is necessary to take account of the various different channels through which impacts can be exerted. Researchers exert an impact through their publications, but also through the tuition they provide, through administration, positions of expertise and grassroots activities. Publications and the way that research results are represented are divided into a number of different categories. The audience consists of other researchers, students and people outside the scientific community. Indirect impacts also comprise the growth of knowledge and understanding, which gives greater exposure to the problems and encourages public debate in society. Impact is a complex web through which research knowledge is utilised and human welfare advanced.

The problem for those who take a favourable view on debating questions of impact is that even the broader concept of benefit is too narrowly defined. The value of scientific research is not confined to the external and to the instrumental. It might be possible to defend the view that all research should ultimately promote the good of human beings. However, many feel that the aim of science is to uncover the truth, regardless of well-being.

Research can promote welfare without producing tangible products. Research can have two main types of results: instruments that promote welfare but also components of welfare that have value in their own right. The results of basic research satisfy people's intellectual curiosity. Research in the human sciences also produces forms of communication that are part of human life as well as moral and cultural consciousness. None of this has any external benefit. One may ask whether life without intellectual curiosity, a culture of knowledge and morality based on autonomous deliberation would be worthwhile and significant even in the presence of boundless external good. If it is absolutely necessary to use the concept of benefit, then one should talk not only about the instrumental, but also the constitutive.

Questions of impact call for a dual strategy. It is important to stress that the value of science lies not only in the externally beneficial. Science must be maintained and upheld if for no other reason then so that people can express themselves as thinking, moral and cultural creatures. If indirect and long-term external impacts are additionally taken into account and carefully examined, then it is possible to show that science is a beneficial and profitable investment.

The natural sciences and human sciences have to contend with largely the same problems when it comes to the impact of science. There are also certain types of impact that specifically apply to the humanities and social sciences. In addition to having intrinsic value, these fields are useful externally, because they are needed in identifying and resolving social problems. Knowledge gained through human sciences research can help people to make informed decisions and avoid ill-informed ones. It also helps citizens to understand themselves and one another, to criticise those in power and to protect themselves against the abuse of power.

One way to defend the value of cultural and social research is as follows: The purpose and function of human sciences research in history and other disciplines is to explain how our way of life has evolved and how the present differs from the past. Research helps us to see which features and characteristics of the environment are permanent and which are variable, which are necessary and which are random, which are intentional and which are unintentional. This function ties in with understanding, critiquing and building. Research concerned with historical questions may engender sympathy towards people who lived in the past, who through no fault of their own have had to make fateful choices on the strength of lacking information. Research can also criticise the use of power by disclosing myths and low motives both in the past and in the present. It is even possible to learn from research. Studying societies of the past and the present as well as their cultural phenomena provides a useful platform for looking ahead to the future, albeit often by staking out the boundaries of what is possible rather than by offering ready-made solutions.

What was said above does not suffice as an answer to the question of impact. It is also necessary to know how much needs to be invested in research concerned with culture and society in relation to other fields of research. It can also be asked what kind of research has particularly strong impact within the human sciences. Why should more money be given to this project than to that? Or to focus more on the principle of the matter, should priority be given to research that produces not only internal value and significance, but that is particularly strong on external impact and benefits. But this road leads us back to the problems of measurement, foresighting and indirect impacts. It is important to encourage more diverse debate and discussion

on the focal areas of research in disciplines concerned with culture and society. All interested parties should contribute to this debate; not only researchers but also representatives of government and business and industry as well as ordinary citizens.

There has also been some debate recently on whether or not there is an obligation for Finnish society to support and sponsor basic scientific research, even if the general significance and impact of science is recognized. Doubts have been voiced over whether Finland really has adequate resources to support basic research, or whether it would do wisely to focus on applications that have immediate effects? If basic research is expensive, then why conduct basic research in Finland? Would it make more economic sense for a small country to import knowledge from abroad and to apply that knowledge to local needs?

Seen from the vantage-point of sciences concerned with culture and society, this question can be answered as follows: The humanities and social sciences are contextual, dependent on time and place. If research is to have impacts that have a bearing on Finnish society, then it is also necessary to have researchers who are familiar with the Finnish context. This goes beyond the traditional argument that Finnish history, culture and society and Finnish language are only of interest to Finnish scholars, that no one else has the know-how. In this age of globalisation Finnish researchers must explore culture and society in other European countries as well, indeed in the whole world. It is also necessary to bear in mind that research concerned with culture and society must be constantly rewritten because the context is constantly changing, as are the views and opinions of researchers and the general public about the functions of research. It is not enough simply to adopt and pass on knowledge from elsewhere. In order to be able to do this reliably, one has to be a researcher. Bringing impacts to bear upon the broader society is a challenge that can only be adequately taken on by a researcher who applies the internal criteria of science and who is capable of working within the international scientific community.

Appendix 1.

Research programme and discipline assessments: responses and reactions

Programme/Discipline assessment	year	Academy publication	Steps taken in response to findings
Evaluation of the Research Programme for Russia and Eastern Europe 1995–2000.	2001	4/01	Findings put to use in planning the Russia in Flux Research Programme (2003–2007).
Finnish Research on Foreign and Security Policy.	2002	4/02	One of the starting-points for the evaluation was the security policy research programme conducted in the late 1990s at the Finnish Institute of International Affairs with special funding from the Ministry of Education. Following the evaluation, the funding allocated to the programme was made part of the general government transfers to the Institute. Discussions carried on within the scientific community and in the media in connection with the publication of the assessment. The recommendations put forward were of a general nature that rather than focusing exclusively or specifically on foreign and security policy research dealt with distinctive characteristics of the Finnish research system in general. The way in which the assessment was conducted attracted some discussion and intense critique.
Research Programme on the Economic Crisis of the 1990s: Reasons, Events and Consequences 1998–2001.	2002	7/02	Lively debate during the programme and at its final seminar. Research programme as a whole very heterogeneous, large number of small projects. Programme themes also covered in the ongoing programme on Social capital and networks of trust (e.g. economic development, capacity for change in labour market).
Women's Studies and Gender Research in Finland.	2002	8/02	One of the objects was to conduct an evaluation of the fixed-term professorships in women's studies established by the Ministry of Education in the late 1990s. Results of the evaluation used in the process of filling the Minna Canth Academy Professorship, in discussions on the duration of research projects (partial impact), in Ministry of Education decisions on the extension of fixed-term professorships in women's studies, in the preparation of Master's programmes in women's studies (partial impact), in the development of a virtual university network in women's studies, and in the development of a national information and documentation service for equality. The development of Academy of Finland information systems (with a separate component for women's studies) not yet completed, because this is part of the broader development of Academy monitoring systems for interdisciplinary projects.
Media Culture Research Programme.	2003	8/03	Supported collaboration between the Media programme and stage II of the Information Research Programme. Extension of both research programmes (partial impact). Development of research programme strategy.
Research Programme on Marginalisation, Inequality and Ethnic Relations in Finland.	2004	3/04	Background for the programme in the 1997 report by the Research Council for Culture and Society on the current state and development needs in research on racism and xenophobia in Finland (initiative from MoEd/Council of State). Experiences from the assessment used in the development of the research programme strategy (development of multidisciplinarity, coordination and programme funding). Themes followed up e.g. in the strategy for development research. Programme was particularly successful in its studies on ethnic relations. On this basis the Research Council is looking into the feasibility of launching a new programme on religion, ethnicity and identity.
Interaction across the Gulf of Bothnia. Kahden puolen Pohjanlahtea.	2005	5/05	Five different types of funding bodies involved (Swedish funding: Bank of Sweden Tercentenary Foundation and Swedish Council for Research in the Humanities and Social Sciences). Recommendations of the evaluation report used in planning and implementing jointly funded projects, experiences gained e.g. for the practice of ERA-Net cooperation.
Research in Business Disciplines in Finland.	2005	2/05	Findings used in the preparation of the research programme on Business Competence (Liike2) and in focusing its research interests.

Appendix 2. Background material

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Keskustelutilaisuus, Vaikuttavuus historian tutkimusalalla, 12.12.2005 Suomen Akatemia. Nauhoitus. [Impact in historical research, discussion 12 December 2005, Academy of Finland; recording]

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Vuosina 1996–2000 rahoituspäätöksen saaneiden historian ja arkeologian alan tutkimushankkeiden vastuullisten johtajien ja tutkijoiden vastauksia lähetettyyn kyselyyn yht. 17 kpl. [Responses (total 17) to questionnaires sent to the directors and researchers involved in history and archaeology research projects funded in 1996–2000.]

Vuosina 1996–2000 rahoituspäätöksen saaneiden kielitieteiden alan tutkimushankkeiden vastuullisten johtajien ja tutkijoiden vastauksia lähetettyyn kyselyyn yht. 8 kpl. [Responses (total 8) to questionnaires sent to the directors and researchers involved in linguistics research projects funded in 1996–2000.]

This report addresses the following questions: What is impact in the humanities and social sciences? How is impact manifested? How can impact be identified, and how can it be promoted?

The focus of the report is on the social and scientific impact of research funded by the Academy's Research Council for Culture and Society. Impact is an integral part of the tradition of cultural and social research: research in these fields is in itself a social intervention.

The report includes case accounts of Council-funded research projects. The levels and styles of impact are many and varied: cultural and social research is far from being a unified and homogeneous field.

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