To facilitate the interplay between researchers and practitioners, a creative experimental interaction has been developed. An information package—INFOPAC—is attached to each new research project receiving financial support from two research-funding organizations in Sweden. Project leaders are offered one day of training in both theories concerning research dissemination and practical application. The first task for the participants in the training is to write a press release and send it to chosen media. An information consultant attached to the projects then measures the outcome. The information consultant also follows up and helps the course participants during the period of the project funding. The trial with INFOPAC has been in progress for three years, and the results achieved so far are reported in this article and placed in their theoretical context.

Report: INFOPAC—Researchers Learn Research Dissemination by Doing

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Background

Important groups that can influence researchers to take a greater responsibility in research dissemination are those that provide funding for research. The point of departure for the following discussion can be summed up in Figure 1.

The figure shows how research dissemination work is often undertaken at a late stage in a research project. Whether it is the researcher, his or her institution, or the organization funding the project, the bulk of the information is

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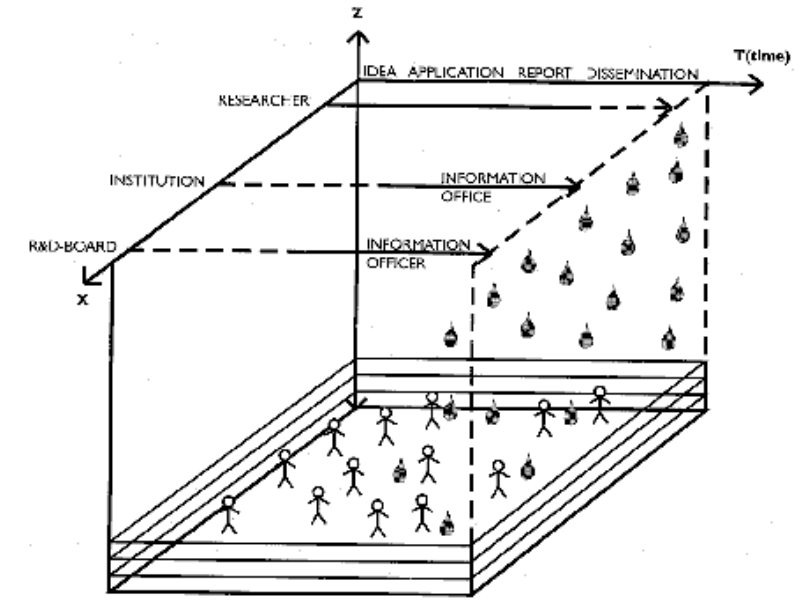

Figure 1: Research Dissemination and Funding Organizations
NOTE: Research dissemination is often conducted in the final stage of a project and for the recipient can come as an unexpected shower of reports. One should endeavor to allow *Z* (the distance between researchers, institutions, funding organizations, and the recipients) to proceed toward zero and to pursue research dissemination along the entire time axis (Tydén 1992).

produced during the final stages and falls on inquiring minds and deaf ears alike. Experience from empirical studies (e.g., Tydén 1993) shows the importance of integrating research dissemination into a project as early as possible and identifying the prospective users and, as far as possible, engaging them in the project. Huberman (1990) expressed this in the following way: "Work in the area of research utilization has emphasized the importance of contact between researchers and practitioners not only at the close of a study, but also before and, above all, during its conduct" (p. 363). Translated to Figure 1, this means that one should endeavor to allow *Z* to proceed toward zero so that the recipient approaches the project as closely as possible. Moreover, a research dissemination project should begin as near to $T = 0$ as possible, and the work should be conducted continuously along the entire time axis.

Those organizations that disburse research grants are well placed to influence the work with research dissemination in that direction. Below is a checklist of points within the process at which research funders can take measures to achieve this. The list is based on a study of disbursing authorities

and research dissemination (Tydén 1992). These points will be discussed briefly and followed by reporting on a project in which two funders have developed and exercised a method to improve the last of the listed points: training in research dissemination.

CHECKLIST
Application
Processing research applications
Status
Analysis of target group
Continuous feedback of results
Training in research dissemination

It is important to bear in mind that the checklist is composed of points intended to help funders to promote dissemination adapted to specific needs. The form in which the research information is presented is not discussed. This can vary from project to project and from one project area to another. Sometimes, an internal work report might be the best form, sometimes a summary of expertise within a particular field of interest, and sometimes a seminar, an exhibition, a book in popular science form, an article in a newspaper, and so forth. What is best in each individual case must emerge from the dialogue between researcher, funder, and recipient. The chief purpose of the checklist is to pave the way for a dialogue.

Application

In the guidelines for researchers on how to complete an application form for a research grant, it should be made plain that a precondition for financial support is that the researchers should present a scheme showing how they intend to conduct their research dissemination. The form should have a designated space in which applicants must state their aims and plan for dissemination of research results. For example, the application form can contain a section in which applicants state which recipient groups have been identified, what contacts they already have with prospective recipient groups when designing the research project, and what plans have been laid for future dissemination. In the past few years, an increasing number of funding organizations in Sweden have started to insist on such details.

Processing Research Applications

Officials of the research-funding organizations process the applications. The applications are usually sent to a number of selected persons for consider-

ation. The project proposals are scrutinized in the customary way regarding such aspects as relevance, choice of method, theoretical associations, and so on. Dissemination questions often receive only cursory attention. However, there are exceptions in Sweden. The Foundation for Knowledge and Competence (KK Foundation), the Research Council of the Association of Local Authorities, and the National Environmental Protection Agency have appointed experts in research dissemination to their research committees.

From an educational point of view, it is important to emphasize the significance of involvement from both sides—sender and recipient. There are many reasons for seeking active target groups and recipient groups and for recruiting them into the project at the earliest possible stage. A basic rule for the transfer of knowledge is that interest in assimilating the results of a study is promoted by one's own participation in the planning of the project—responsibility engenders interest. Moreover, recipients can often apply their unique competence and scope of interest to give the project new dimensions that the researcher may have had difficulty in perceiving. Organizations granting research funds can demand that those who seek funding should present a well-thought-out strategy for their research dissemination that makes it possible to interest the right people in the work of the project and also to do it in the right order and at the optimal time.

Status

There is no guarantee that research dissemination will be as effective as it ought to be—even if funding organizations in their directives recommend that priority be given to research dissemination, even if an institution forms a unit expressly for this purpose, and even if there is suitable expertise available in the area and funds are earmarked for this purpose. In a study of funding organizations (Tydén 1992), it was found that processing procedures get the upper hand and information dissemination is often the first to suffer when lack of time demands restrictions or cuts. Several of the interviewees in Tydén's (1992) study blamed lack of time for their inadequate attention to research dissemination. Their responses demonstrate the low status accorded to questions of dissemination compared with other aspects of research projects.

It may be of interest to draw a parallel with the processor's assessment of a project's scientific qualities. Nowadays, it would not be acceptable to blame lack of time for the failure to assess the scientific qualities of a work when making a decision regarding allocation of funds. Yet, it is perfectly acceptable

TABLE 1
Motives and Target Groups for Research Information Conducted by Research-Funding Organizations

Purpose	*Target Group*
General improvement of expertise, democracy	General public
Improvement of scientific competence	Research colleagues
Improvement of interdisciplinary competence (often neglected)	Other researchers
Basic data for decision making (modified with time)	Designated target group
Provision of expertise for trade and industry	Designated target group
Publicity for one's own organization	Designated target group

to blame lack of time for the failure to devise a strategy for dissemination of information arising from the project.

The scientific scrutiny that today imbues institutions at all levels must in the same way be applied to research dissemination, from the highest management level down to each individual processing official. It could be made a requirement that a project application should not be regarded as ready for a decision before a feasible strategy has been put forward regarding the dissemination of the information arising from the project.

Analysis of Target Group

Research-funding organizations can have a variety of reasons for promulgating information on research financed by their own organization. Table 1 provides an example of this.

The following issues are of prime importance for effective dissemination of research information:

1. Who needs the new knowledge?
2. What distinguishes the recipient?

Targets can change during the course of a project, for example, under the influence of external factors. Within the Swedish energy research project, there are many examples of such modifications. One of these is research and development related to the introduction of oxygen bleaching in the wood pulp industry, warranted in the early 1970s by environmental considerations. However, the oxygen process stage not only gave environmental benefits; it also reduced the industry's electricity bill. As the energy debate intensified during the 1970s and 1980s, electricity consumption increasingly dominated as the reason for further efforts in this direction (Tydén 1986).

Training in Research Dissemination

Training in research dissemination can be an effective way to improve the spreading of knowledge generated by research projects. Within the academic world, courses for researchers offer little training in research dissemination. Funding organizations may play an important part in initiating and financing such things as courses, seminars, and study days on the subject. In 1996, the KK Foundation initiated a program to train the researchers who received research grants. During the next three years, this program was continuously developed, as will be described below. Some months after the start of the KK effort but almost parallel to it, the Research Council of the Swedish Association for Local Authorities (SALA) started a similar program for researchers who received grants from them. These two funders accept research applications once a year. Subsequently, they give grants to a certain number of researchers once a year, and, since 1996, those researchers have been participants in such courses. Since the start, the KK Foundation has organized three courses and the SALA five courses.

How it Started

In March 1995, the then recently created KK Foundation[1] started setting up activities to fulfill the three main tasks[2] stipulated in the statutes. Among these tasks was the support of research at the new university colleges in cooperation with commercial companies. One of the authors of this article was responsible for building and running this program as well as being the information manager of the foundation.

The following main principles for the information strategy of the foundation were formulated:

1. The KK Foundation should build an image through the projects it supported.
2. The projects should receive credit for their work. The foundation should receive credit for supporting good projects.
3. The results should be reported by the people who generated them.
4. The information should be designed to catch the interest of the receivers, not the projects themselves or the KK Foundation.
5. Apart from professional communication within business and academic communities, mainly well-established media channels should convey the results, since these have the broadest impact on society.

The KK Foundation designed an information strategy in line with these principles. The strategy was to educate the members of the research projects

in communication skills and to supply them with continuous support from a professional consultant, beginning with a focus on communication with the local newspapers. The KK Foundation would concentrate on training the project members rather than engaging directly in dissemination of project results. With media skills, the project managers also would increase their competitiveness within their own communities and hopefully increase their chances of generating support from other funding organizations.

This strategy was applied for the first time in the first major activity of the KK Foundation: the program for spreading information technology in the school system. A number of cities in Sweden had been selected to investigate how information technology and schools could work together. The cities had been selected in competition with neighboring cities. Each winner would receive up to fifteen million Swedish crowns spread over a period of three years. The aim was not to boost the development in certain cities but to support a number of pedagogical field tests of national interest. It was very important that the selected cities disseminated their results and conclusions to the rest of the country, as well as that they maintained good relations with their neighbors, who had not been selected by the KK Foundation.

An information agency[3] in Stockholm was contracted to carry out a program that would provide training and support for the projects. The activities were designed in discussions between the foundation and the information agency. The operation was very successful. During the three years that have passed in the school program, the projects have generated thousands of news pieces, increased their capabilities to handle public relations, and led to an active cooperation between the KK Foundation and the projects.

INFOPAC

In this report, we present INFOPAC, a model for training researchers in theories and methods in research dissemination with a focus on handling media relations. The model is initially based on experiences from the KK Foundation-sponsored school program.

The KK Foundation program for funding applied research at new university colleges in collaboration with commercial enterprises emphasizing knowledge dissemination. Questions concerning the information strategy and plans for information activities were included from the start in the project application forms. The information strategies proposed in the project applications were individually evaluated and discussed. No funding was released until the project had a home page on the web.

When the success of the training in the school projects was evident, the KK Foundation decided that a similar training program should be set up for

the managers in the research projects. It was to be delivered at a package price of five thousand Swedish crowns per project (approximately $600 U.S.). The package price makes it possible to integrate the information training in the research-funding budget and to avoid having separate accounts for research funding and knowledge dissemination.

The first version of INFOPAC was sketched in a meeting between the authors of this report and the information officer of the KK Foundation in late 1995. Each project manager was to receive an introductory training course and continuous support from the information office. The support included following up the project managers' work and offering them help on demand, for example, when they were planning information activities or meeting the media in sensitive situations. The training also worked as an introduction between the information office of the KK Foundation and the project managers. It was based on learning by doing. The "do" was getting an article about the research project published in the press. This is a possible task since the new university colleges are situated in many different regions. They are intimately connected to their regions, and a research grant would be considered as news in the local media.

When leaving the course, the project managers should have written a good press release. They received continuous support from the information office, which increased their possibilities of receiving the attention from the media. Successful news coverage would give the project participants a positive confirmation and spur them to deeper engagement, helping them to continue with more difficult information tasks and generating the experience necessary for understanding better how to approach selected target groups.

The first course organized by the KK Foundation was held in August 1996 at Grythyttans Gästgivaregård, a very well-reputed inn and restaurant academy. Grythyttan had managed to make a name for itself in Sweden and was a substantial influence in developing Swedish restaurant culture to a high international standard.

Many of the project managers had no previous experience in media training. We deliberately stretched the course overnight. In this way, the participants would get to know each other during the less formal activities in the evening.

The second KK Foundation course was held in January 1997 in the center of Stockholm. Due to a shortage of available time, this course was reduced to a one-day course but with the same concept described above.

The third KK Foundation course was held in January 1998 at an old castle outside Stockholm. This time, we were back to the two-day schedule. An innovation at this time was the involvement of three journalism students (performing their last year before exam). When the course started, the researchers

were told to write a one-page description of what their research project was about. They were to use the language of ordinary citizens and focus on what they thought might be of interest for this target group. The researchers were allowed one hour for this task. During this time, each of the researchers was sent to a separate room in which they were interviewed for fifteen minutes by one of the journalism students. The student was to interview the researcher and then write a short article for a regional newspaper about the research project.

Later, we met in groups to go through what the researchers and journalism students had accomplished. Each group consisted of one journalism student, a number of researchers, and one of the organizers. A researcher read out loud what he had written, followed by the journalism student, who read the article he had written. After that, we compared and discussed the differences in both focus and language. Both form and content were discussed.

After three rounds, our program now had the following content:

DAY 1
Hour 1: Researchers write a one-page press release about their research. Journalists interview the researchers fifteen minutes each in separate rooms.
Hours 2-3: Lecture on theories and methods on research dissemination. Journalists write short news pieces about the research projects.
Hours 4-5: Researchers and journalists compare what they have accomplished.
Hour 6: Lecture on what constitutes the news and how to write a press release.
Hour 7: Lecture by a well-known journalist on "what it is to be a journalist."
** Homework until next morning: the researchers write new press releases.

DAY 2
Hours 8-9: Working through press releases. Researchers present their new press releases in front of the auditorium and explain the intentions behind them.

An information consultant keeps in contact with the researchers and checks that the press releases are sent to relevant media outlets. The researchers are offered help on demand in information matters. Regular contacts throughout the funding of the projects, usually two or three years, helps to emphasize the importance of the information work and will hopefully keep up the researchers' interest. The success is defined by the number of researchers with increased information skills and the successful expansions of their activities.

As mentioned above, SALA has conducted similar courses (five total) with the same development. This occurs naturally because part of the course team includes the same persons. One difference between SALA and KK researchers is that the KK researchers only meet at one event. The researchers within the SALA programs meet every year, usually three times as the research programs normally are planned for that duration.

Discussion

During 1997-99, approximately 100 researchers participated in our courses. The response has been overwhelmingly positive according to the participants' own written evaluations. What they put forward as most positive are the practical moments in the course. Second, they praise the opportunity to meet research fellows from disciplinary fields other than their own. This is a positive side effect. There are not many cross-disciplinary meeting places in the scientific world, and there is indeed a need for them.

Most of the participants have succeeded in getting at least one article published, mainly in regional newspapers and technology magazines. There is one smaller group of researchers who have succeeded in getting many articles published. We have not investigated to what extent this can be explained by a "natural gift," a positive incentive from the faculty or institution, or other factors.

The INFOPAC experiment seems to be successful in terms of articles published in newspapers and in terms of the participants' own reactions. However, newspapers writing about research projects are not so rare; it happens from time to time. What is more extraordinary with INFOPAC is that the public discussion takes place before the projects are concluded. Usually, there is a hesitation among researchers to participate in a dialogue outside the scientific arena before the projects are completed, discussed in an academic seminar, and formally reported in a scientific journal.

This hesitation may be based on a reluctance to convey any results that have not been scrutinized scientifically by colleagues within the research community. But this should not stop the scientists from preparing for a future communication with relevant target groups in society. Researchers sometimes forget that information that is of little scientific significance may be of great interest to the rest of society. For example, it is interesting for the local press and society more generally that a funding organization has chosen to support research at the university. It also can be of interest for some industrial groups that research is being funded within certain areas.

Experiences from this project showed that participating researchers were not reluctant to disseminate information about their work. On the contrary, they welcomed this opportunity to have a dialogue with groups outside the scientific world. Many researchers already had ambitions before the course to communicate with the wider society, but they had not given it priority due to lack of recognition from the university college. INFOPAC gave them the support and status needed to pursue their interests in information and communication matters.

Another conclusion is that scientific reporting can be understandable for groups outside the academic sphere. There is indeed distrust among a number of scientists toward popular science. Arguments put forward are that it is not possible to describe research and research results if the causes that lie behind them are not thoroughly discussed—for example, the underlying theories and the methods used.

To avoid misunderstanding, it is important to stress that this line of argument is not a critique against scientific publication—it is indeed necessary that such publication take place. Scientific publication is fundamental for scientific discussion, a way to have the work scrutinized by colleagues, and a way to inform the scientific world about research in progress. But that must not replace the importance of reporting to other groups in society that are not part of the traditional scientific arena. This is particularly important in the social sciences, which often highlight questions that are part of everyday life.

Failure to report in a more accessible form is an exercise of power in that the researcher decides what others shall have access to. In a democratic society, it is important that every man, woman, and organization have the opportunity to decide what information to use in their decision making. Therefore, research results must be accessible.

It is still too early to determine the long-term effects of our education effort. In the short term, the INFOPAC training leads to press attention and greater interest among researchers for information questions. The researchers' interest in these questions is not only a product of our education. In Sweden, there has been an increased interest in research dissemination in the past few years, and a number of measures have been taken. For example, research information has been formally recognized in the Law on Universities and Colleges (SFS 1977, 1992), which obliges institutions of higher education to make research data readily available in addition to conducting their customary activities of education and research.

Moreover, research dissemination has been made an academic qualification. Another regulation states that in making appointments to the posts of professor and lecturer, particular importance shall be attached to scientific or artistic proficiency, as well as to pedagogic expertise, including research dissemination (SFS 1985, 1993). However, qualification in research information has still not been accorded any weight in the making of appointments to posts (Lönn 1990; Richardson 1992; Vihinen 1989).

In 1997, a paragraph was added to the Law on Universities and Colleges which states that "universities and colleges must cooperate with the surrounding society" (SFS 1997). We call this the third task. In addition to the traditional two tasks of education and research, these institutions in Sweden

have now been given a third task: cooperation with the surrounding society with a focus on research dissemination. The aspirations reflected in the above extracts from Acts of Parliament are indicative of the importance currently accorded to the dissemination and awareness of research work conducted at our universities, far beyond the confines of institutions of higher education. It is in this context that our INFOPAC project has taken place.

Notes

1. In August 1994, the Foundation for Knowledge and Competence was created as an autonomous foundation by the Swedish parliament. It was given 3,800 million SEK (approximately $500 million U.S.) for financing all future activities.

2. The statutes assign three main tasks: (1) to spread the use of information technology in Sweden, (2) to support knowledge transfer between academia and commercial enterprises, and (3) to support profiling research at university colleges in cooperation with commercial enterprises.

3. After competition, the contract was given to Gullers Grupp, where it was managed by Hans Gennerud.

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