TALLINNA TEHNIKAÜLIKOOLI RAAMATUKOGU TÖID A7
PUBLICATIONS OF TALLINN TECHNICAL UNIVERSITY LIBRARY A7

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INFORMATION NEEDS OF ESTONIAN SPECIALISTS AND COLLECTION COMPOSITION OF RESEARCH LIBRARIES (1967-1996)

Tallinna Tehnikaülikooli kirjastus

Tallinn, 1997

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Layout: Mihkel Ütt
Cover design: Maie Ruljand

ISSN

ISBN

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PREFACE

The present publication gives an overview of 12 main works on the theme that have been published by the author between 1970-1996. The publication comprises three parts.

The data on specialists' needs and use of primary documents is taken from the sociological studies that were carried out at the end of the 1960s and 1970s.

The part on the composition and use of the collections of research libraries is based on the materials of the studies of Estonian library collections carried out in 1970s and 1980s.

In the third part that deals with the network of Estonian libraries and co-operation in collection development, a short review is given of the past, but main attention is still focused on nowadays i.e. the problems of the 1990s.

At the beginning of each part a brief overview is given of the treatment of analogous problems abroad.

1. INFORMATION NEEDS AND USES

1.1 About the development of the studies on information needs

The study of information needs has long been regarded as one of the most important factors in the design of information resources and services. But there have been serious problems in designing the studies that measure information needs reliably.

Lipetz wrote in 1970 that the studies of information needs and uses are expedient in case they enable to achieve necessary objectives. He explains that the objectives of studies may be: a) the explanation of observed phenomena of information use or expressed need; or, better yet, b) the prediction of instances of information use; or still better, c) the control, and thereby improvement of the utilization of information through manipulation of essential conditions.

According to Wilson (1994) the studies on the information needs and information seeking behaviour of library users dates back to 1916, when the book by Ayres and McKinnie "The public library and the public schools" was published. This study was succeeded by a number of other studies in the 1920s and 1930s.

Martyn (1994) states in his overview that the studies of information needs and uses were more extensively carried out since the end of WW II. Most of the studies were based on relatively small number of subjects, drawn either from members of specific disciplines or from the scientific population as a whole, or less frequently from among the users of particular systems. The technique most commonly employed was that of the self-administered questionnaire. The asset of the questionnaire-technique is the possibility to collect quickly a needed amount of responses to standardized questions that could be worked through statistically and compared. It was hoped that the studies gave information on the general characteristics of information users that enable to design systems that meet the needs of the majority of information users. This hope did not come true, because single respondents expressed clear preferences in their responses, but the interpretation of the data proved to be complicated and the results of the studies turned out to be contradictory. It was proved that information needs and habits were a more complicated phenomena than expected.

By the middle of 1960s, besides few serious studies, a great number of medial-level study results had been collected in the literature of information science. Since the second half of 1960s a stress was laid on the use of more

sophisticated techniques of study in the observation of information needs. Among the direct methods interviews, free discussions and diaries and among indirect methods the citation studies were started to be used more than earlier. Since the end of the 60s the information needs of scientists were carried out more profoundly and systematically in several countries. Information needs have been most frequently observed from the point of view of scientists speciality.

Crawford observed in his overview, published in 1978, that there was a consensus that 'information need' was a difficult concept to define, to isolate and especially to measure. It involves a cognitive process which may operate on different levels of consciousness and may not be clear even to the inquirer him or herself. If a user could specify what is needed under defined conditions, his or her problem might be well on its way toward solution.

Wilson suggested in 1981 that research on information seeking behaviour should be clearly separate from that on information needs. He proposed the idea that the study of information seeking should stand alone as a valid research area with no need to validate it in systems design.

A big step forward in the studies of information needs and uses was made at the beginning of the 80s when researchers began to observe the environment where information was used and make difference between the cognitive and social aspects of information.

Dervin and Nilan draw the conclusions in their 1986 overview, that most of the studies of information needs and uses have observed users from the viewpoint of information system. A typical system-oriented study examines the extent to which a respondent has 1) used one or more information systems, used one or more different kinds of information services or materials; 2) sees one or more barriers to the use of the information system; and 3) reports satisfaction with various attributes of the system and access to it.

Dervin and Nilan proposed that an alternative research paradigm should be applied in information needs and uses studies that focuses on the user, examining the system only as seen by the user and treats information use in certain situations. In the user-centred studies many 'how' questions are asked, e.g. how do people define needs in different situations, how do they present these needs to systems and how do they make use of what systems offer them.

Hewins mentions in his review of the studies of information need and use that covers the period between 1986 and 1989, that a significant number of user-centred treatments were published during this period. Hewins brings out a number of features, characteristic to user-centred studies, i.e. motivation, learning styles, personality types and semantic factors. The fact that user-centred studies are emerged makes the studies of information need and use more interdisciplinary.

At the international conference 'ISIC 96: Information seeking in context' Vakkari said in his conclusive presentation, that the old so called system-orientated studies have remained in the background and they have been replaced by a person in situation approach or action-centred metatheory. Vakkari added that in that way the directives put forward by Dervin and Nilan ten years ago had been realized. Information behaviour is more and more understood as a process containing elements from needs to use embedded in a broader process of which it is a part. Information is seen as a social construct created in the interaction of people and messages. Vakkari said that in the recent studies both quantitative and qualitative techniques are applied although qualitative are more popular. Multiple research techniques have also been combined in many studies. Questionnaires, semistructured interviews and observation are a typical combinations of techniques in some studies. It is obvious that multiple methods in a study will reveal a more varied and valid picture of the research object.

Wilson (1981) remarks, drawing conclusions from the development of information needs studies, that in the course of time the field of research broadened out from the study of library systems to the study of the behaviour and attitudes of information users. It does not mean that when designing research we must make the choice if we proceed from system or user, instead, we must use the approach which is more productive in certain case.

As it was mentioned above, it is not easy to define information needs. Maurice Line (1974) writes, that publications on user needs have been confused by inexact use of terms. In particular, studies have purported to be concerned with needs when they have in fact examined demands or uses. The present work has been based on Line's definitions, which are as follows:

NEED: What an individual ought to have, for his work, his research, his edification, his recreation, etc. In the case of a researcher a needed item of information is one that would further his research. The whole concept of need is inseparable from the values of society. A need may or may not be identified as a want, an identified research need would be recognized as a want, while an identified 'edification' need could well conflict with an expressed want. A need is a potential demand.

WANT: What an individual would like to have, whether or not the want is actually translated into a demand on the library. Individuals may need an item they do not want, or want an item they do not need (or even ought not to have). A want, like a need, is a potential demand.

DEMAND: What an individual asks for; more precisely, a request for an item of information believed to be wanted (when satisfied, the demand may prove not to be a want after all). Individuals may demand information

they do not need, and certainly need or want information they do not demand. Demand is partly dependent on expectations, which in turn depends partly on existing provision of library or information services. A demand is a potential use.

USE: What an individual actually uses. A use may be a satisfied demand, or it may be the result of browsing or accident (e.g. conversation) – information recognized as a need or a want when received, although not previously articulated into a demand. Individuals can only use what is available; use is therefore heavily dependent on provision and availability of library and information service.

1.2 Estonian specialists' needs and uses of primary documents

In 1967-1971 the information needs and uses of specialists from all fields of science were studied in Estonia in co-operation with Saltykov-Shchedrin Library in Leningrad. Questionnaires were composed by the Leningrad library, but the sampling (quota-method) was carried out and the questioning organized by K. Kikas. Data was collected from 1867 specialists of higher and secondary special education in 173 institutions and enterprises and from 1623 specialists of higher and secondary special education in 13 libraries. In order to analyse the information use of the specialists, questioned in libraries, 35 457 call slips were collected in the course of three months. Specialists made their proposals for the improvement of library and information service in the questionnaires (in written form) and in the interviewes carried out in the Tallinn Polytechnical Institute and State Library.

In 1977 the questioning of Estonian population was carried out in order to find out their attitude to the book and the library. On the ground of this questionnaire it was possible to draw conclusions on the information needs of 676 specialists of higher and secondary special education.

The importance of the main sources of information, necessary for the work of higher education specialists was as follows: primary and secondary documents 42,2%, informal sources 41,5%, library services 15,0% and other sources 1,3%. As for the specialists of secondary special education, first came informal sources – 51,8%, primary and secondary documents – 30,3%, library services – 16,1% and other sources – 1,8%.

Specialists' needs for secondary documents according to the data of 1967 and 1977 have been treated by A. Pebre (1979).

Here follows a short survey of specialists' needs and use of primary documents, that the author has treated in his studies [1 – 3]. In the case of information needs the author proceeds from the data of the 1967 questionnaire and compares these with the data of the 1977 study. The data on information use date from 1967.

The formulation of the questionnaires was different in these two studies. In the 1967 study specialists were asked what literature they need, regarding their work, but in 1977 the question was on the literature they use in their work. It gives us the reason to interpret the data of 1967 as specialists' needs and the data of 1977 as their wants, i.e. in the first case we dealt with 'dormant' needs, but in the second case the point was what specialists would have actually wished to receive. Henceforth the author uses the term 'information want' only in the case when it is necessary to differentiate it from 'information needs'.

AGE OF LITERATURE

Proceeding from the education of specialists significant differences come out: the higher is education the greater is need for older literature (see Table 1). These differences can be revealed in all fields of speciality. (Hereinafter significant differences are regarded as statistically important differences).

Table 1

The need for literature of different age
(% from the number of respondents in 1967)

AGE OF LITERATURE IN YEARS	SPECIALISTS		
	Secondary special education	Higher education	Scientific degree
Up to 2	93.0	96.4	100.0
3 – 6	47.3	67.4	91.4
7 – 14	19.2	35.2	66.7
15 – 21	8.4	18.6	46.9
22 – 26	5.0	11.5	25.9
27 – 50	6.0	10.7	32.1
Published 1801 – 1916	3.1	6.2	13.6

The need for older literature depends, besides educational level, also on the nature of work. As for specialists with higher education, there are

significant differences between the needs of practicians and the needs of scientists: the latters' need for older literature was bigger. No significant differences were found between the needs of scientists with and without a scientific degree.

In studying the needs of different fields of speciality, we compared their data with the summarized data, given in Table 1. In the case of specialists of the humanities the need for older literature was over the average. As for specialists of social sciences there were no important differences from the average indices of Table 1. Specialists of natural sciences needed the literature of last fifteen years over the average, whereas biologists, geologists and geographers needed older literature more than chemists, physicists and mathematicians. As it was expected the specialists of technology and agriculture and physicians needed less older literature than the specialists of the humanities, social and natural sciences.

There is a significant correlation between the need for literature of different age and library use. In all periods specialists with higher education who do not use library needed less literature than specialists with higher education who use library, except for the literature, published in the last couple of years, which was needed in equal quantities. There was no such important correlation in the case of specialists with secondary special education.

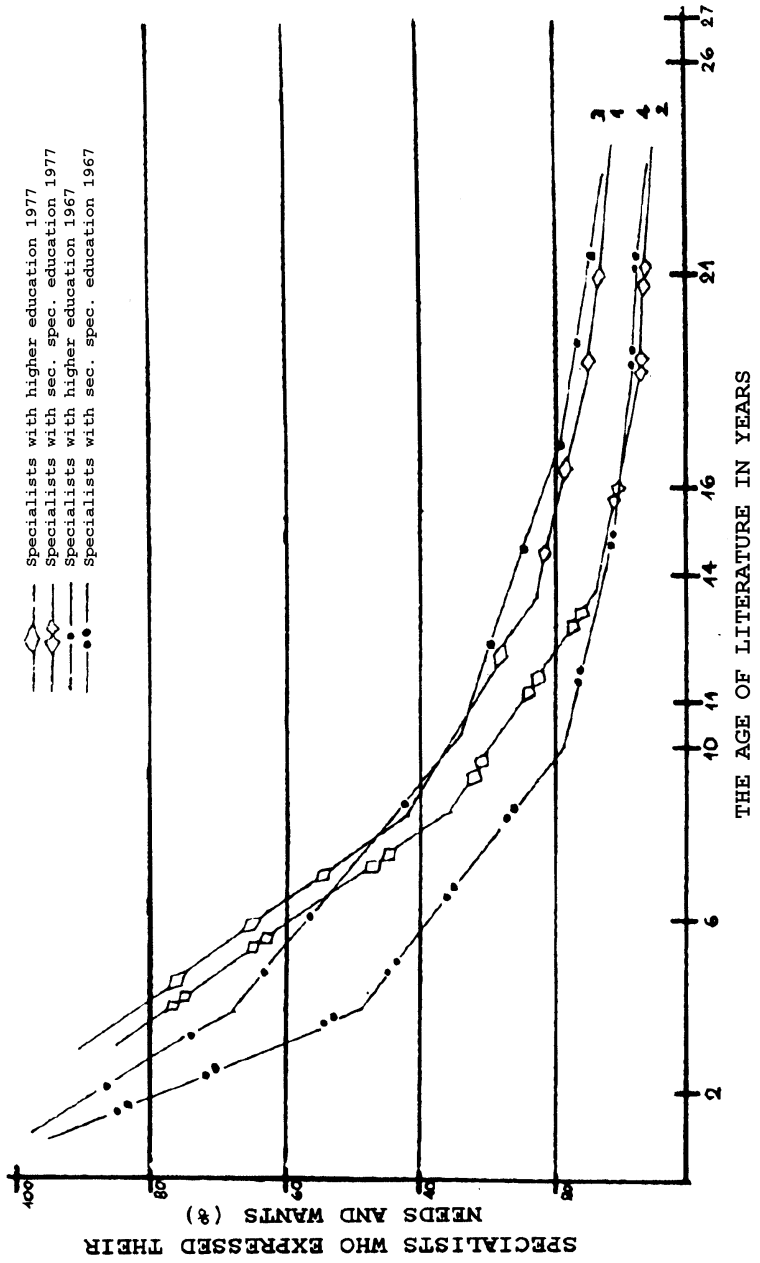
When comparing the questioning data from 1967 and 1977 (see Figure 1), we can see coincidence of the needs and wants for literature over the age of 10 years. New literature was wished more in 1977 than it was needed in 1967.

* * *

As for the call slips presented in the libraries in 1967 the demands were satisfied and therefore we can treat them as the use.

There are significant differences in the use of literature of different age depending on the educational level of library users. These differences reveal themselves quite otherwise than in the case of needs or wants.

Figure 1. The needs for literature of different age, based on the questionnaire of 1967 and the wants, based on the questionnaire of 1977 (% of the number of respondents).



In Table 2 we see that the importance of the demands for the use of literature that has been published during the last couple of years increase together with the rise of educational level. It makes up 45% in the case of specialists with secondary special education, as for specialists with higher education it is 59% and specialists with scientific degree it makes 81% of the literature demand. But the importance of the demands that are made on the literature with the age of 3–21 years decreases while the level of education increases. It makes 53% in the case of specialists with secondary special education, as for specialists with higher education it makes 37% and in the case of specialists with scientific degree it makes 17%.

Of the total number of presented call slips literature, appeared during the couple of last years, made up 58% among specialists of applied sciences, 60% as for specialists of social sciences and the humanities and 73% among specialists of natural sciences. If we add up all the demands that are made for literature, appeared during last 14 years, the role of these demands will be equal in all fields of speciality – 95% of the total number of demands.

Table 2

The use of literature of different age
(% of the call slips in 1967)

AGE OF LITERATURE IN YEARS	SPECIALISTS		
	Secondary special education	Higher education	Scientific degree
Up to 2	45.1	59.3	81.2
3 – 6	29.0	21.0	11.2
7 –14	20.2	13.7	4.3
15 –21	4.1	2.3	1.0
22 – 26	0.1	0.2	0.2
27 – 50	1.0	2.1	1.2
51 – 166	0.5	1.1	0.4
Published up to 1800	0	0.3	0
TOTAL	100.0	100.0	100.0

LANGUAGE OF PUBLICATIONS

The data, given in Table 3 illustrate that with the rise of educational level the need for literature in foreign languages increases and the need for Estonian literature decreases.

The need for literature in different languages depends also on the nature of work. Researchers with higher education needed more literature in foreign languages than practicians with the same education.

Table 3

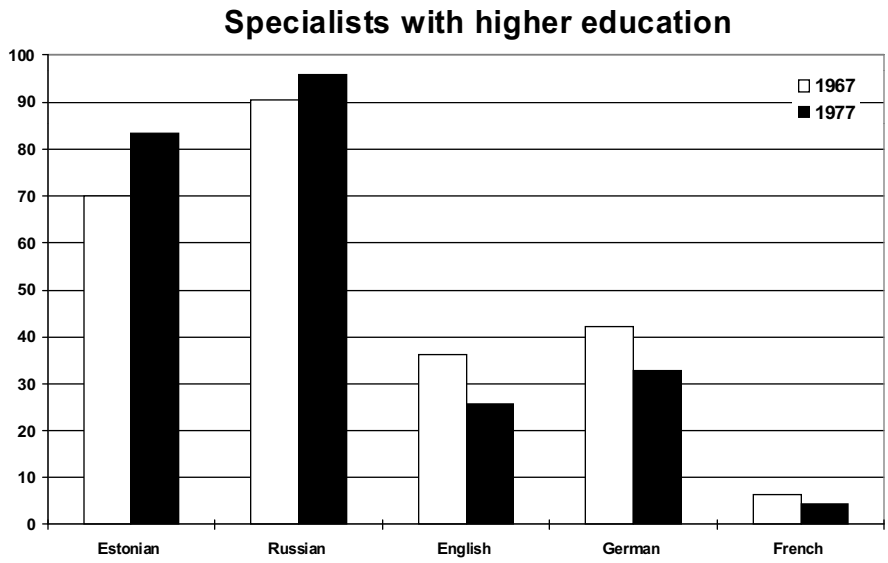
The need for literature in different languages
(% of the number of respondents in 1967)

LANGUAGE OF PUBLICATIONS	SPECIALISTS		
	Secondary special education	Higher education	Scientific degree
Estonian	75.5	69.9	67.9
Russian	71.1	90.4	100.0
English	10.3	36.2	84.0
German	17.8	42.1	86.4
French	1.5	6.5	29.6

Specialists of the humanities needed more literature in the Estonian language than specialists of social sciences. As for the need for literature in the Russian language, no significant differences were found among the specialists of the mentioned fields and in the case of literature published in other languages first came the need for literature in German, then followed literature in English and French.

Among specialists of natural sciences, literature in Estonian was most needed by biologists, geologists and geographers, the chemists', physicists' and mathematicians' need in this area was smaller but the need for literature in Russian was equal. As for the literature in other foreign languages the need was highest for literature in English, then came German and French.

Among specialists of applied sciences literature in Estonian was needed foremost in the case of specialists of agriculture, physicians and technologists were more modest in this field. The need for literature in Russian was bigger among researchers of all fields of applied sciences and practicians with medical and technological higher education. Literature in Russian was less needed by specialists with secondary special education in technology and agriculture, also practicians with higher agricultural education. Among specialists of applied sciences practicians with higher education as well as researchers evaluated literature in English to be more important than German literature, in the case of specialists of secondary special education the situation was vice versa. Among all the specialists of applied sciences only researchers needed literature in French.



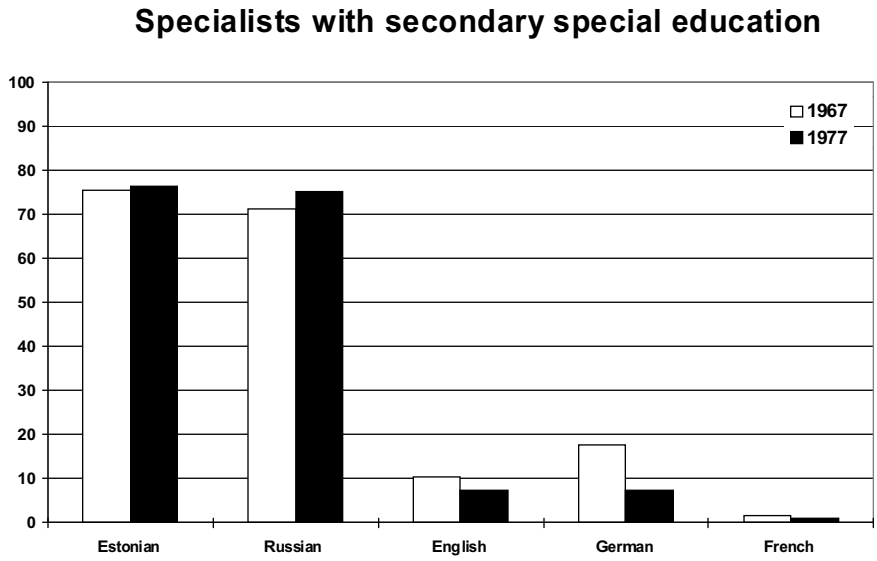


Figure 2. The needs for literature in different languages based on the questionnaire of 1967 and the wants based on the questionnaire of 1977 (% of the number of respondents).

When comparing the questioning data of 1967 and 1977 (see Figure 2), we can see significant differences. Comparison reveals, that in 1977 the wants of specialists of higher education for literature in Estonian and Russian were significantly bigger and the wants for literature in English and German smaller than the needs, expressed in 1967. Beside differences in the formulation of the questions of questionnaires one must bear in mind that one factor which influences information needs is the actual accessibility of information resources and the fact that during the years of Soviet occupation the Russian language was ingrained in our lives more and more every day. Still, it gives us the reason to suppose that in 1967 specialists expressed their needs, but in 1977 they expressed their wants.

* * *

We can notice big differences in the demands of literature in different languages, depending on educational level. From Table 4 we see that differences in the case of Russian literature are not that big as in the case of literature in other foreign languages and Estonian. If in the case of specialists with secondary special education the demands for Estonian literature make up 40% of the total number of demands, then as for specialists of higher education the role of these demands is 3 times smaller and in the case of specialists with scientific degree 10 times smaller. Russian literature makes up about a half from all the demands among all specialists. As for the demands for literature in other foreign languages, it was 10% among specialists with secondary special education, 23% among specialists of higher education and 44% among specialists with scientific degree of the total number of demands.

As for specialists of social sciences and the humanities they used literature in Estonian 30%, in Russian 48%, and in other foreign languages 22%.

The usage of literature in Russian constituted a half of the whole usage in the case of specialists of natural sciences (same as in the case of specialists of social sciences and the humanities). But they used more literature in other foreign languages (38% of the demands) and less Estonian literature (12% of the demands).

Among the specialists of applied sciences the demand for literature in the Russian language was bigger (65%) than in the other groups of speciality. Publications in other foreign languages made up 21% and literature in the Estonian language 14% of all demands.

Table 4

The use of literature, published in different languages
(% of the call slips in 1967)

LANGUAGE OF PUBLICATIONS	SPECIALISTS		
	Secondary special education	Higher education	Scientific degree
Estonian	42.1	15.7	3.7
Russian	46.2	61.4	52.9
English	4.9	10.1	24.7
German	4.8	9.5	15.5
French	0.3	1.7	1.1
Other languages	0.2	1.6	2.1
TOTAL	100.0	100.0	100.0

CHARACTER OF LITERATURE

The data in Table 5 reflect the influence of educational level on the need of literature of different character. Together with the rise of educational level also the need for scientific and reference literature increases and the need for applied literature and study literature decreases.

As expected, specialists with secondary special education needed most of all applied literature. Among them specialists of the humanities and social sciences needed more textbooks than specialists of applied sciences. As for the need for applied literature situation was on the contrary.

Table 5

The need of literature of different character
(% of the number of respondents in 1967)

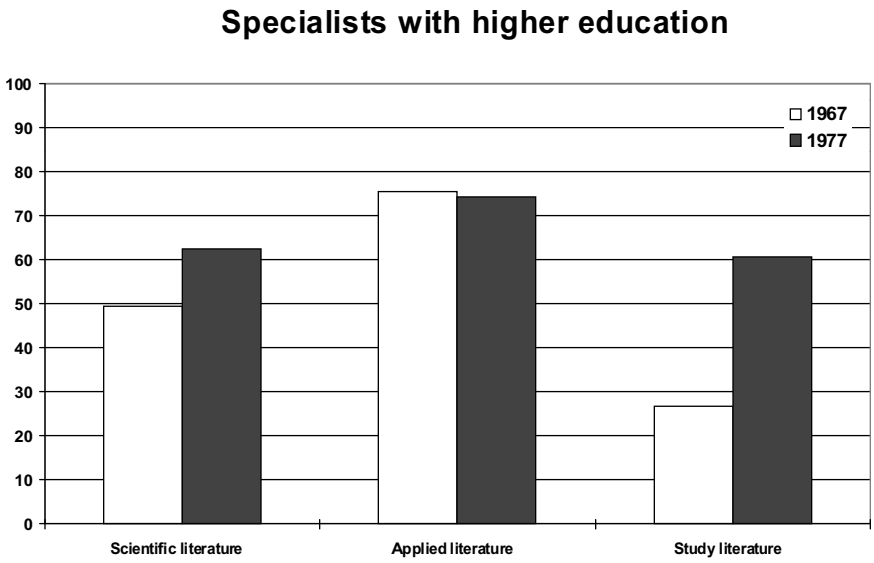
CHARACTER OF BOOK	SPECIALISTS		
	Secondary special education	Higher education	Scientific degree
Scientific	16.3	49.5	98.8
Applied	83.0	75.4	45.7
Study	27.7	26.7	14.8
Reference	20.5	39.7	58.0

Over 80% of the practicians with higher education marked in their questionnaires their need for applied literature. There is a significant difference among specialists of different fields as for the need for applied literature: 59% of specialists of the humanities and social sciences, 78% of specialists of natural sciences and 96% of specialists of applied sciences needed applied literature. Those who needed scientific literature as well as textbooks were represented among specialists of social and natural sciences as well as the humanities with higher education in greater numbers than among specialists of applied sciences. The need for reference literature was equal on the occasion of specialists of all fields.

Naturally all researchers needed scientific literature. Applied literature was more needed among researchers in the fields of applied sciences and natural sciences, much less by researchers in the field of the humanities.

The need for textbooks was marked mainly by researchers in the field of the humanities. There were no important differences in the need of reference literature among researchers in different fields.

When comparing the data of the two questionnaires (see Figure 3), we find important differences. Specialists with higher education as well as those with secondary special education wanted scientific literature and textbooks in 1977 more than they expressed the needs for that in 1967. Specialists with secondary special education wanted significantly less applied literature in 1977 than they needed it in 1967. In this case, also, when interpreting these results we can state that in 1967 specialists expressed their needs, but in 1977 their wants were expressed instead.



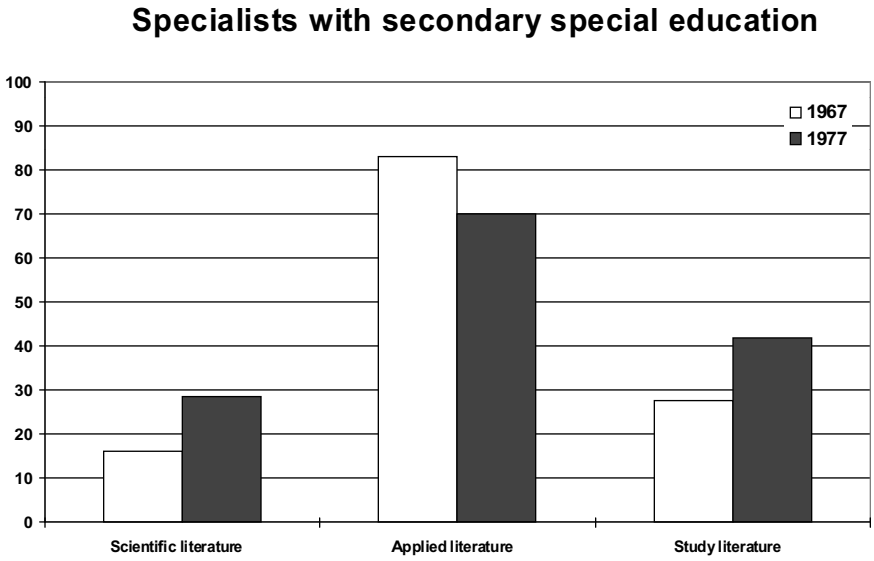


Figure 3. The needs for literature of different character based on the questionnaire of 1967 and the wants, based on the questionnaire of 1977 (% of the number of respondents).

KINDS OF PUBLICATIONS

From the data of Table 6 we see that together with the rise of educational level the needs for books and journals increase as well. As for books, the wants from the 1977 questionnaire do not differ from the needs, expressed in the 1967 questionnaire. In the case of journals the wants were marked by more specialists (83%) in 1977 than the needs in 1967 (71,8%).

Table 6

Needs for different kinds of literature
(% of the number of respondents in 1967)

KINDS OF PUBLICATIONS	SPECIALISTS		
	Secondary special education	Higher education	Scientific degree
Books	90.5	93.9	100.0
Journals	71.8	91.5	100.0

Proceeding from the education of specialists significant differences in the use of literature of different kinds come out (see Table 7). With the rise of educational level the use of journals increases and the use of books decreases.

Table 7

Use of different kinds of literature
(% of the call slips in 1967)

KINDS OF PUBLICATIONS	SPECIALISTS		
	Secondary special education	Higher education	Scientific degree
Books	72.5	32.0	23.8
Journals	24.7	60.7	72.8
Other	2.8	7.3	3.4
TOTAL	100.0	100.0	100.0

FIELDS OF SCIENCE

The responses of the both questionnaires (in 1967 as well as 1977) revealed, that most of the specialists needed literature in their field of science. The need for literature in other fields of science was the bigger the higher was educational level. In most cases the priorities' lists of all necessary fields of science coincided in the needs, expressed by specialists of all fields of science in 1967 as well as in the wants, expressed by them in 1977.

The observation of the literature that was used in libraries during three-month-period indicated, that specialists used besides their special literature a lot of publications in adjacent and other fields.

Literature in social sciences and the humanities made up 54% of the uses of specialists of social sciences and 58% of specialists of the humanities. Fiction (14%) made a significant part of the demands of specialists of social sciences as well as the humanities.

Of the demands of physicists and mathematicians 58% was made for literature in physics, mathematics and mechanics, 18% in social sciences and the humanities and 24% in technology. The most demanded themes in technological literature were: general issues of technology, electrical engineering and electronics.

Among the demands of chemists, besides literature in chemistry (26%), comprised also literature in social sciences and the humanities (12%) and in technology(46%). In the field of technology more demanded was literature in chemical industry and electrical engineering.

The demands of geologists and geographers comprised their special literature – 47%, literature from other fields of natural science – 12% and literature in social sciences and the humanities – 22%.

As for biologists, the use of literature in biology made up 30%, social sciences and the humanities 33%, agriculture 33% and medicine 4%.

Technologists demanded technical literature – 60%, literature in social sciences and the humanities - 15% and natural sciences – 12%; among the last mentioned field of science most used was literature in mathematics, physics and chemistry.

Physicians demanded most of all medical literature (74%), the percentage of literature in social sciences and the humanities was 6%.

From the usage of literature of agricultural specialists, 31% was agricultural literature, 12% in social sciences and the humanities and 23% was fiction.

It must be mentioned that specialists' demands of literature in libraries do not reflect only their professional, but also their everyday interests and needs. Still these data reveal an interesting phenomena that among specialists of different fields the literature in their own field plays a different role in the usage.

THE USE OF LIBRARIES AND SATISFACTION WITH THEIR COLLECTIONS

Questionnaires revealed that all specialists did not use special literature in their everyday work. As for specialists of higher education, 30,7% of them used it now and then, the use was inevitable for 57,8% and 4,8% did not used it at all. The data on specialists of secondary special education is as follows: 22,1% did not use special literature, 41,6% used now and then and for 29,5% it was inevitable. The mentioned literature was not used by 3,7% of specialists of higher education and 16,7% of secondary special education because it was not necessary in their work.

Specialists were asked which libraries they preferred in connection with their work. 36,8% of specialists of higher education and 33,6% of secondary special education visited mainly the library of their working place, public library was visited respectively by 10,3% and 9,4%, research library 11,6% and 1,6%, personal library was used by 21,7% and 18,1%. For the solution of their professional problems libraries were not used by 20,2% of specialists of

higher education and 37,4% of secondary special education. That proves that in the first place were visited libraries of working place. These libraries were not able to meet all the needs of specialists for primary documents that arose in their everyday work.

Many responses proved that library service was not satisfactory. 68,9% of the specialists of higher education and 42,7% of secondary special education wanted more professional literature; they wanted that journals of current year could be lent for home use (51% and 34% correspondingly). 38,6% (higher education) and 11,2% (secondary special education) wanted the possibility to order copies from the pages of articles and books.

The circle of specialists who used research libraries was quite small. The State Library was regularly used by 8,9%, the Library of Academy of Sciences by 6,7%, Tartu University Library by 4,4%, Tallinn Polytechnical Institute Library by 5,3%, Technical Library by 2,8% and Medical Library by 3,6% of specialists with higher education. In these days 46,9% of all specialists with higher education in Estonia lived in Tallinn and 13% in Tartu. Bearing in mind that some of the specialists visited regularly several research libraries, it is evident that only under a half of the specialists of higher education who lived in Tallinn used larger research libraries regularly. The need for operative solution of professional questions frequently did not enable specialists to turn to research libraries. Often they did not know that they can find solutions to their problems in libraries. Service conditions in libraries were unsatisfactory as well. Over the quarter of respondents wanted speedier service, 30,1% (higher education) and 19,4% (secondary special education) wanted better conditions for work in reading rooms.

Specialists made over 600 proposals on the content of libraries. Almost half of them mentioned the shortage of western literature in libraries. Especially many proposals were made to increase the number of titles of foreign periodicals and certain journals were mentioned.

It was also thought that some fields were not covered with necessary Russian literature. The specialists of technology who were questioned in Tallinn made a lot of proposals for more complete acquisition of literature in cybernetics, automatics and electronics.

Specialists from smaller towns and the country were not content with the collection composition of local libraries. They were worried about the shortage of special literature and textbooks. They regarded it necessary that new literature in Estonian was more completely represented in local ibraries.

CONCLUSION

The study of the information needs and uses of Estonian specialists revealed the differences between information needs, wants and use. Probably the data of information use would have been quite different if the collection composition of libraries have better met the demands of the users. This was illustrated by the proposals that library users made for the improvement of library collections.

The study of Estonian specialists' information needs was a system-oriented study, characteristic to its time. It is interesting to look for some common lines with other studies.

Choo and Auster (1993), when giving a survey about the studies of information needs and uses, drew attention to the fact that many user groups prefer local sources or those of the nearest surroundings. For these users the speediest possible availability of information was more important than the high quality of information. In Estonia, in order to search for the information that was necessary for their work, specialists turned in the first place also to the libraries of their working place.

Choo and Auster remarked that for users informal channels of information are often as important as formal channels, sometimes even more important. According to the data in Estonia 20 years ago the role of mentioned information channels was equal in the case of specialists with higher education, for specialists with secondary special education informal channels were more important.

2. COMPOSITION AND USE OF RESEARCH LIBRARY COLLECTIONS

2.1 About the evaluation methods of library collections and practice

The main goal of the evaluation of library collections is to find out how well a library meets the needs of its users.

Lancaster (1980) sets the question as follows: it is necessary to evaluate the efficiency of our activity, how we work and are the results worth our efforts.

Faigel (1985) is on the viewpoint that the data, collected for the evaluation of collections, must enable: 1) gather data for better collection development decisions; 2) assess how well the collections meet the needs of present and future users; 3) allow us to see if the directives of a collections development policy are being carried out; 4) review the performance of current selectors; and 5) reduce the subjectivity that is inherent in the selection process.

Faigel thinks that the history of collection evaluation probably goes back to the library at Alexandria, although the absence of national bibliographies and other difficulties in bibliographic control must have made it difficult to establish whether the collections were complete or had gaps to be filled. He tells that in the USA ist goes back at least to the 1894 American Library Association conference at Lake Placid which focused mainly on selection. One speaker listed the basic issues to be dealt with and resolved: 1) Who shall select? 2) What shall be selected? 3) How shall it be selected? The question how shall the results be evaluated and by whom seems not to have been asked, presumably because American collections of the time were so small that weakness rather than strenght could be assumed. But to extent that every act of selection takes place within an evaluative context, with the intent of remedying weaknesses and building on strenghts in existing collections, then that issue was already implicit in 1894.

The methods of collections evaluation fall into two categories: collection-oriented and user-oriented. Collection-centred evaluation focuses on the size, depth, scope and significance of the collection. In the case of user-oriented approach i.e. the observation of use it has to be find out if a collection of certain type or part of this collection has been used and how often, or it is tried to give a prognosis on the use.

Wortman (1989) explains, that evaluation measures a collection's 'intrinsic quality', that is, the holdings' 'absolute' calibre, and its 'extrinsic effectiveness', defined as the impact of users. He specifies that the essential value of a collection is its 'absolute' calibre, i.e. the level of its immaterial dimension, the whole external value is its efficiency for a use.

Lancaster classifies the major approaches to collection evaluation as follows: 1) quantitative (size and growth of collections) and 2) qualitative (expert judgement, bibliographies used as standards, analysis of actual use). Lancaster has earlier (1980) treated the analysis of actual use of collections as a separate (third) category of their evaluation.

The total size of library collections is one characteristic for their evaluation. If a collection is smaller than a certain minimal size, it is unlikely that the activity of a library is efficient. There are standards on sizes of libraries of different types in many countries. Collections are evaluated also according to the age of literature, language, character, fields of science etc. parameters. The size of collection is dealt with also in connection with other variables, e.g. the number of volumes per capita and the number of loans per one volume. Current growth of collections and expenditures for collection development, i.e. costs per one reader and the relation between the whole budget of a library and acquisition costs are evaluated as well.

One usable qualitative method is collection evaluation, based on expert judgement. One or more persons are used as collections' evaluators – subject specialists, librarians or scientists. Such kind of evaluation is completely subjective, but it may be valuable if the evaluators are persons who have reliable knowledge in several fields of science and, even more, in corresponding literature.

Another qualitative method of collection evaluation for the whole collection or some fields of science is comparing a library collection with a reliable reference source as the collection of other library or special bibliography that is acknowledged as a complete and/or competent.

According to Lancaster, the limitation of all mentioned above quantitative and qualitative methods is the fact that they deal more with a collection and not with its use. He says, that main test of the quality of a collection is the degree of its usage. Many studies of collection evaluation have been carried out from the aspect of their use. One should mention here some well known studies of the use of collections.

The study of the library collections of Chicago University Library by Fussler and Simon (1969) that is regarded as classical and is much referred to, set a goal to find out the procedures for giving a prognosis of acceptable exactness on the frequency of use the book groups of certain characteristics. The study revealed that the best predictor of the future use is the earlier usage of a book.

Fussler and Simon drew conclusions, taking into account all the cases of book usage. Trueswell (1965) analysed in his studies the last circulation date of the books under the study and realized that on the grounds of such date only it is also possible to give a prognosis for the future use.

It is important to remark that several other authors have regarded it as a matter of course that the future use of a book could be prognosed on the basis of its earlier use. But Line and Sandison (1974) are on diametrically opposite standpoint and state that none of the existing studies could be used in the prognosis of the future use of a book. Their statement is based to a great extent on the difference between 'synchronous' and 'diachronous' decay of the literature.

One of the more extensive studies of the use of library collections was carried out by Kent et al. (1979) at the Hillman Library of Pittsburgh University. The study revealed that of the 36 892 books, catalogued in 1969, 60,2% had been used and 39,8% had not been used by the end of 1975. The publication of the results of the study generated extreme controversy. The adequacy of the results was much criticized. It was also calculated that if every unused book cost 30$, then the university spent 450 000$ for getting a little museum, the archival value of which is impossible to calculate. Kent explained that in the course of the study the data on browsing and use in a library was not available. Mosher (1984) was still on the standpoint that the Pittsburgh study was useful in order to know what kind of books should not be used and also for a separate storage of unused books. Mosher stressed that the Pittsburgh study warned researchers from the dangers that may result from insufficient collaboration with practicians and trying to apply the results of their studies too directly and hastily in practice.

2.2 About the quantity and quality of collections

In the article 'The content of research libraries' [4] I have observed Estonian research libraries, keeping in mind the year 1980.

In 1980, January 1, our 10 larger libraries comprised 18,9 million publications. As compared with the year 1940, the collections had grown 19 times, two times per each ten-year-period. The number of specialists, working in national economy, had grown 10,7 times by the year 1976, the number of researchers 10,2 times and students 5,1 times. So library collections grew more quickly than the number of specialists, researchers and students.

It is known that the size of the collections of research libraries depends on the increase of the number of scientific publications and their ageing. Inevitaly arose the question whether the growth of the collections of our research libraries was going on with the same speed or slowing down, and whether their size was optimal.

Downs (1969) studied the dependence of the number of defended Doctor's theses on the collection composition of libraries in the universities of the

USA. It turned out that there is a strong correlation between the library's composition and the number of defended Doctor's theses, also the number of Doctor's theses and the level of libraries' financing. 40 universities, where in 1965/66 over 0,5 million dollars were spent on the purchase of books and journals, gave 65% of the number of defended theses. So the scientific potential of an university depends greatly on the size of libraries and improvement of collections.

How big should a good university library be? Unfortunately only the standards from 1970 were available (Withers, 1970).

The university libraries with the biggest collections are situated in the USA. There were no standards for them. The standards in college libraries of the USA foresaw not less than 50 000 volumes per 600 students. For each succeeding 200 students 10 000 volumes were added. So it was regarded that for a college with 10 000 students an optimal size of collection was 520 000 volumes. In United Kingdom to a university with 4000 students and 500 lecturers a library with 500 000 volumes was foreseen, while 3000 titles of serials had to be acquired as well. In the Federal Republic of Germany the experience of the new universities showed that in order to meet the reading demands by 75%, a collection of 300 000 volumes was needed. A new library was regarded to be good (i.e. reading demands were met by 90%) if it had 600 000 volumes and 5000 titles of serial publications.

It was possible to compare the data of Estonian libraries with the standards given above, making reappraisal in the case of periodical collections and taking 12 numbers as a size of volume-set. This way the data on six Estonian research libraries have been gathered with their book and periodical collections as of January, 1, 1978 (see Table 8).

As we see from the Table 8, the magnitude of the collections of Estonian State Library (ESL), Estonian Academy of Sciences Library (EASL) and Tartu University Library (TUL) was quite significant for comparison with libraries from other countries. Still the value of collections can not be evaluated by quantity only. Unfortunately Estonian libraries did not make a proper selection among the publications, appeared in Soviet Union and other socialist countries during the years of Soviet power. The quality of our collections was impaired also by shortage of western publications. In 1978-1979 there was only 3404 titles of foreign journals in all Estonian research libraries.

Table 8

The collection of books and periodicals in six Estonian research libraries as of 1.01.1978

Library	Book collection (volumes)	Periodical collection (volumes)	Book and periodical collection together (volumes)	Arriving journals
ESL	1 167 318	55 367	1 222 685	1 478
EASL	1 414 216	89 460	1 503 676	1 333
TUL	1 415 317	95 046	1 510 363	1 378
TPIL	258 160	29 192	287 352	1 127
ETL	80 337	10 198	90 535	1 007
EML	167 708	11 011	179 719	266

A library reaches a 'mature age' in the case of a certain amount of collections and quality acquisition. Our libraries did not take seriously the directions from Moscow, that recommended to give literature with the age of 20-40 years to depository. It is true that the most of applied literature, popular science literature and textbooks loose their importance of keeping it in the collections of usage, but a research library must comprise a good selction from all fields of science that meet the information needs of users. An older scientific literature must also belong to this kind of collection.

It was concluded in United Kingdom (Sandison, 1971) on the ground of searches of necessary basic literature for research that in order to meet the demand by 50% it is necessary to own literature with the age of 15-20 years. Few libraries set a goal to meet the demands of their users only by 50%. Therefore it is necessary for a library that strives for meeting the demands by 94% to have a collection with the age of 120-160. This kind of library may be called a library of a 'mature age'. The Tartu University Library is almost such kind of library, but its disadvantage is the shortage of western research literature of the period of Soviet occupation.

In evaluating the composition of research library collections we need more collection-centred approach. Up to now mainly the relations between libraries' composition and use have been dealt with, less attention has been paid to the quality of collections.

An internationally topical theme is ownership-access today. The point is what and to what extent a library must own itself and what may be obtained from elsewhere according to demand. Though bibliographical and physical accessibility has been greatly improved by the development of information networks and online facilities, it is of no use if a source itself does not exist, i.e. if it is not owned by anybody.

Line (1996) writes that though it is tried to prove that the future of libraries presumes more accessibility than ownership, there are still a lot of questions left that need to be thought over. The model of accessibility excludes usual browsing and possibility to make accidentally happy and unexpectable finds though it enables easier accessibility and use of periodicals. Line is sure that libraries need both the accessibility and ownership. The first mentioned should be an acceptable substitute of older materials, but not for current materials.

It should be added that the development of information forwarding procedures unavoidably reduces current acquisitions and therefore each library will have to make a careful selections in collection development. The future development of collections should be visualized in this way that ownership should mean mostly the acquisition and storage of the core of collections. In addition to the mentioned core collection so called top. literature should be acquired to small extent only, from some narrow fields, that are especially important from the point of view of scientific research.

In acquisition the core of journal collection one may be supported by several reference and bibliographical databases or lists. I made an experiment of calculating the price of a possible core collection.

According to calculations, carried out by German Scientific Council one set of research literature (both books and journals) from all fields of science cost 8 million DEM i.e. 64 million EEK 5 years ago. The list of technical journals, recommended to university libraries by German Scientific Council, consists of 2900 titles and it costs 880 000 DEM, i.e. 7,04 million EEK. *Current Contents* that takes most important journals of the world in its serials, selects only 830 titles from the field of technology and they cost 3,8 million EEK. As for journals in the field of social sciences and the humanities 4800 titles are recommended and the set costs 670 000 DEM, i.e. 5,4 million EEK. *Current Contents* recommends 1375 more important journals in the field of social sciences and the humanities and they cost 2,45 million EEK. So, if we obtained only the most important journals, listed in *Current Contents* their cost would make up approximately 55% of the total cost of the journals, recommended by Germans and if the selection of books were lessened in the same proportion, it would make up approximately 32 million EEK. In the case of less important journals we must be limited to subscriptions of copies, interlibrary loan, services of electronic means. It will be probably cheaper than physical obtaining of the materials that were left unsubscribed.

2.3 Composition and use of book collections in Estonian research libraries

Two studies of the composition and use of library collections in Estonian libraries, were carried out in 1970s and 1980s. The subject of research included all the large libraries and some other libraries, that were selected by types, comprising 13 libraries altogether. It was decided to take 0,75% of the books of the libraries under the study as a sample. Sampling was based on the alphabetical catalogue (the letter M). In the course of the study, an alphabetical union catalogue was set up, based upon the sample. The idea of alphabetical sampling was grounded by Kaljo Veskimägi. The study was organized by Kaljo Veskimägi, Hans Jürman and Konrad Kikas.

Thanks to common methodology the collections study of 1970s (hereafter CS-1) gave a picture of the development of holdings in Estonian libraries from the past until 1970. The number of titles, necessary for CS-1, grew up to 14 040. Proceeding from the fact, that 14 040 is 0,75% of the whole collection, the collections of 13 libraries comprised of 1 872 000 titles at the end of 1970.

In 1980s followed the study on the literature that was acquired during the next ten years (CS-2). The sample, comprised of books that were acquired to library collections in 1971-1980, numbered 3872, i.e. the collections grew by ca 516 000 titles.

On the basis of the data CS-1 and CS-2 two collections of articles with the same heading have been published by the authors of different libraries: 'The composition and use of libraries' (1978, 1987). The development of the library collections of Estonian libraries, based on the data of CS-1 has been treated by K. Veskimägi (1978).

Here follows a summary of the studies [3, 5-7], in which the author of the present publication has treated the composition and use of Estonian research libraries' collections on the ground of CS-1 and CS-2. The study of the composition and use of library collections covered 8 research libraries. The data of collections' usage in 1961-1970 (covering a long period of time quite thoroughly) obtained from 4 libraries is analysed in the papers [3, 5]. The four mentioned libraries were the Estonian Academy of Sciences Library (EASL), the Tallinn Polytechnical Institute Library (TPIL), Estonian Medical Library (EML) and the Estonian Academy of Agriculture Library (EAAL).

As we see in Table 9 the amount of loans was almost equal in the three libraries. EAAL didn't differ from the others, though it would have been normal that this amount had been bigger in a library of more narrow profile and smaller in the more universal library.

Table 9

Use of library collection in 1961-1970
(summed up)

Library	Titles of which the data of usage was available	Among them			
		Used		Not used	
		Number	%	Number	%
EASL	2369	893	37.7	1476	62.3
TPIL	751	277	36.9	474	63.1
EML	579	208	35.9	371	64.1
EAAL	579	179	30.9	400	69.1

Table 9 indicated the average percentage of books' usage. The lending data of books, differing from each other in character, kind, language, content or other characteristics of publications, reveals essential divergences from these averages.

KIND OF THE BOOK

Relations between the kind of publications and use reveal, that lending of books and brochures approached almost the average in these libraries. The data also show that the frequency of use of collections of articles was significally higher in EASL and TPIL. (In this study statistically significant differences have been taken into account). Dissertations and their abstracts were used significantly less of the average in the three libraries. Only in EML lending of the abstracts of dissertations approached to the average.

LANGUAGE OF THE BOOK

As for books language, it can be seen that literature in Estonian is used much over the average in EASL, TPIL and EAAL.

The usage of literature in the Russian language was near the average in all the libraries. It is logical because the quantity of Russian literature was really large in all the libraries.

Small numbers do not make it possible to show essential differences between lending data of the literature in English, German, French, Latin, Greek and Finnish. Still, it was evident that other languages, collected in the box 'Other languages', found very little use. It can be said only in the case of EASL that books in other languages were used remarkably less than the average.

CHARACTER OF THE BOOK

Big differences in use are dependent on the character of book. In the three libraries scientific literature was loaned much less than the average, only in EML it coincided with the average index. In this library scientific literature consisted mainly of the abstracts of dissertations. It came out earlier that in EML abstracts were used much more than in other libraries. In all the four libraries applied literature, published for to specialists of higher and secondary special education, was used over the average. Also the percentage of use of textbooks for higher and secondary special education was higher than the average in EASL, TPIL and EAAL.

FIELDS OF SCIENCE

No important relations were found between content and use of books. No big differences were found in EASL in the use of UDC classes 3, 5, 6 and 7 as compared to the average. As for classes 0, 1, 2, 4, and 8, it was noticed that the use indicators were higher than the average. The differences were not big anywhere and the trust limits of percentages did not afford to find out any essential difference. In EASL the only important difference was revealed in class 9. Under this class 29,0% of the literature was lent that was much smaller than the average use of collections in this library. The bigger quantity of loans under class 6 as compared to class 5 was found in TPIL and EML.

PLACE OF PUBLICATION

There is essential correlation between the place of publication and the use of a book. In all the four libraries the books, published in Estonia were used more than the average.

Lending of the books, that were published in Moscow and Leningrad, was near the average in every library. Regarding the great quantity of these books in the libraries under study, they were determinant in fixing the average. Within the average was also lending of the literature, published in Kiev and Novosibirsk.

Situation was different among the books, published elsewhere in the USSR. The latters were used much under the average in EASL, TPIL and EAAL. It would be sensible to reveal here the lending percentages of those books. During the ten year period 16,9% of the titles of the mentioned books were lent in EASL, 18,4% in TPIL and 10,2% in EAAL. In EML those books were used near the average.

The books, published in the Democratic Republic of Germany and in Germany before 1949 were used much over the average in EASL. Elsewhere there were not enough data for drawing conclusions in this field. As for the books, published in other socialist countries, their use was much under the average in EASL and TPIL.

Use of the books, published in England, the USA, Canada and other developed capitalist countries exceeded the average in EASL.

YEAR OF PUBLICATION

There were not enough data on the correlation between the year of publication and the use of books in the study. Among the research libraries that hold old collections the loans' data was available only in EASL. Still, those data did not include information on the use of the *Baltica* literature. One cannot state that in this library old books were lent remarkably less than new ones. In TPIL, EML and EAAL percentage of old books in the sample was too little to reveal statistically relevant differences in the use of new and old books.

NUMBER OF PRINTED ISSUES

An important correlation came out between the number of printed issues and the use of books. Books with the number of printed copies up to 500 were used in two libraries under the average and books with 1001-2000 printed issues in one library under the average. No significant differences were found in the use of books with 2001-5000 printed issues in any library. Books in the case of which the number of issues exceeded 5000 were loaned over the average as follows: 5001–10 000 in one library, 10 001–20 000 in two libraries and 20 001–50 000 in three libraries. So, use increased with the increase of the number of printed issues. This tendency need not work in the case of books over 50 000 printed issues.

Here arises a rule for acquisition practice: the smaller the number of printed issues is, the more information an acquirerer must have on the user of a book.

* * *

On the basis of the sample of CS-2 we observe here the use of books in 1971-1980 within the limit of five fields of science: the book of the humanities and social sciences (the main UDC classes 1, 2, 3, 4, 7, 8, 9); natural sciences (the main class 5); technology (the main class 6); medicine (the main class 61) and agriculture (the main class 63). The data of use the main class 0 were not included in the study.

Library use will be presented as a summary data by libraries. In addition to the mentioned four libraries CS-2 used also data from Estonian State Library (ESL) and the Tartu University Library (TUL).

Table 10 reveals that the use of books was quite different in different fields of science: the book of medicine was used much more than the book of natural science.

Table 10

Summary data on the use of book collections by the large groups of science fields

MAIN CLASSES	TITLES IN LIBRARIES	USED TITLES	
		Number	%
1, 2, 3, 4, 7, 8, 9	1837	628	34.2
5	523	141	27.0
6	819	301	36.8
61	177	99	55.5
63	210	65	31.0
TOTAL	3566	1234	34.6

As we see in Table 11 the usage of the same books was significantly different in different libraries, e.g. the usage of the book of technology was 62,8% in EASL, 55,9% in TPIL, 36,0% in TUL and 22,5% in ESL. Significant are also the differences of use of the books of different fields of science in the same library. In TUL 49,1% was used of the books of the humanities and social sciences, as for natural sciences the use made up 36,1%. In ESL the use of medical book made up 26,9%, while the books of natural sciences found the use of 9,4%.

Table 11

The use of library collections by the large groups of science fields in different libraries

MAIN CLASSES	ESL	EASL	TUL	TPIL	EML	EAAL
1, 2, 3, 4, 7, 8, 9	18.6	62.6	49.1	61.4		
5	9.4	43.7	36.1	38.0		
6	22.5	62.8	36.0	55.9		
61	26.9		58.8		62.6	
63	11.4		42.1			43.2

The data in Tables 10 and 11 show big discrepancies between the acquisition and use of library collections. One reason for the differences between the libraries is the difference of library users. Usage is not a single, but an important criteria for the evaluation of collections. If books in certain fields of science find little use, it indicates that there is redundancy of acquisition.

The different use of books depends on the level of acquisition of the books in different fields of science. We compared the level of acquisition in the case of the books in Russian of the main class of UDC 5 with the use of the same books. The level of acquisition was the percentage of presence of the books in the same class in libraries as compared with the data of the main issue of *Kniznaja Letopis.*

Table 12

The efficiency of the books acquisition in the main class of UDC 5

	UDC class	Subclasses									
	5 total	51	52	53	54	55	56	57	58	59	50
The completeness of acquisition (%)	64	31	80	56	90	71	72	83	66	88	57
The percentage of book use	30	39	21	35	38	18	0	44	36	42	23
The relation of completeness and use	2.1	0.8	3.7	1.5	2.3	3.8		1.8	1.8	2.1	2.4
The coefficient of acquisitions efficiency	1.0	0.4	1.7	0.7	1.1	1.8		0.9	0.9	1.0	1.2

Table 12 gives the coefficients of the efficiency of the acquisition of the books in the UDC main class 5. In the case of the class 5 and every sub-class we divided the percentage of the completeness of acquisition with the percentage of the use in the same sub-class. The relation of completeness and use in the class 5, that is the average of sub-classes, got the coefficient 1,0. Table shows that there is shortage of acquisition on class 51 – mathematics and class 53 – physics: the coefficients of the efficiency of acquisition were correspondingly 0,4 and 0,7. Redundancy of acquisition can be seen in class 55 – geology and 52 – astronomy, geodesy and also in class 56 – palaeontology. In the limits of classes one must regard the influence of other parameters (character, language, place of publication) to the use.

Difference between the use of the books' character is observed between four types: scientific book, book of popular science, applied book for specialists and textbook for higher and secondary special education. The most was used the book of popular science (44,2%) and applied book for specialists (43,9). Then followed textbook (39,2%) and scientific book (30,5%). This is valid in the case of the observed sample as a whole. The picture is different from the point of view of the fields of science.

Table 13 reveals that in the priority list of the usage of the book of the humanities, social sciences, natural sciences and technology first comes the applied book or the book of popular science, scientific book is always the last in the list.

Among the books of agriculture first comes the usage of scientific book, little use found the book of popular science. Also the medical book of popular science comes last in the list.

Table 13

Priority lists of the usage of the books of different character within the limits of large groups of science fields (%)

MAIN CLASS	BOOK TYPES			
	I	II	III	IV
1 - 4, 7 - 9	Applied book for a specialist 49.4	Book of popular science 44.4	Textbook for higher and sec. spec. ed. 38.5	Scientific book 32.0
5	Book of popular science 48.9	Textbook for higher and sec. spec. ed. 40.3	Applied book for a specialist 32.4	Scientific book 21.6
6	Applied book for a specialist 41.6	Book of popular science 40.0	Textbook for higher and sec. spec. ed. 36.8	Scientific book 31.8
61	Applied book for a specialist 70.7	Textbook for higher and sec. spec. ed. 54.1	Scientific book 52.1	Book of popular science 36.4
63	Scientific book 44.4	Applied book for a specialist 37.5	Textbook for higher and sec. spec. ed. 34.5	Book of popular science 7.7

CONCLUSION

We have realized that during the ten year period (1961-1970) among available book titles 37,7% was used in EASL, 36,9% in TPIL, 35,9% in EML and 30,9% in EAAL (the average of the four libraries 36,4%). Is it enough or not? Obviously not. As compared with the Pittsburgh study the percentage of use was smaller, but in Estonia all the books that have been in Estonian libraries since their foundation, were under study. As for the Pittsburgh study, only books catalogued during one year seven years earlier were under investigation.

The percentage of the book collections usage of our research libraries would have been bigger if more careful selection were carried out in acquisitions of the books that were published in other towns of Soviet Union, excl. Moscow, Leningrad, Kiev and Novosibirsk, also among the books with printed issues under 2000.

Tables 10 and 11 are the data, that illustrated great discrepancy between the acquisition and use of books in different fields of science in 1971-1980. One reason for the differences of libraries was the difference of library users. Still more important factor is different level of acquisition between different fields of science. Table 12 shows that shortage of acquisition was found among the books of mathematics and physics in Russian in 1971-1980. Redundancy of acquisition was in geology, palaeontology and astronomy. The data in Table 12 is an original experiment to apply collection-orientated study at the same time with the user-oriented study in order to evaluate book collections.

According to the data of CS-1 and CS-2 we can state that in Estonian research libraries not enough attention was paid to the acquisition of applied literature for specialists, that was used over the average in majority of UDC classes.

3. RESEARCH LIBRARY NETWORK AND CO-OPERATION

3.1 Co-operation of research libraries abroad

Examples of libraries' co-operation can be found from the past times already, but it was not a general practice then. It was not until the middle of the 19th century when it became clear that even the largest national libraries are not able to develop their collections exhaustively and the ideas of co-operative activity began to make progress.

At the beginning of the 20th century the main forms of co-operation were interlibrary lending, compiling union catalogues and book exchange. In the 30s and 40s co-operative acquisition was added to them. Up to the end of the 60s the aim of co-operation was to extend the circle of acquired publications, achieve better results in meeting the demand of literature through interlibrary lending and cost cutting.

In the 70s a new phase began: resource sharing. Resource sharing is grounded on the idea of the unity of library users. Libraries do not proceed from their 'own' readers only, but the readers of all participating libraries. Kent (1978) explains that the goal of resource sharing is to provide a positive net effect: a) on the library user in terms of access to more materials or services, and/or b) on the library budget in terms of providing level service at less cost, increased service at level cost, or much more service at less cost than if undertaken individually.

Helal and Weiss (1994), drawing conclusions from the symposium on resource sharing, note that the increase of the number of books and continuous rise in prices induced libraries to co-operate. On the other hand co-operation was fostered by increasingly widening technological facilities. The programs of resource sharing, that have been implemented already in many countries by now, include, in addition to acquisition, compiling union catalogues and usual interlibrary lending also collection development and common storage, compiling computer catalogues and providing on-line access to them, collection conservation, microfilming and digitizing, modernization of interlibrary lending, co-operating resources of information technology etc.

In the co-operation of libraries the division of labour is based on collections. Existing collections, the needs and possibilities of their permanent development are essential and final goal is naturally the wide accessibility of these collections.

Responsibility in collection development may be divided on several levels – from the undertaking of a couple of neighbouring libraries to important national and international activities.

In the USA a question was raised repeatedly in the 40s about the need to divide the tasks in acquiring important literature of the world between libraries. It resulted in two undertakings: Farmington Plan and the Midwest Inter-Library Centre.

Farmington Plan that was born in 1948 was a voluntary initiative of 60 libraries. These libraries took the responsibility for the acquisition and accessibility of new foreign literature in the USA and did it without extra financing. The Plan ceased to exist in 1972 thanks to the withdrawal of prominent libraries such as the libraries of Harvard and Chicago universities. The external reasons why the Plan stopped to function were thinly stretched budgets in research libraries in the 60s and the beginnings of automated bibliographic control activities. According to Woodsworth (1991), the Congress Library enlarged its acquisition programs for foreign literature in the 60s, helping so to make the Farmington Plan redundant. It should be mentioned here that in the USA there are two more libraries that function on national level: National Library of Medicine and National Agricultural Library. The need for a national library of technology has been also under discussion.

The Midwest Inter-Library Centre was founded in Chigaco in 1949 by ten university libraries. This centre was a 'library for research libraries' and it was financed by member libraries with membership fees. The task of the library was the acquisition of rare, expensive and seldom-used scientific literature. By 1965 the member libraries included also libraries outside Midwest and the USA, their number increased up to 130 and therefore the centre was renamed to the Centre for Research Libraries.

The development of automated library systems enabled libraries to evaluate the level of acquisition and collections' overlap. Research Libraries Group (RLG) worked out the method for the evaluation of the level of library collections. This method, usually called as Conspectus, is now widely used as the basis of the co-operative programmes of American libraries and it enabled to start one big programme – North American Collection Inventory Project. In the lately started Canadian Conspectus project participants are besides research libraries also large public libraries and special libraries.

In United Kingdom it was understood in 1967 that the resources and services of university libraries need to be improved by linking them with services, provided by National Library (Sewell, 1981). This standpoint was entered into the British Library Law in 1972. Now the British Library influ-

ences strongly the steps, that are taken in resource sharing by British libraries. One example is that the Commission of University Grants accepted the recommendation that in carrying out the policy of limited growth of university libraries, little used materials must be acquired into the lending department of the British Library. Mention should be made that in British Library and in Scotland the Conspectus method has been started to be used in collection development.

In the Federal Republic of Germany there is long-term experience in resource sharing (Köttelwesh, 1980). An objective is raised that relevant foreign literature for research must be accessible at homeland, at least one copy per publication. Such kind of co-ordinated acquisition is based from 1949 on the scheme of inter-regional literature supply, funded by the German Scientific Research Association. This scheme, that is in principle used also today, contains 31 fields of science that are in their turn divided into 113 fields of responsibility between 38 libraries. These inter-regional 'responsibility-field-libraries' can be divided into 3 groups:

A) 4 central research libraries, founded on the initiative of the German Scientific Research Association, the only task of which is to take care of the supply with literature of their fields of responsibility all over the country. These libraries are: Library of Technical Information, Central Library of Agriculture, Central Library of Economics and Central Library of Medicine.

B) 18 universal libraries (state-, federal-, university libraries), that, besides their regional or university-wide tasks take care of the supply of literature in one or more fields of responsibility. The fields of responsibility of universal libraries include all the social sciences and the humanities and some few fields of natural and applied sciences such as biology, geology, geography, veterinary, forestry etc.

C) 16 special libraries for some narrow special fields, that are not sufficiently covered with literature in central research libraries and universal libraries.

Central research libraries are commonly financed by the state and the federal state. Universal and special libraries that participate in the system of inter-regional supply with literature, acquire the literature that is published in Germany, and the standard foreign literature from their own resources. Expenditures, needed for the purchase of foreign top-literature are covered by the state through the German Scientific Research Association.

In the Netherlands the plan of co-operative collection development of research libraries was finished in 1974, but so far they have not achieved fully satisfactory results from it. Since 1978 four responsibility field

libraries began to get extra finances. These libraries are Royal Library in the Hague (responsibility fields: the humanities and social sciences), the Library of Delft University of Technology (technology), the Library of the Academy of Sciences of the Netherlands (medicine and biology), the Library of Wageningen Agricultural University (agriculture).

The Commission of the Academy of Sciences of the Netherlands drew conclusions in the summary of their study at the beginning of 1994 that co-operation functions in the decentralized library system only in case it is managed and financed centrally.

A zero-solution i.e. satisfactory acquisition of foreign literature without extra funding is inconceivable. The Commission examined the models, applicable in the co-operation of acquisition in research libraries (USA, England, France, Germany, The Nordic Countries) and recommended to take over the German model. The same participative principles and central funding are regarded necessary in collection development. It is believed that collection development should be extended in the Netherlands but in case of scientific literature not at the same extent as in Germany. In more ephemeral fields it is expedient to rely also on the libraries of other countries.

Finland was a pioneer in creating the network of central resource libraries in the Nordic Countries. The Helsinki University of Technology Library was appointed to be a central resource library in 1971, in 1977 five libraries were added and in the first half of the 80s followed the last four libraries.

During the first years of activity few posts were added to these libraries. Extra sums for acquisition were regularly allocated to the central resource libraries of universities in different times and ways. In 1990s extra financing for acquisition was stopped. Still, grants are given but the number of these are decreasing permanently.

In the recent years serious discussions have been carried out on the efficiency and necessity of central research libraries. This question has been arisen first of all due to economic depression. The evaluation of the system of central research libraries of Finland revealed that the libraries have covered their fields of responsibility with literature at minimum extra expenditures and made their services accesible to all who need information. The best feasible supply of information for such a small country with limited resources is guaranteed.

Here follows a short survey of the development of Estonian research libraries' network and co-operation in collection development, that the author has treated in his studies [8–12].

3.2 The development of Estonian research libraries' network

To have a picture of the formation of Estonian research libraries' network I will give a retrospect about foundations, reorganizations and liquidations of these libraries during their history.

The overview is given in chronological order:

1552-1831 **The Public Library of Tallinn** was working at St'Olaus' Church. Its collections consisted of religious as well as secular literature. In 1831 the library was deposited in the Estonian General Public Library.

1632-1656; 1690-1710 Existence of the **Library of Acdemia Gustaviana** in Tartu and **Academia Gustaviana Carolina** in Tartu, later in Pärnu. The Library's collection of more than 3000 volumes was evacuated in Sweden in 1710.

1802 Foundation year of the **Tartu University Library**, that has been working incessantly up to nowadays and is the biggest research library in Estonia now.

1825-1940 **Estonian General Public Library** was founded in 1825. Since 1842 it operated as the Library of Estonian Literary Society. The collections that comprised 80 000 volumes, were handed over to the Library of the Estonian Academy of Sciences in 1947.

1838-1950 Existence of the **Library of Estonian Learned Society** in Tartu. It had the collection of ca 25 000 volumes. When the Society stopped its activities in 1950, the collections of the library were divided between the Library of the Estonian Academy of Sciences and the Archive Library of Literary Museum.

1892-1992 Elementary-school Teachers' Central Library, that was founded in 1892, had several names during its existence. Pedagogical Library In the last years it was called **Estonian Pedagogical Library** until 1992, when it was added to the Library of Tallinn Pedagogical University.

1909 Foundation year of the Archives Library of Estonian National Museum. Today it is the **Archives Library of Literary Museum**.

1914 Foundation year of the Tallinn Arts and Crafts School Library. Presently the **Library of Estonian Art Academy.**

1918 Foundation year of State Library, today the **National Library of Estonia**.

1919 Foundation of the **Tallinn Technical University Library**, that began its existence as the Library of Tallinn Technical College.

1919 The predecessor of **Tallinn Pedagogical University Library** was established in 1919 as the Library of Tallinn Teachers' College.

1935 Tallinn Conservatory Library was founded. Presently **Estonian Academy of Music Library.**

1944 Foundation of State Medical Library, now **Estonian Medical Library.**

1946 Library of the Estonian Academy of Sciences (presently the **Estonian Academic Library**) was founded.

1952 The Estonian Academy of Agriculture seceded from Tartu University, also the Library of the Estonian Academy of Agriculture began its existence. Now it is named **Estonian Agricultural University Library.**

1968-1991 Existence of **Estonian Technical Library**, that was reorganized in 1992. Its journal, book and trade catalogue collections together with the staff of the respective departments were handed over to Tallinn Technical University Library. Patent and standards departments turned into independent libraries.

1992 **Estonian Patent Library**

1992 **Estonian Library of Standards.**

As the above proves there were some ten bigger research libraries developed in Estonia by 1940 with the collections of ca 1 million volumes. Larger ones were situated in Tartu: Tartu University Library (650 000 vols.) and the Library of Estonian Learned Society (25 000 vols.). Thus, the necessary base for research in the form of libraries existed only in Tartu in those days.

The biggest libraries that were located in Tallinn were State Library (60 000 vols.), the Library of Estonian Literary Society (80 000 vols.) and Tallinn Technical University Library (21 000 vols.). State Library acquired literature foremost in social sciences. The advancement of research work in Estonia didn't belong to its primary tasks. The Library of Estonian Literary Society comprised mainly literature about Estonia and other Baltic countries. Tallinn Technical University Library, as the university itself, was in the stage of formation yet.

Soviet occupation that started in 1940 brought along big changes in libraries as well as in other fields of action. As for research libraries, they were begun to be adjusted to Soviet patterns.

State Library got the status of a central scientific library of Estonia. In 1944 Estonian Medical Library was founded that had also the functions of a central library.

The Library of the Estonian Academy of Sciences was founded in 1946 to serve the developing system of institutes within the Academy of Sciences, and in 1968 Estonian Technical Library started its existence to serve Estonian industry.

There were suddenly many libraries in Estonia and besides, all of the new ones or those with new functions were situated in Tallinn. Bearing in mind that literature was acquired mainly from the Soviet Union or other socialist countries, there was too much duplication in research libraries. The subject fields of acquisitions more or less overlapped in the three largest libraries (State Library, Tartu University Library and the Library of the Academy of Sciences) and thanks to all-union deposit copies a lot of unnecessary literature accumulated in libraries.

At the same time the possibilities to subscribe scientific literature from Western countries were extremely scarce. Only the Academy of Sciences Library had some privileges in subscribing literature that had been published abroad.

In 1991, when Estonia re-established its independence, there was ca 12 million books and periodicals and 10 million patents in the ten largest research libraries. Does this collection deserve maintenance as a whole is already another theme.

All that has been said before, is already bygone. But to plan the future we must be able to learn from the past. In the future development of research libraries we must proceed from the fact that we have 12 big and important research libraries. Their work must be co-ordinated and, if necessary, reorganized.

By now Estonia has free access to the world's information resources. In the present transition period financial support to our research libraries is insufficient. Therefore the collections grow slowly with the new literature. It is natural that the number of acquisitions from Russia have been decreased, Estonia needs more information from Western countries. Increasing financial support to scientific libraries is inevitable. Still, in small countries with limited resources, such as Estonia, libraries must co-operate in supplying information for science, education and economy.

3.3 Estonian research libraries' co-operation in collection development

The director of the State Library of Estonia G. Ney wrote in 1938: "Each collection is valuable from a certain viewpoint, but not a single one is complete and cannot be in the limited conditions like ours. We lack an all-state central library and we do not have any perspectives to create it. So much the more we need co-operation in order to develop the existent collections." To co-ordinate the activity and development of research libraries the Council of Research Libraries was founded in 1938. Its work stopped in 1940.

The period of Soviet power in Estonia saw a number of common undertakings in several fields of library work. As for collections, the first extensive effort in profiling and co-operation of the collection development of larger libraries was made by the Commission that worked in 1963-1964. It was proposed to create a united research library with specialized departments in service of the readers. In the course of succeeding discussions also some other initiatives were development the State Library and the Estonian Academy of Sciences Library. The idea about united research library was turned down, referring to institutional, organizational and financial difficulties. The Library of the Estonian Academy of Sciences and the State Library agreed in 1964 that from that time on the first mentioned acquired as completely as possible the literature in applied and natural sciences and in the linguistics while in the State Library these fields were to be acquired selectively. The analysis that was made in 1970 revealed that these libraries had not fulfilled the agreement of 1964.

At the end of the 70s and in the 80s several problems found their solution at the initiative of the Collections' Commission of the Library Commission of Estonia, like:

- co-ordination of the acquisition of pedagogical literature in Tallinn;
- co-ordination of the acquisition of technical documents in Tallinn;
- co-ordination of the storage of Master's and Doctor's theses in Estonia;
- co-ordination of the acquisition and storage of primary journals in Russian in Tallinn;
- co-ordination of the acquisition and storage of information periodicals in Russian in Tallinn;
- co-ordination of the acquisition and storage of journals from the socialist countries in Tallinn etc.

Drawing up the co-ordination plan of the development of book collections was on the agenda as well, but an agreement wasn't found as for the classification scheme which the plan should be based on – some of the libraries preferred the UDC while the others stood for a bookseller's schedule.

The Estonian Librarians Association's Working Group on Holdings prepared a plan of collection development for 17 reserch and special libraries in 1990s. The plan included the acquisition of literature in all fields of science on three levels of selectivity (as complete as possible, selective, severe selection) and was confirmed with the decree of the Minister of Culture and Education in December, 1994.

In order to guarantee information supply for Estonian economy, culture, science and education and avoid excessive overlap the Ministry of Culture and Education appointed with its decrees of 1994 and 1995 central research libraries and their tasks. Acquisition, cataloguing, information distribution and interlibrary lending were divided by fields of speciality. Enumerated tasks are not specified yet, but it certainly needs to be done.

The principles of central research libraries, confirmed in 1994 read that it collects, stores and makes available the primary and secondary documents that are necessary for the best possible information supply for its fields of responsibility. Still, in the list of the fields of responsibility of central research libraries some fields of science have double coverage. To illustrate this, a table is provided (Table 14) where the fields of responsibility, appointed to libraries, are given in the most general way.

Table 14

The fields of responsibility of central research libraries

FIELDS OF RESPONSIBILITY	LIBRARY
Natural sciences	**Tartu University Library;** **Estonian Academic Library**
Engineering	**Tallinn Technical University Library**
Medical sciences	**Tartu University Library (theoretical medicine);** **Estonian Medical Library (clinical medicine)**
Agricultural sciences	**Estonian Agricultural University Library**
Social sciences	**Tartu University Library;** **National Library of Estonia (excl. pedagogy and psychology);** **Tallinn Pedagogical University Library (pedagogy)**
The humanities	**Tartu University Library (excl. the fine arts);** **National Library of Estonia (the fine arts)**

Taking into consideration the experience of central research libraries in other countries, we can state, according to Table 14, that fields of responsibility are more or less fixed in engineering, medical sciences, agriculture and the humanities.

We have no information at the moment whether all libraries have fulfilled their responsibilities as provided by the mentioned decrees. If not, then it is necessary to make changes in the work division of these fields or increase the financing of some libraries to the extent that it is able to obtain literature in its field of responsibility.

As for natural and social sciences the appointment of fields of re-

sponsibility for libraries cannot be taken seriously at present, because there are more than one library that is responsible for the same field. Foreign experience illustrates that in these cases the mentioned fields of responsibility are divided into more narrow fields, among which libraries can choose the field of responsibility that is suitable for them.

This example should be followed in Estonia as well. If solution is not found among the most narrow divisions, some of the fields leave without a library of responsibility. In case the solution is found, the more narrow fields will be divided between the relevant libraries (National Library of Estonia, Estonian Academic Library, Tartu University Library etc.

Collection development can not be treated separately from the storage of collections, the development of computer catalogues, interlibrary lending etc. Bearing in mind the development of libraries all components of library work must be treated as a complex. To fulfil their tasks successfully, central research libraries should operate as a common library network. In order to do that, it is necessary to implement a national programme of the common use of resources, that should include the following components:

1. Co-ordinated and/or co-operative collection development**.** The best acquisition policy for central research libraries is to specify work division between them, study the information needs of scientists and specialists and draw up a detailed acquisition plan.

2. Storage of collections**.**

    - Little-used literature and too many duplicates (all-union deposit copies in several libraries) have been piled up in central research libraries. Weeding of literature and common storage of collections enables more effective use of book stores.
    - Creating normal storage conditions (repairs and renovation of storage rooms).

3. Guaranteeing collection's preservation**.**

    - Implementation of paper's neutralization.
    - Preparation of the copies for use (microfilming, digitizing information).
    - Funding the restoration of publications.

4. Developing cataloguing centres and online-access to them.

5. Modernizing the system of interlibrary lending.

6. Improving the programme of Estonian national bibliography.

* * *

Issues that regard to the development of the collections of central research libraries need more detailed further treatment. Especially important is to work out the basis for the financing of these libraries, that is being done at the moment.

Central reserach libraries can provide necessary information to economy, culture, science and education in case it is possible to obtain at least one set of important foreign literature in all necessary fields of science. It is also necessary to obtain duplicates of standard literature to research libraries. For this central research libraries need approximately 100 million EEK per year. The needed sum increases together with the increase of the price of publications. Instead of the current 0,025% (32 million EEK in 1996) libraries should receive at least 0,075% from the state budget in order to cover these expenditures. It is unthinkable to increase the book purchase sums of central research libraries three times within two or three years. It can be done step by step.

For the development of the collections of Estonian central research libraries it should be expedient to implement the Conspectus method. A good precondition for that is the introduction of INNOPAC.

The experience of foreign libraries has proved that resources' co-operation need central management. In order to implement a national programme of common use of Estonian research libraries it is necessary to draw up a organizational structure. The currently functioning Consortium of Estonian Library Network (ELNET-Consortium) is dealing with the co-operation of the resources of information technology now. Information technology is a good means of improving libraries' substantial work. For optimizing the essence of library work it is necessary to adopt a number of different programmes and conclude interlibrary co-operation agreements. It might be necessary to found some library association or another consortium of libraries, but extending the activity of ELNET-Consortium to all the important fields of library work is also thinkable.

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