RIGHT IDEA, WRONG TIME: THE WISENET SCIENCE SHOP 1988-1990*

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A science shop is an agency for the promotion of socially relevant research. It links members of the general community with researchers in the natural, social and other sciences. Australia's first science shop, the Wisenet Science Shop, opened in Canberra in February 1988. This report is a summary of its operation and achievements. Comparisons are made with science shops in Europe, particularly the well-documented Amsterdam Science Shop. The Wisenet Science Shop operated for more than a year on less than $20,000. Despite minimal publicity and promotion, it demonstrated that there is a demand in the community for this type of service and enthusiasm among researchers for the concept.

Keywords: Science shop, community research, socially relevant research, science policy, Australia.

BACKGROUND INFORMATION

Wisenet

The Women in Science Enquiry Network (Wisenet) was formed in 1984 and has link teams in all states and territories of Australia. Membership is open to all interested women and men. One of the objectives of Wisenet is to work towards broadening the role of science in our society, making it more relevant to the needs of the community. The science shop was a project initiated under the auspices of Wisenet.

Science shops

Science shops have been established in the Netherlands and other European countries. They provide a means for members of the public to seek answers to scientific and technological questions arising from their daily lives, and for researchers to apply their knowledge, training and skills to topics of social concern. The aim of science shops is to make university research more socially relevant and to stimulate greater public interest and involvement in science and technology. Thus they

* The Wisenet Science Shop received help from numerous people who served on the management committee and/or assisted with fund-raising and general promotional activities.

ultimately act to demystify science, to help develop new research methodologies and to change the balance of university science policy towards serving community interests.[1]

The science shops in Europe arose from a movement in the early 1970s to counter government and industrial domination of science policy. Science shops were established in the Netherlands, Germany, Belgium, France and Northern Ireland in the 1970s and 1980s.[2]

The Amsterdam Science Shop is the biggest European science shop. It was launched in 1977, employs 15 people and, in 1986, was to receive 15 per cent of the university research budget.[3] It is closely integrated into the formal university system, providing an advisory committee to the university's governing board. This committee consists of 12 university staff and 12 representatives of client groups.[4] Work contributed by students is credited towards their degrees.[5] By 1987, the Amsterdam Science Shop was handling an average of 250 questions per year. Two thousand questions had been received by the end of 1984, mostly reflecting concerns about the environment, public health and labour issues.[6]

The French science shops seem to have been less successful. Government grants were obtained in 1983 to hire staff for six science shops in different institutions; by 1984 the number of science shops had risen to 12. By 1986, three shops had closed and the rest had precarious funding. The number of questions being brought to the shops had declined. This was attributed in part to a reduction in government funding and lack of community support.[7] In addition, the French science shops were not integrated into the university system. It is difficult to obtain information about the current status of the French science shops.

Australian Science Shops

The Wisenet Science Shop was the first to be established in Australia and closely followed the European models although it was not integrated into the university system. It operated as an independent service for 14 months before financial difficulties forced its closure. The concept was then taken over by the ever-beleaguered Centre for Continuing Education at the Australian National University, but it survived for less than one year.

At the same time as the founding of the Wisenet Science Shop, the Commission for the Future independently endorsed the principle of the establishment of science shops in Australia. Together with the Myer Foundation and the Swinburne Institute of Technology, it set up a pilot project, the Swinburne Science Shop. The Swinburne Science Shop was and remains more commercially oriented. It runs a shop where science educational materials and toys can be bought, and provides an information service, networking with schools and other groups, and organises occasional seminars. It has also faced periodic funding difficulties.

DEVELOPMENT OF THE WISENET SCIENCE SHOP

The Wisenet Science Shop had its genesis in October 1985 in a workshop, "Who gets Kicks out of Science Policy?". The workshop focused on how to achieve redirection of science and technology towards community interests and endorsed the idea of a science shop. The concept was endorsed again in February 1987 at a *Search* Conference, "Towards a Feminist Science". Many of those who later became active in the science shop participated in this conference, at which a working party was established.

The working party applied to the Consumers' Health Forum of Australia Inc. for a seeding grant and was awarded $3,990 to establish a data base of health researchers. A part-time co-ordinator (Jennifer Rainforth) began work in February 1988 . A further $10,000 was obtained from the (defunct) Society for Social Responsibility in Science. Funding was also obtained from the Canberra College of Advanced Education (now the University of Canberra) ($1,000) and from the Science Faculty at the Australian National University ($2,000). Smaller grants were also received from the Australian Bicentennial Authority, IBM and the Rupert Public Interest Movement.

The Wisenet Science Shop was officially launched by Norman Swan then of the ABC Science Unit at the ANZAAS (Australian and New Zealand Association for the Advancement of Science) Centenary Congress in Sydney in May 1988, an event which gained considerable publicity.

The Wisenet Science Shop team spent a substantial amount of time establishing contact with local community groups, associations, unions and politicians. Articles were written for newsletters and the local newspapers and the science shop was publicised through talks and radio interviews. Team members also gave talks and put up a display at a number of conferences and workshops, including the Healthy Cities National Conference in Adelaide, the Science Educators Conference in Canberra, and the Fourth National Meeting of Deans of Science and Related Disciplines in Australian Universities in Canberra. The science shop was also one of a small number of community groups invited to participate in the Australian Bicentennial Exhibition in Canberra in October 1988 and the science shop poster display was put up in local libraries and Canberra's National Science and Technology Centre. In March 1989 a lunch and workshop on science funding were held, with Robyn Williams of the ABC Science Unit as guest speaker. The document arising from the workshop was presented to the Hon. Ros Kelly, the then Minister for Defence Science and Personnel.

Two major events occurred in April 1989: the science shop was finally incorporated and it ran out of funds to pay the part-time co-ordinator. The Wisenet Science Shop Inc. was effectively closed so that all available effort could be directed to fund raising. As well as extensive lobbying, a raffle, cake stall, garage sale and bush dance were resorted to in an

attempt to stay afloat. In 1990 the remaining members of the team ran out of energy, as it was clear that it would not be easy to attract the necessary funding despite lobbying of local and Commonwealth government departments, local institutions and the corporate sector. Further, neither the Australian National University nor the Canberra College of Advanced Education were able to provide any substantial funding to an independent organisation. The activities of the science shop were officially wound up at the first and last AGM in May 1990.

OPERATION OF THE WISENET SCIENCE SHOP

The Wisenet Science Shop was run by a part-time co-ordinator together with a small management team.[8] For most management team members this was a voluntary activity undertaken on top of demanding full-time employment. The team met weekly to discuss issues and questions raised by clients and to make policy decisions. As with the Amsterdam Science Shop, a mediation model was used to address questions raised by clients; that is, the co-ordinator liaised between researcher and client.

The typical procedure was as follows. An individual or community group generally approached the co-ordinator or a member of the management team with a question. The individual or group had to satisfy three criteria to be considered eligible to use the Wisenet Science Shop service. First, they had to be unable to pay for the research. Second, their aims could not be primarily commercial and third, they and/or other groups in the community had to be able to benefit from the research they were requesting.[9] In addition, if a question could be dealt with more easily elsewhere, the client was referred to the appropriate agency.

Questions were discussed at team meetings where approaches were brainstormed and either the data base or an informal network of contacts was used to locate donor researchers.

Most questions were requests for information. Where original research needed to be carried out, researchers and clients were put in direct contact where possible. The Wisenet Science Shop assisted clients in translating the research findings into everyday terms. This was a popular service: several projects were based on providing clients with a layperson's account of scientific findings. Once project reports became available, they were published in a list. Many requests came in for copies of existing project reports.

OVERALL RESULTS

During the 14 months of effective operation (February 1988 to April 1989) contact was made with 64 community organisations, associations and institutions. Ninety-five telephone calls and 12 letters from people asking for information about the Wisenet Science Shop and its projects were received. While the majority of requests came from the local area,

a significant number came from further afield. Of the 49 Wisenet Science Shop clients, 38 were based in the ACT. One hundred and seventy local and interstate researchers registered with the Wisenet Science Shop. The high registration rate was aided by good working links with both major tertiary institutions in Canberra.

Questions investigated

Fifty-eight questions were accepted for further investigation. Most of the questions were in the health (45 per cent) and environment (36 per cent) areas, with a further 7 per cent in the education and child rearing areas. To some extent the distinction between these areas is artificial. For example, most of the environment questions had a health component. A similar emphasis on health and the environment was reported for the Amsterdam Science Shop.[10]

Most questions investigated by the Wisenet Science Shop were in the areas of biochemistry/medicine (26 per cent) and chemistry (24 per cent). Nineteen per cent of questions were clearly multidisciplinary, a further 17 per cent were in the social sciences, 12 per cent were in physics and 2 per cent in geology. In the period 1977-84, 32 per cent of questions accepted by the Amsterdam Science Shop were in the chemistry area, which may reflect the fact that their chemistry shop is older and better established than their other shops.[11]

Wisenet Science Shop clients

Analysis of the clients indicated that 29 per cent of questions were asked on behalf of community groups while 43 per cent were from individuals. Questions from students relating to school projects were not accepted. Examples of questions asked and clients involved are described below. In the case of the Amsterdam Science Shop, the largest client group in the period 1977-83 was the trade unions (19 per cent),[12] while only 8 per cent of the Wisenet Science Shop questions came from this group. This reflects the close association of the Amsterdam Science Shop with the unions. For the Wisenet Science Shop a further 18 per cent of questions came from the public service and 2 per cent from tertiary institutions.

Outcomes

Most questions did not require the initiation of a research project. Twenty-six per cent were requests for information, while 35 per cent involved the co-ordinator in identifying an agency or service which was more appropriate for the question than the science shop. The science shop was the most appropriate agency for the information requests, however. Because they involved very specialised or very recent information, they would have been difficult for a library, for example,

to handle. About 65 per cent of the questions accepted by the Amsterdam Science Shop between 1977 and 1987 were information requests.[13]

The Wisenet Science Shop was unable to proceed with a significant proportion of requests (28 per cent) either because the donor researchers approached did not respond to the request or were not available to assist, or because the client did not follow through after the initial communication with the science shop. Some clients lost interest when they realised that further input from them was necessary. If resources had been available, the science shop would have conducted more follow-up in these cases. A small number of projects (8 per cent) could not be conducted because the necessary funding was not obtained. Problems with lack of follow-through from clients were also documented by the French Science Shops.[14]

Project completion

Thirty-one questions led to a significant amount of work for the co-ordinator. This included all requests for information, the two investigations carried out and most identifications of agencies or services. In 45 per cent of cases, projects were successfully completed, that is clients were satisfied with answers obtained. This compares favourably with the 52 per cent success rate reported by the Amsterdam Science Shop in its first year of operation,[15] particularly given the more limited resources and the continual need for fund-raising by the Wisenet Science Shop. By 1984 the success rate of the Amsterdam Science Shop was 65 per cent.

Case studies

The following six case studies give some of the flavour of the range of areas covered:-

(i) A woman in New South Wales wrote asking for an up-to-date bibliography on Alzheimer's Disease. She wanted to keep up with the latest research findings as several of the older members of her family had developed this condition. The co-ordinator contacted a researcher at the Australian National University and obtained a copy of a paper he had just written explaining the latest research in lay terms.

(ii) A local recycling group first consulted the Wisenet Science Shop about recycling materials from demolition sites and from a local tip. The science shop helped the group formulate a number of research questions. For example, is it feasible to recycle polystyrene? Can it be re-used as an insulating material? What are the latest developments in recycling plastic? Is small scale pulp and paper manufacturing feasible in Canberra?

This project is one that was not completed. Information was made available to the group, but none of the researchers contacted could help. The clients themselves lost interest in the project as their tip recycling depot became operational and took up all their time and energy.

(iii) Another local group wanted information on treatments for OOS (occupational overuse syndrome, also known as RSI or repetition strain injuries). A suitable researcher was found and agreed to produce an information booklet together with the Support Group. Several grant applications were made to provide funds, but all were unsuccessful. However in 1991 the group and researcher were successful in obtaining funding from the Consumers' Health Forum to document the experiences of and to follow-up people with this condition who are undergoing rehabilitation.

(iv) Several questions were posed by a local child-care centre. They wanted help with noise control in the centre, research into the effects of space and equipment on children's play, and a survey of parents on the impact of fund cutting. The survey was conducted by a student from the Canberra College of Advanced Education and a report produced. The other questions were eagerly accepted by researchers at the College as suitable student projects, but no students interested in doing them were found.

(v) A local pure water association wanted some independent measurements of fluoride levels in Canberra water. These measurements were done by a group of students from the Canberra College of Advanced Education and a report produced.

(vi) A local researcher wanted a layperson's account of the effect of surfactants (detergents) on the immune system. The research papers available were obtained and a retired researcher agreed to write a background report. There were many subsequent requests for this report.

DISCUSSION

Overall achievements

Overall, given the small budget available (less than $20,000 total in 14 months of operation), the performance of the Wisenet Science Shop was impressive. It was shown that, despite only low-cost publicity and promotion, there was a demand in the community for the type of service being offered. The strength of response from researchers was also very encouraging; 170 registered, again with limited promotion. In general the researchers were enthusiastic about the concept, particularly in terms of providing ideas for student projects. It is noteworthy that the completed projects which required original research were carried out by students. Many of those not completed were accepted by lecturers as potential student projects, but no suitable students were found

immediately. If more resources had been available, it is likely that more follow-up by the co-ordinator to sustain interest in projects would have increased the success rate considerably.

Limitations of the Wisenet Science Shop model

There were limitations to the Wisenet Science Shop model. In general, researchers were constrained by time and disciplinary boundaries, whereas most clients wanted quick answers and solutions to multidisciplinary problems. There were also problems associated with being separate from the university structure, lack of involvement and support from the community generally and lack of funding. These issues are dealt with in detail below:-

(i) *Multidisciplinary questions need new structures.*
While researchers were keen to give information or to supervise students doing science shop projects, the multidisciplinary or applied nature of many of the questions raised meant that they did not fit directly into a specialised research area. Researchers were reluctant to divert substantial amounts of their time because of pressures to generate the publications and grant money needed to further their own primary research interests and/or careers. It is interesting to note that this clash was also recognised by the Dutch Science Shops,[16] but that analysis of the results for the Amsterdam Science Shop showed that 35 of 162 original research projects did lead to scientific papers, follow-up investigations or the production of educational materials.[17]

A science shop is potentially a source of new, exciting and creative research areas. Given the increasing emphasis being focused on research of industrial and economic significance, it is important to balance this with research that addresses issues arising directly from community concerns. For this to be achieved, funding priorities need to be adjusted, as do the criteria by which researchers gain recognition.

The Amsterdam Science Shop has addressed these issues by setting up project centres to undertake long-term research programs. Research priorities are defined by project groups formed around the needs of unions, environment and women's groups, and around Third World problems. This approach enables active reformulation of social problems into research areas which may then receive long-term funding.[18]

(ii) *The dilemma of an independent position and no funding.*
The Wisenet Science Shop team considered that, given the political climate at the time (especially cost-cutting in universities), independence from university or government restrictions would enable the science shop to respond flexibly and creatively to community needs.

This meant that the Wisenet Science Shop fell outside the guidelines of most existing funding bodies. It was limited to agencies which funded community groups; these are constrained by severe financial shortages. Seeding grants and one-off money are available but resources to pay for a non-profit service for other community groups are very difficult to come by. The underlying rationale of the Wisenet Science Shop was to provide a free service to groups which were unable to pay. This was a further limitation to the sorts of funding bodies which could be approached.

Comparing the experiences of science shops in the Netherlands, France and Australia suggests that the stronger the links with a secure, stable institution, the stronger the science shop is itself — it is better resourced, has stronger back-up and better continuity of staff. The more it depends on volunteers, the more liable it is to run out of money and energy.

(iii) *Interaction with the community*

Community groups, especially trade unions, have a key role in the operation of Dutch science shops. As mentioned earlier, these groups make up half of the 24 member advisory committee which directs the Amsterdam Science Shop. Thus there is a strong base for community participation in and ownership of Dutch science shops.

With hindsight the team regrets that it did not set up a similar structure. Links with major community groups would have made it much easier to obtain publicity and funding and would have facilitated community awareness and understanding of the science shop concept. Many unions and community groups were approached for involvement in projects, and had they been incorporated into the science shop structure, its effectiveness is likely to have been enhanced.

The novelty of the Wisenet Science Shop attracted immediate publicity from the mass media, with a corresponding surge in enquiries from the public. However, with limited resources, it was difficult to sustain visibility. There were plans for a regular talk-back radio program, which would have made the community aware of a range of projects and issues, and thus of possible projects and ideas for their own groups. There was also a plan to set up a Junior Science Shop with senior high school students researching some of the questions asked and receiving training in return.

(iv) *Misconceptions about the Wisenet Science Shop*

The name Wisenet Science Shop itself created problems: Wisenet seemed to indicate a feminist organisation for women only (which it is not); science conjured up images of white-coated male physicists or chemists; and shop seemed to mean that something was sold or at least that services were charged for.

The general community was not the only group to find the Wisenet Science Shop name and concept difficult. Several funding

bodies were under the erroneous impression that science shops reinforce a deference to and dependence on scientific expertise. They saw the role of the client as passive, whereas an active interaction between client and researcher is needed to tailor the research effectively. The Wisenet Science Shop gave clients confidence, technical support and data as one step towards tackling their problems and addressing local issues. Science shops thus empower community groups, not the reverse.

Another important function of science shops is to make community groups aware of the limitations and realities of scientific research. Some clients lost interest when a magic bullet or instant solution to their problems was not available.

CONCLUSIONS

The Wisenet Science Shop had considerable success in its short period of operation. Nevertheless it is a case study of failed organisational innovation. While it is known from personal contact that the Amsterdam Science Shop survives, the fate of the other science shops is unknown. With regard to the experience from the Wisenet Science Shop, strategies to overcome the limitations and problems include integration into the structure of a university, participation by client groups and community representatives in decision-making and regular, effective promotion of the science shop concept. In addition, provision should be made for some long-term funding for socially relevant research arising from science shop investigations.

Documentation of the Wisenet Science Shop experience as a case study for analysis is a valuable exercise. Without such gradually accumulating data, valid generalisations about the best structures and functions and indeed the potential of science shops will not be available for further testing.

Experience to date suggests that science shops can make an important contribution to both the community and the research establishment and may stimulate creative approaches to solving serious social problems.

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