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Images of Researcher – Librarian Interaction

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This article reports on my involvement with a course-work project, which was run concurrently with a research project of mine.[1] The research project has been reported in my dissertation.[2] There was an interesting symbolic link between the two projects.[3] The research project was in the field of user studies and dealt with the ways social science researchers obtain information. The course-work project was in the area of subject bibliography and had as its main ingredient an assignment, which dealt with actual provision of research-relevant information to researchers in science and technology. The main issue could be said to have been the efficiency of researchers' information seeking activities and of librarians' attitudes towards that efficiency. Different images arose from practice, from literature, from research findings and from students' work. It is proposed

- that the research project helped students to look critically on earlier research findings
- that students' efforts in the course-work project contributed to an enhanced and balanced understanding of researchers' dealings with information and
- that there appeared differences in such dealings between researchers in the social sciences and in science and technology.

The course-work project took place within a course, which was offered between 1990 and 1994. Curriculum reforms determined the beginning as well as the end.[4] There were antecedents to the project's important assignment during the first two years, but operations in their definite form started in the autumn of 1992 as a biannual event and lasted until the course was discontinued. A few practices were recovered to another course in the new curriculum.

The research project was at the same time at a point where ideas were evolving and students' response to them seemed to be attractive for further development.[5]

There is some need to underline several favourable circumstances associated with the course project. Assignments and research were closely related to each other in the subject content of information seeking by and for researchers. Students and teacher benefits coincided. Teacher interest, for good selfish reasons, in students' remarks was at top level. From a reverse angle students' reaction to being teased into research problems was a raised interest. Educational sessions took advantage from looks into certain aspects of the everyday life of an important customer group. We can call it the use of empirical data. Different ways to throw theoretical light upon such observed activities became the object of discussions. It is not the topic of this paper, but the educational ideas influencing the formation of the course, were especially concerned with the ways students experience learning.[6]

Physical conditions such as concentration in time and absence of interfering activities were excellent for the course in question, thus creating a basis for a steady focus. The 'sacrifice' in course content made during the period was to study other likely user groups than researchers only theoretically. To sum up the educational outcomes of the course experiment, the boost is that the main achievement was the high level of interest invested in the course by students and teachers alike. The research outcomes will be treated in more detail later in the paper.

The matter of curriculum development could merit a few words. The interaction between research and education is such a development factor and the element of experiencing satisfaction in this connection is not the least important issue. At a curriculum development workshop held in Aberystwyth Wales in July 1977 Tom Wilson drew attention to that very topic: the fun element of doing research for a teacher.[7] Would it be even possible to compromise subject content of courses for gains in that direction: satisfaction and raised interest?

Course Details

The area of the course was reference literature and subject bibliography.[8] Course objectives were articulated as insights into reference work in different subject areas as expected in research and special libraries. Implementation of the objectives included at least the following elements. Plans and objectives for reference work; market surveys: demands by users and their host organisations; criteria for evaluation of source material; ways to structure and clarify knowledge areas including subjects not familiar to the students; recognition of publishing particularities in such an area; retrieval evaluation; studies of the user and the provider in reference encounters.

Apart from text-reading and seminar discussions, the main ingredient in the course during the project period was an assignment of actual provision of research-relevant information to the student's 'own' chosen researcher, preferably in science or technology – a sort of free-lance librarian or non-commercial broker situation.

The other assignment for the students was to map out the information situation in another and contrasting area of knowledge formation, namely in the social sciences or in the humanities.

The basic principles of mediation and other earlier mentioned operationalised

course elements were studied theoretically with the help of Library and Information Studies literature.[9] The reasons for studying 'the two cultures' of C.P. Snow and the history of science will be explained later in the paper.[10]

Each student produced a report on the entire exercise, that is the two assignments as well as adequate references to the literature. That text was presented at a seminar organised somewhat like a formal debate with a defendant and an opponent. The written reports and the oral performances constituted the basis for the formal examination.[11]

The Assignments

As part of the course work the students were required to undertake a main assignment, which involved making contact with a particular researcher in a science or technology field. That researcher was their and solely their responsibility for the duration of the course. There was no question of sharing a user between students.[12]

What has been said so far about the main assignment has been a correct description of the outcome in practice but not of the actual formulation of the said assignment. There was a point made in the assignment that the information provision to a researcher was to take place within a subject that was *unfamiliar* to the students. Few of the library students had a science or technology background. Hence many subjects in those knowledge areas became much practised. A few students with a science background instead approached humanist scholars or social scientists. Unforeseen problems could arise out of that situation and exemptions had to be made. There is a short comment on that issue in the last part of the paper.

The chosen researcher was interviewed on information habits, literature needs, library visits etc. The students started to explore the researcher's subject in a narrow as well as in a broad sense. The narrow outlook consisted of the researcher's interest, while the other perspective consisted of the specific research problem's position within an established area of knowledge formation. The established area was often the starting point for looking for its information structure and its accessibility. One of the mediation tasks especially stressed was to look at the subject structure from a library indexing point of view as well as from an intra-disciplinary angle. Those contrasting points were also encouraged for 'the other' assignment.

The library students' understanding of an unfamiliar subject is an interesting conception. We (students and teachers) tried to look upon it from various angles. There were the library horizons of subject representation and retrieval – the cataloguer and reference librarian positions. There was furthermore the more difficult task of understanding how the researcher perceived her/his own subject area. The common effort to try to solve the problems was to study the history of the subject: its ideas, its accumulations of learning, its subdivisions into specialities. The idea underlying this effort was the notion that a meta level understanding of a subject could make up considerably for the lack of explicit understanding of actual concepts within the subject. In addition – the measure to study the history of a subject is, if not easy, at least readily available to undertake. In the light of history, library traditions –

especially in classification – often explained themselves even when they were in contradiction with actual researcher practices or views. The researchers' positions also usually stood out more clearly as they became illuminated by the evolution of ideas. Common textbooks on the history of learning guided students to more specialised material.[13] Encyclopaedias often proved helpful.

Information seeking was performed according to the wishes of the researcher supplemented with the students' own imagination and with the students' need to understand the context. The result of the searches and the paths to find them were presented to the researchers, who were encouraged to comment upon them.

From written evaluations by some of the researcher interviewees there could be observed variations in the usefulness of the material provided for them by the students. Often articulated, as being especially gratifying for the researchers, was the possibility to discuss at length their research problems, and the special informational aspect of them, with someone professionally interested who had set aside enough time. The interviews may have lasted an hour and the mere act had clarifying aspects for the researchers themselves. The time factor seems to have been important for an element of something in the vicinity of a personal relationship. If such a relation did not occur for some reason or another, the sheer time consumption seems to have been a problem for a few researchers. The issue of making customer contact and keeping it was very plain for the students as each and everyone had to master it on at least two occasions.

The other assignment, in a subject very well known to the students, was to structure information, bibliographically clarify and otherwise spell out peculiarities important or interesting for library and information studies purposes. Some students with an acute service ambition, a social interest or just satisfied with the learning style, used the opportunity, though not requested, to make a researcher contact in that field as well, which often resulted in a balanced report with interesting contrasts and even troubling statements. As can be deduced from what has been said, an important course objective was to make contrasts and similarities apparent for students to draw conclusions for future accomplishment.

An Image of Researchers' Shortcomings and Lethargy

There is, I think, typically an experience of an everyday kind where a librarian in an academic or special library wonders why the availability of that wonderful smörgåsbord of in-house information services is not more exploited by the defined and targeted groups, researchers and other professional staff. There is the Newton metaphor of the researcher standing on the shoulders of giants and also the systematic presentation by Kuhn regarding the accumulation of research that would make it generally reasonable for the research profession to avoid reinventing the wheel. In the Library and Information Studies literature there are poignant formulations of user shortcomings. Social scientists have been especially favoured as a target, but they

have not been the only ones. Line had doubts already in 1969, Meadows dealt lashes to the scientists in 1974, and Brittain underlined the doubts of 1969 in the 1980-ies. I would like to quote them all for being so explicit. First Line in dealing with the INFROSS project:

> *It still remains to be established that there is an information problem in the social sciences, or that, if there is, it is of any magnitude. It is certainly true that many, perhaps most, social scientists do not show any great awareness of a problem. Scientific journals occasionally carry articles or editorials on the question of information and its provisions; social science journals very rarely. The preliminary interviews with social scientists conducted for our Investigation have shown a degree of contentment that very few scientists exhibit.*[14]

There is a question, which follows naturally: What about scientists' contentment? Here is the not so good news according to Meadows in 1974:

> *We can reasonably end this chapter by emphasising again the tendency towards literature-phobia in scientists. As a group, scientists tend neither to use all the bibliographical aids available nor to consult with professional librarians about their information needs. There is indeed, some evidence that the more creative a scientist is, the less likely he is to seek assistance from library staff. The phobia seems to be worse amongst pure scientists than amongst applied scientists or technologists, and this, no doubt, represents yet another example of the differences in both formal and informal communication between these groupings. Following on from this first phobia comes yet another – the general dislikes scientists have of expending any great effort on the acquisition of information from the literature. One of the firmest conclusions of information usage surveys seems to be, indeed, that the intrinsic value of an information channel has little, or no, bearing on the frequency with which it is used. The important factor is always its accessibility. This must reflect, in part, the relatively moderate interest of many scientists in the literature. If it were not for the problem of priority, a considerable number of scientists would rather duplicate a result than hunt it down in the literature. Here we have one of the major reasons why attempts to forestall duplication by enhancing information retrieval capabilities are seldom highly successful.*
>
> *It will be noted that the previous paragraph referred throughout only to the literature, that is to formal channels. Scientists are, on the contrary, often willing to travel many thousands of miles for a few days of personal contact with other scientists. In other words, they seem to be prepared to expend a good deal more effort in their search for informal communication. Additional factors are involved here: for example, a much-travelled scientist acquires a certain amount of kudos from his travels. Besides, many of the colleagues visited by British scientists live in less perverse climates than ours. Nevertheless, we are forced to conclude that many scientists regard personal discussion as the essence of scientific communication.*[15]

In 1980 Persson was apt to agree with Meadows' ideas on researchers' travels and their lack of use of bibliographic means, while stressing the importance of informal communication.[16] Brittain had worked with Line in Bath in the years around 1970[17] and his dealings with social scientists since then seem to have been extremely frustrating:

It came as quite a surprise to early investigators of the information needs of social scientists that there was such a great resistance to the use of secondary services, and other information services, that have existed for a long time. It also came as a surprise that social science practitioners rarely make use of the vast quantities of social science documents that could reasonably be expected to be of some relevance. […] Information providers pointed out the advantages of coming across information through the systematic use of information services, that users would not otherwise know about. […] Information providers also suggested that these early studies of the information requirements pointed to the very urgent need for user education in the use of libraries and secondary services.

These suggestions have met with little success. Social science researchers and academics on the one hand, and social science practitioners on the other, continue to demonstrate a good deal of resistance to the use of conventional bibliographical and library services, and indeed in many instances to the use of the primary literature.

[…] the average social scientist makes relatively little use of secondary information services. For the most part, information-seeking is neither systematic nor extensive. Social science practitioners continue to remain almost totally ignorant of the vast amount of social science research, writing and data that is potentially of interest, use and value.

As it is information providers can take comfort from the fact that social science is often parochial, that social scientists are for the most part undemanding of library and information services, and that social science knowledge is not like scientific knowledge in the sense that each generation of researchers and writers provide building blocks upon which the next generation must rely if it proposes to make progress.

It is becoming evident that there are fundamental differences in knowledge production between social sciences, science and technology.[18]

A variation of the theme is the Olaisen one on the nonimportance of librarians' suggestions from 1984:

Another part of the library service is how important recommendations from the library staff are for the discovery and locating of documents. Table 2.24 shows the lack of satisfaction with the library staff. […] The conclusion is, however, clear: very few in any discipline or field rated the recommendations from the library staff as very important, and a majority in all disciplines and fields looked upon these recommendations as not important or did not use them.[19]

Still another variation is the Lönnquist one from 1988 regarding humanist scholars. The search procedure was considered important as a research element and there was no possibility that an outsider like a librarian could be trusted to carry out such business.[20]

From the quotations above there is adequate proof that it is possible to find an ample amount of references regarding researchers avoiding libraries and their professionals. These same researchers seem also, and especially, to avoid secondary sources and information seeking of a formal kind. There are also hints at their, or at least their desire of, shying away from the primary literature. They like and they gain from meeting each other, even at the expense of extensive travelling.

The two variations, quoted last, lead us however over to another image altogether.

The following presentation of the project on researchers' obtaining information is very short and does not represent the final analysis. That would have been anachronistic in relation to the course-work project. The final publication is another story – expected in the near future.

An Image of Information Seeking in Research Practice

The early stages of my research experience on researchers' ways of acquiring information left some puzzling impressions; some of them in tuning with Line, Brittain and Lönnqvist, but there were some ostensible inconsistencies in the evidence. They were shying libraries, but that was not the whole story. In their pursuit of information researchers appeared to have a tendency of finding ways around libraries and their hardworking professionals. Such was the case even regarding document delivery, the only consolation for librarians being that commercial competitors performed even worse in that respect. In contrast, members of the research community provided primary texts promptly and either at no cost or for some item in exchange. Researchers shunned the rules and other bureaucratic obstacles that typified libraries. One of the senior researchers interviewed turned out to be an outspoken person. Polite euphemisms of other researchers could be interpreted in consequence. For instance the word 'hardworking' when connected with reference staff could be considered to be the equivalent of unresponsive service and problems in management priorities. The recently mentioned senior researcher could also demonstrate the inflexibility in library service levels at a seminar meeting by confronting the managing librarian present. No extra service for extra pay could be granted. Equality in service to customers was a priority. The power libraries exercised over sources needed and the corresponding lack of control by researchers seemed to be another particular nuisance.

In some contradiction there also seemed to be a view of libraries as treasuries or temples, full of researchers' works, which is in keeping with Lönnqvist's findings; but these treasuries were viewed as establishments that had to be avoided at least in so far as their operations were concerned.

Meadows and Brittain had reported on the avoidance of primary literature and reading. Interestingly there were no signs of that – on the contrary. There were, however, indications that seniority meant rationalisations in reading. Long experience in a field made you swiftly distinguish old stuff from new. Secondary services had their public, but they were sometimes incompletely understood and mostly ignored. References to conversations and to the importance of conferences were in a throng. There were other findings, which I will not continue to describe. Instead there are some quotations below of the views of Stephen Stoan. The findings proved to support his views and the priority is his, though the findings were made independently. The contribution in this respect has been to provide empirical data to support his purely theoretical way of reasoning.

In two journal articles in 1984 and in 1991 respectively Stoan has contributed to the understanding of research and researchers' use of libraries. Interestingly his interpretations are made entirely on the basis of earlier research (not his own) and so he has produced a synthesis. He draws on the works of sociologists of knowledge like Kaplan, Polanyi, and Ravetz. No doubt he has in his professional position as for instance head of reference been able to make his own observations, and his own experiences as a scholar in history has certainly also contributed, even if he does not speak of these. A number of selected quotations will convey what I mean:

> *[...] footnotes, personal recommendations from other scholars, serendipitous discovery, browsing, personal bibliographic files, and other such techniques that involve no formal use of access tools account for the great majority of citations obtained by scholars. [...]*
>
> *The subject literature, after all, forms a vast bibliographic apparatus indexed by subject, according to the book or article in which footnotes appear, and analyzed in considerable detail, for a footnote may cite information contained in a single paragraph or sentence from an entire article or book.*
>
> *[...] the primary literature indexes itself and does so with greater comprehensiveness, better analytics, and greater precision than does the secondary literature. [...]*
>
> *In following the footnotes and often annotated bibliographies incorporated into the primary literature, researchers are obtaining professional guidance from other experts, who are placing citations within an intellectual framework that reveals their relative value and interrelates the parts to a whole. Raw facts devoid of interpretation are meaningless. Information, until worked into some kind of theory or hypothesis that seeks to make sense of it, is meaningless. It is the action of the human mind that converts information into knowledge, and it is knowledge, not simply information, that scholars are seeking. [...]*
>
> *Undergraduate and graduate students who are unable to operate with the broad knowledge and solid bibliographic base of research scholars, can find library skills valuable in initiating their first timid efforts at "research".*[21]
>
> *The more important scientists in a field have particularly well developed informal communication networks. They are the people who obtain large grants, invite others to share research projects with them, serve as officers on important scholarly organizations and as editors of leading journals, referee grant proposals and journal manuscripts, organize symposia, select students for admission to graduate school, write recommendations for other people's research proposals and so on.*[22]
>
> *[...] the researcher must somewhere make an informed judgement that he must cease gathering data and commit ideas to paper, even though there may still be much unexploited data of whose existence he is unaware.*[23]

Condensing Stoan would result in something like this: Researchers do most of their information gathering using informal techniques that cause them to bypass the formal apparatus of the secondary literature or consult it only on occasion. For scholarly purposes, indexing systems leave much to be desired. Efforts at education have so far failed to bring about a change in the behaviour of researchers and are unlikely to do so in the future.

From here it is convenient to proceed from the teacher-produced image to the

students produced image. Impressions from the image we are leaving may seem to be somewhat discouraging prospects for a promising future librarian in a research environment.

The Image Produced by LIS Students

During the recruitment of the researchers for our project very few of those in a leading position were included for interviews by library students. Among those selected the level of seniority varied considerably between subjects.

The gratification experienced by many researchers regarding the extended information search interview has already been mentioned. Another gratification rather distant from the information seeking business but still worth mentioning, was the pleasure of one guest researcher of being able to speak about his search and research problems in his mother tongue with an interested Swedish library student, this not being the case with the research colleagues. Did the project then have help from what was perhaps only a pleasant break in some tedious work? This is said as an ingress to bias considerations.

Regarding bias, some interesting remarks can be made. All interviews have been carried out by students with the sole interest of learning something useful and producing a paper about it, which could pass the teacher's Argus-eye for approval. There is some indication that a researcher may have censored negative remarks on libraries in general and regarding a student's performance in particular. A short-term personal relationship between researcher and student came to being and which could have had some effect in that direction. Researchers may have been interested in the issue that future librarians were keen on resolving researchers' problems. In fact several researchers expressed, directly to me, their satisfaction with the educational objectives of the project. As a consequence they may have reacted sympathetically with regard to students' performances. They may also have found it unwise to express much censure at the beginning of a promising career.

Each student paper represents only a minute piece of research within Library and Information Studies. However, together they could form a foundation for some understanding of information behaviour within the subject area represented by the researchers. Not only do the papers form that foundation; all of them have been under peer review through the eyes of a fellow student with a similar experience and understanding. They have all been subjected to critical seminar discussions with about twenty pairs of such eyes present at the same time. The brief summary presented below relates mainly to researchers in science and technology of whom only a few are in leading positions. While the upper echelon is excluded, seniority varies; the tendency is towards greater representation of the lower ranks, including juniors. While no calculation of the female/male representation was made, the impression is that there were fewer women than men interviewed and perhaps that there was some overrepresentation of women as compared to the researcher populations in question.

In summary the conclusions can be stated as follows:

- There was a particular dependence on primary literature.
- There was a great need for monitoring news.
- There was a great dependence on secondary sources, especially from databases and from the web.
- Help to search databases, rather than net searches, was welcome.
- Lengthy conversations regarding the research problem and its information consequences were more than welcome.
- A favourable attitude towards the delegation of at least some information related problems in research work to professionals also on a regular basis could be noticed.
- Library antagonism was not perceptible. (Bias considerations could modify that conclusion to some small extent.)

The above conclusions are less in line with results by Meadows but more in tune with some observations by Fjällbrant, who incidentally has had access to the same type of sources as the students.[24]

Two brief comments: The dependence on secondary sources could be understood as a dependence more on means for formally oriented information seeking in general, than on library oriented information seeking in particular. There could exist a resource problem in keeping up to date but hardly an information seeking one in monitoring known web sites.

One indication from 'the other' assignment carried out by students is that researchers in the social sciences and in the humanities are in a different situation as compared with scientists. That is consistent with Line's belief and sustained by findings from my own research project. In the cases where Library and Information Studies students met a researcher from her or his former own subject of study, the situation could evolve satisfactorily from a social point of view. There ensued, however, at least some hints of disbelief regarding the usefulness of information seeking help from the library profession. If so, they are in accordance with Lönnqvist's findings.[25] Another indication is that considerable mutual distrust could arise from a situation where Library and Information Studies students with a science background met humanist scholars or social scientists. Associations to Snow and his ideas of the two cultures were not far away and other studies inspired by him gave advice on some of the consequences to discuss in seminar sessions.[26]

Contrasting images may cause some confusion with students and are well worthy of a thorough academic discussion. To harmonise conflicts will not be a benefit to clarification. To study backgrounds and possible causes may augment students' ability to perceive and articulate distinctions. Experience and academic capital of this kind could contribute considerably to professional performance.

Notes

1. Acknowledgements

   Credit is due to participating students. There is a list of contributions on p. 15. Credit is also due to students not mentioned by name that helped to cultivate the course 1990-1992.

   Co-operation on early work with the course took place with Lennart Eriksson. He especially favoured team ideas of researcher-librarian co-operation. Those ideas in turn were not far from those of:

   Neway, J.M. *Information Specialist as Team Player in the Research Process.* 1985.

   and of:

   Klasson, M. “Bibliotekarien.” 1991.

   Bertil Quentzer pointed out the systematic meta level analyses of subject structures and origins to me. Some roots go back all the way to:

   Needham, C.D. “Introduction and Appendices.” 1970.

   (The same Needham appeared with his message in a broader framework, at the occasion referred to in note no. 7 on p. 28.)

   Thanks to Chagan Lalloo many of my idiomatic shortcomings have been eliminated. Only my stubbornness explains why the text still features some of them.

2. Seldén, L. *Kapital och karriär.* 1999.

3. Op. cit. p. 237.

4. The curriculum of 1989 underlying the course is described in:

   Seldén, L. “Swedish Library Education in Retrospect.” 1993. P. 38f.

   The curriculum shift of 1993 is described in:

   Enmark, R. & Seldén, L. “The education of library and information professionals in Sweden.” 1998. P. 136ff.

5. Seldén, L. “The Information Seeking Career.” 1992.

6. Limberg, L. & Seldén, L. “Informationssökning och meningsfullt lärande.” 1993.

   Acknowledgement is due to Inger Enkvist for a course held in 1991 in favour of academic teachers.

7. Wilson, T.D. “Research: Its Influence on Curriculum Design and Development.” 1978. P. 89.

8. “Fackområdenas referenslitteratur”.

9. Harter, S.P. “Effective Communication.” 1986.

   Höglund, L. & Persson, O. *Information och kunskap.* 1985.

   Høivik, T. & Leine, O. *Informasjonssøking for samfundsforskere.* 1982.

   Ingwersen, P. & Wormell, I. *Informationsformidling i teori og praksis.* 1990.

   Klasson, M. “Bibliotekarien.” 1991.

   Högskoleutredningen. Arbetsgruppen för högskolans biblioteksfunktioner. *En kreativ studiemiljö: Högskolebiblioteket som pedagogisk resurs: Förslag till synpunkter från högskoleutredningens arbetsgrupp för högskolans biblioteksfunktioner*. 1991.

Kronick, D.A. & Winters, W.D.A. “The Literature of the Life Sciences.” 1985.

Lönnqvist, H. *Humanister söker information.* 1988.

Munch-Petersen, E. *Bibliografiens teori.* 1980.

Needham, C.D., ed. *Reader in Social Science Documentation.* 1976.

Vickery, B. & Vickery, A. *Information Science in Theory and Practice.* 1987.

10. The sources are mentioned in notes no. 26 and no. 13.

11. See list on p. 39: Unpublished students reports.

12. A small number of researchers may have been interviewed on more than one event.

13. Ambjörnsson, R. & Elzinga, A. *Tradition och revolution.* 1987.
    Sundin, B., ed. *I teknikens backspegel.* 1987.

14. Line, M.B. “Information Requirements in the Social Sciences.” 1969. P. 3.

15. Meadows, A.J. *Communication in Science.* 1974. Pp. 124f.

16. Persson, O. “Informell kommunikation bland forskare och tekniker.” 1980. Pp. 71f.

17. Brittain, J.M. *Information and its Users.* 1970.

18. Brittain, J.M. “Relevance of Social Science Output Worldwide.” 1985. Quotations from pp. 268-271.

19. Olaisen, J.L. “Toward a Theory of Information Seeking Behavior among Scientists and Scholars.” 1984 [pr. 1995].

20. Lönnqvist, H. *Humanister söker information.* 1988. P. 86.

21. Stoan, S. “Research and Library Skills.” 1984. Selections from pp. 101-106.

22. Stoan, S. “Research and Information Retrieval Among Academic Researchers.” 1991. P. 242.
    Stoan in his turn makes a reference to p. 12 of:
    Garvey, W.D. *Communication.* 1979.

23 Stoan op. cit. p. 251.

24 See the quotation belonging to note no. 15 on p. 31.
Fjällbrant, N. “Information Technology and the Research Worker.” 1991.

25 See p. 32.

26 Snow, C.P. *The Two Cultures.* 1991.
Budd, J.M. “Research in the Two Cultures.” 1989.

Bibliography

The bibliography is divided into published and unpublished material.

Unpublished Students Reports

The following list of unpublished students' course work reports on research-relevant information provision activities between 1992 and 1994, representing four consecutive groups of students, is comprehensive but not exhaustive. The keeping of records of this kind is not a formal matter but has depended on my personal interest. Circumstances may have caused two or three omissions. During the preceding years (1990-1992) of refinement of the course project there existed some precursory papers of students work with individual intentions of a very similar character as those below. They are not included here for practical reasons – a slip that is not very fair as they contributed considerably.

Alexandersson, Mats. "Lingvistik och Medicin – fettforskning." 1993, VT.

Alm, Ola. "Historia och Transportteknik." 1993, HT.

Andersson, Helena. "Elektroteknik och Humanekologi." 1993, HT.

Aronescu, Elena. "Pedagogik och Klinisk forskning." 1992, HT.

Benkö, Astrid. "Psykiatri & Etnologi." 1993, VT.

Berglund, Charlotta. "Zooekologi och Psykologi." 1994, HT.

Berglund, Eva. "Biofysik och Konstvetenskap." 1993, HT.

Bergman, Ulrika. "Litteraturvetenskap och Odontologi." 1993, HT.

Berving, Sven Erik. "[Humanekologi. Samhällsplanering]." 1993, HT.

Björkqvist, Agneta. "Artificiell intelligens och Omvårdnad: två forskningsområden." 1994, HT.

Broberg, Cecilia. "Fysikalisk kemi och Litteraturvetenskap." 1993, VT.

Ekberg, Camilla. "Fysik. Antikens kultur och samhällsliv." 1993, VT.

Evers, Karin. "Nutida Danteforskning, Biokemi." 1992, HT.

Falck-Rehn, Harriet. "Radioekologi. Barnpsykiatri/psykologi." 1994, HT.

Forsberg, Åsa. "Farmakologi och Konstvetenskap." 1994, HT.

Gullstrand, Robin. "Historia och Fysik." 1993, VT.

Gunnarsson, Katarina. "Historia och vindkraft." 1992, HT.

Gustafsson, Malin. "Genetik och Statskunskap." 1993, VT.

Gustavsson, Anna. "Humanekologi. Historia." 1993, HT.

Haak, Ulrika. "Transportteknik och Etnologi." 1993, HT.

Hammar, Maud. "Elektricitetslära och Religionshistoria." 1994, HT.

Hammargren, Oskar. "Forskningsetik inom samhällsvetenskaperna och Energiteknik." 1993, VT.

Hammarlund, Ola. "Rapport över Pappersmassekemi och Svensk medeltid." 1993, HT.

Hedström, Cecilia. "Fysisk resursteori och Idé- och lärdomshistoria." 1992, HT.

Hellbring, Annika. "Översikt över astronomi och statskunskap: praktiskt referensarbete." 1992, HT.

Henning, Karin. "Fysik och Idé- och lärdomshistoria." 1993, HT.

Holmgren, Ulrika. "[Cellbiologi, Historia]." 1993, VT.

Håkansson, Anders. “Industriell ekonomi & Genealogi.” 1994, HT.

Ingemarsson, Per. “Humanteknologi och Musikvetenskap.” 1993, VT.

Ivarsson, Lars-Olof. “Religionshistoria och Fysisk resursteori.” 1992, HT.

Johansson, Carina. “Humanekologi och Religionshistoria.” 1993, VT.

Jones, Ikuko. “Japanska språket och Fluiddynamik.” 1992, HT.

Jönsson, Karin. “Medicin & Psykologi.” 1994, HT.

Karlsson, Maria. “Forskning i benvävnader vid ett läkemedelsföretag samt forskning i ämnet Nordiska språk.” 1992, HT.

Karpinska, Beata. “Svensk litteraturvetenskap och Marina transporter.” 1993, VT.

Larsson, Mikaela. “Kvalitetsteknik och Litteraturvetenskap.” 1993, HT.

Liljegren, Ann. “Fysik. Konstvetenskap.” 1993, VT.

Liljeström, Ann. “Kartläggning av två användares informationsbehov[: Trikinos och Högskolereformer].” 1994, HT.

Lindberg, Anders. “Organisk kemi och Kvinnoforskning.” 1993, VT.

Lindman, Helena. “Oorganisk kemi och Tyska.” 1993, VT.

Ljungberg, Rut. “En kartläggning av ämnena genetik och nordiska språk.” 1993, VT.

Ljungdahl, Anna. “Fysik och Brittisk litteraturhistoria.” 1993, VT.

Lunneborg, Eva. “Humanteknologi och Konstvetenskap.” 1993, VT.

Lärstad, Yvonne. “Arkeologi och Forskningsetik.” 1993, VT.

Mousa, Ute. “Tvåspråkighet och Transportteknik.” 1993, VT.

Nilsson, Kristina. “Det fasta tillståndets fysik och Litteraturvetenskap.” 1993, VT.

Norberg, Karin. “Endokrinologi och Arkeologi, särskilt nordeuropeisk.” 1992, HT.

Norr, Monica. “Humanteknologi & Litteratursociologi.” 1993, VT.

Nyblom, Lotta. “Humanekologi och Filmvetenskap.” 1993, VT.

Nylén, Magnus. “Astrofysik och Humanteknologi.” 1992, HT.

Näsström, Bertil. “Konstvetenskap och Fysik.” 1992, HT.

Paldán, Eva-Gun L. “Teknisk fredsforskning och Socialt arbete.” 1992, HT.

Paradisi, Massimiliano Maria. “[Astronomi. Modern grammatisk teori].” 1993, HT.

Petersson, Camilla. “[Humanekologi. Arkeologi].” 1993, VT.

Petersson, Klas. “Surt regn[: Ekologi. Journalistik].” 1993, VT.

Pikkarainen, Helena. “[Kemi. Statskunskap].” 1993, HT.

Pohl, Carin. “Två perspektiv på bibliotekariearbetet: rapport från forskarintervjuer med sökningar: Tumörbiologi och Neurolingvistik.” 1993, HT.

Renman, Anders. “Biokemi och Engelsk litteratur.” 1993, VT.

Ringdahl, Maivor. “Expertsystem. Kulturgeografi.” 1993, HT.

Ronkainen, Anu. “Geriatrik och Ryska.” 1994, HT.

Ronsencrantz, Brittmarie. “Lidar och Judaistik.” 1994, HT.

Rundkrantz, Helena. “Framtidsstudier och Religionsvetenskap.” 1992, HT.

Sandgren, AnnaKarin. “Företagsekonomi och Grafiskt användargränssnitt.” 1994, HT.

Seebass, Gunhild. “Moral och Dyskalkyli.” 1994, HT.

Simonsson, Lotta. “Teatervetenskap och Humanekologi.” 1993, VT.

Sjödahl, Anna. “Geografi och Musikpedagogik.” 1993, VT.

Sjöqvist, Ingemar. “Farmakologi och Materialadministration.” 1993, VT.

Skoglund, Helena. “Humanekologi och Rysk litteratur och kulturhistoria.” 1993, VT.

Smitmanis, Caroline. “Socialantropologi och Psykiatri.” 1993, VT.

Sparby, Maria. “Rapport över ämnena Psykiatri och Idé- och lärdomshistoria.” 1993, VT.

Standár, Katarina. “Fysisk resursteori och Nordiska språk.” 1992, HT.

Strömqvist, Åsa. “Svenska språket och Fysik.” 1993, HT.

Sundin, Olof. “Rapport om referensarbetet inom ämnena litteraturvetenskap och humanekologi.” 1992, HT.

Svanberg, Mikael. “Fysiologisk botanik och Litteraturvetenskap.” 1992, HT.

Svedjeström, Rose-Marie. “Humanteknologi. Litteraturvetenskap.” 1993, HT.

Tinfou, Karin. “Fasta tillståndets fysik och Fransk språkvetenskap.” 1993, VT.

Wall, Kent. “Forskningsetik och Religionsvetenskap.” 1993, VT.

Westborg, Agneta. “Engelska, Miljöfysik.” 1992, HT.

Wiborgh, Lennart. “Fasta tillståndets fysik och Idé- och lärdomshistoria.” 1993, VT.

Wikman, Veronica. “Ytfysik. Engelska.” 1993, VT.

Yassine, Abdel-Qader. “Humanekologi och Religionshistoria.” 1993, VT.

Zana, Gabriella. “Fysisk resursteori och Finsk-ugriska språken.” 1992, HT.

Åberg, Ellen. “Naturgeografi - Psykologi: en jämförelse.” 1993, VT.

Östling, Katarina. “Sociologi och Naturgeografi (Klimatologi).” 1994, HT.

Published literature

Ambjörnsson, Ronny, and Aant Elzinga. *Tradition och revolution: Huvuddrag i det europeiska tänkandets historia.* 3 ed. 377 p. Solna: Lettura, 1987. 1. ed. 1968. Title in transl.: Tradition and Revolution: The Main Outlines of European Thought.

Brittain, J. Michael. *Information and its Users: A Review with Special Reference to the Social Sciences*. 208 p. Bath: Oriel, 1970.

Brittain, J. Michael. “Relevance of Social Science Output Worldwide.” *International Social Science Journal* 37, no. 2 (1985): 259-274.

Budd, John M. “Research in the Two Cultures: The Nature of Scholarship in Science and the Humanities.” *Collection Management* 11, no. 3/4 (1989): 1-21.

Enmark, Romulo, and Lars Seldén. “The education of library and information professionals in Sweden.” In *Education for librarianship in the Nordic countries*, ed. by Ole Harbo and Niels Ole Pors, 121-161. London: Mansell, 1998.

Fjällbrant, Nancy. “Information Technology and the Research Worker: A Possible Scenario for Year 2000.” *NORDINFO-nytt* 14, no. 3 (1991): 3-17.

Garvey, William D. *Communication: The Essence of Science: Facilitating Information Exchange among Librarians, Scientists, Engineers, and Students.* 332 p, *(Pergamon international library of science, technology, engineering, and social studies).* New York: Pergamon, 1979.

Harter, Stephen P. “Effective Communication.” In *Online Information Retrieval: Concepts, Principles, and Techniques*, 144-155, 162-165. Orlando: Academic Press, 1986.

Höglund, Lars, and Olle Persson. *Information och kunskap: Informationsförsörjning: Forskning och policyfrågor*. 164 p. Umeå: INUM, 1985. Title in transl.: Information and Knowledge.

Högskoleutredningen. Arbetsgruppen för högskolans biblioteksfunktioner. *En kreativ studiemiljö:*

Högskolebiblioteket som pedagogisk resurs: Förslag till synpunkter från högskoleutredningens arbetsgrupp för högskolans biblioteksfunktioner. 68 p, *(Statens offentliga utredningar, 1991:72).* Stockholm: Allmänna förlaget, 1991. Title in transl.: A Creative Educational Environment: The University Library as an Educational Resourse.

Høivik, Tord, and Odvar Leine. *Informasjonssøking for samfundsforskere.* Oslo: Universitetsforlaget, 1982. Pp. 11-68 about research procedures. Title in transl.: Information Seeking for Social Scientists.

Ingwersen, Peter, and Irene Wormell. *Informationsformidling i teori og praksis.* 104 p. København: Munksgaard, 1990. Title in transl.: Information Mediation in Theory and Practice.

Klasson, Maj. "Bibliotekarien: Forskarens kollega och allmänhetens guide inför 2000-talet." *NTBB* 78 (1991): 80-92. Title in transl.: The Librarian: The Colleague of the Researcher and the Guide to the Public on the Eve of the 21st Century.

Kronick, David A., and Wendell D. (Assist.) Winters. "The Literature of the Life Sciences: A Perspective." In *The Literature of the Life Sciences: Reading, Writing, Research*, 1-13. Philadelphia: ISI Press, 1985.

Limberg, Louise, and Lars Seldén. "Informationssökning och meningsfullt lärande." *Svensk Biblioteksforskning*, no. 1 (1993): 27-46. Title in transl.: Information Seeking and Meaningful Learning.

Line, Maurice B. "Information Requirements in the Social Sciences: Some Preliminary Considerations." *Journal of Librarianship* 1, no. 1 (1969): 1-19.

Lönnqvist, Harriet. *Humanister söker information: eller "Mötet med den litauiske skoputsaren": Intervjuundersökning bland humanistiska forskare i Norden.* 135 p, *(NORDINFO-publikation, 13)*. Esbo: Nord, 1988. Kap. 5 Forskningsmaterial - monografier, tidskrifter mm av Mats Cavallin. Title in transl.: Humanities Scholars Seek Information.

Meadows, A. J. *Communication in Science.* 248 p. London: Butterworths, 1974.

Munch-Petersen, Erland. *Bibliografiens teori: En introduktion*. Vol. 14. Köbenhavn: Gad, 1980. Title in transl.: The Theory of Bibliography.

Needham, Christopher D. "Introduction and Appendices." In *The Study of Subject Bibliography*, ed. by Christopher Needham and Esther Herman, 1-41. College Park, Md: School of Library and Information Services, University of Maryland, 1970. Part One.

Needham, Christopher D., ed. *Reader in Social Science Documentation.* Engelwood, Colo.: Information Handling Services, 1976. Pp. 3-20: Introduction / Christopher D. Needham.

Neway, Julie M. *Information Specialist as Team Player in the Research Process.* 194 p, *(New Directions in Librarianship, 9).* Westport, Conn.: Greenwood, 1985.

Olaisen, Johan Leif. "Toward a Theory of Information Seeking Behavior among Scientists and Scholars." Ann Arbor, Michigan: UMI Dissertation Services, 1984 [pr. 1995]. 338 p. Diss. Berkley Univ.

Persson, Olle. "Informell kommunikation bland forskare och tekniker." *(Research Reports from the Department of Sociology, University of Umeå, 56)* Umeå: Department of Sociology, University of Umeå, 1980. 107 p. Diss. Title in transl.: Informal Communication among Researchers and Engineers.

Seldén, Lars. "The Information Seeking Career: Business Researchers and their Information Supply." *Svensk Biblioteksforskning*, no. 4 (1992): 18-27.

Seldén, Lars. *Kapital och karriär: Informationssökning i forskningens vardagspraktik.* 354 p, *(Skrifter från Valfrid, 20).* Borås: Valfrid, 1999. Diss. Göteborg: univ. Title in transl.: Capital and career: Information Seeking in Everyday Scholarly Practice.

Seldén, Lars. "Swedish Library Education in Retrospect." *Svensk Biblioteksforskning,* no. 2-3 (1993): 31-44.

Snow, C. P. *The Two Cultures: and a Second Look: an Expanded Version of the Two Cultures and the Scientific Revolution.* 107 p. Cambridge: Cambridge U P, 1991. Part I first publ. 1959. Part II added 1964.

Stoan, Stephen. "Research and Information Retrieval Among Academic Researchers: Implications for Library Instruction." *Library Trends* 39, no. 3 (1991): 238-258.

Stoan, Stephen. "Research and Library Skills: An Analysis and Interpretation." *College & Research Libraries* 45, no. 2 (1984): 99-109.

Sundin, Bosse, ed. *I teknikens backspegel: Antologi i teknikhistoria.* Stockholm: Carlsson, 1987. Title in transl.: Technology in the Rear Mirror: An Anthology of the History of Technology.

Vickery, Brian, and Alina Vickery. *Information Science in Theory and Practice.* 384 p. London: Butterworth, 1987.

Wilson, Thomas Daniel. "Research: Its Influence on Curriculum Design and Development." In Curriculum Development in Librarianship and Information Science: Proceedings of a Workshop held at the College of Librarianship Wales, 84-93. London: British Library, 1978. Conference date: July, 4-7 1977.

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