

A Study on the Factors Affecting Non-user of Scientific and Technical Information

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■ 국 문 초 록 ■

정보관리의 최종 목적은 보다 적극적인 정보 이용의 효율성을 제고하는데 있다. 이를 위한 해결 방안에는 여러 방법이 있을 수 있으나 본 연구에서는 비이용 현황을 조사하고 비이용자 집단이 갖는 특성을 분석하고 이를 통한 비이용 요인을 해소하여 결과적으로 잠재적 이용자들을 성실한 도서관 정보이용자로 전환할 수 있는 기초 자료를 제공하였다. 연구의 결과 과학기술 분야 연구자들을 대상으로 비이용자들의 분포 상태를 밝히고 이들의 비이용 요인으로서 근무 연수, 전문직 사서들의 근무 태도, 연구실과 도서관과의 거리등이 도서관 이용에 결정적 역할을 한다는 사실을 밝혔다. 이러한 비이용 요인의 규명은 현행 정보시스템을 개선하거나 새로운 정보시스템을 설계할 때 참고할 수 있는 근거가 될 수 있다.

1. Introduction

Smooth flow and efficient use of scientific information has a great effects on individual research. Further more, it causes a decisive influence on the scientific development.

The researchers who are engaged in R &

D, depends largely on using technical information in order to avoid overlapping or failure of the research and a waste of the huge amount of research fund that could ultimately cause economical loss.

So far, most of the user study have been about the user group who are familiar with li-

library and information system and who are good at the usage of the information services. The problem is, however, most of the research could not find out the reason and the characteristics of non-user group and potential users who do not use the scientific information and library often. It's not too much to say that the non-user group at the usage of the information were out of their interests. Maybe, it was just about to pull up the efficiency of the information services who access the necessary information without the help of the information specialists and made the best of the existing information service.

On the side of information needs, information demands of the users who are familiar with using scientific information, the relative importance is very low compared to the potential demands of the non-users who do not use the scientific information that much. Professor Lancaster pointed out 'knowing a lot about the tip(user group), but very little about the submerged mass(non-user group), can lead designers and managers of information services into decisions based on assumptions that may be inaccurate and even dangerous.' Looking at the usage of the scientific information side, not taking an advantage of information situation has been proved clearly by various researches. Proving the reason and obstacle factors, and the characteristics

of those who do not take advantage of using information would further contribute to plan the smooth flow of information and systematic information service. This is the essence of the research.

The purpose of this study is to find out the major characteristics of the researchers' usage of the needed information in their research activities who are engaged in scientific & technical fields, to identify the nature of their information use behavior, specifically to examine the reason of non-use of researchers who do not make the best of the information.

This research intended to compare the negative information user and non-user group with active information user group. By verifying the difference and the characteristics of these two groups, theoretical base will be secured to solve such an obstacle factors, and planning a new information system and improving the information services can be achieved.

2. Research method

2.1 Hypothesis

In defining the meaning and the range of user group who use the information in the library in a broad sense, there can be two kinds of user group-one group who use scien-

tific information or data actively above a certain level and the other non-user group who do not nearly use those kind of information or users whose degree of usage is below a certain level which is the assumption of this research. The studies on the characteristics and the behavior of the user group who uses information smoothly and actively has been already done in a certain level. Therefore, this study has set up a hypothesis on examining the reason and the characteristics of the non-user group why they do not use the information. The theoretical hypothesis of this study is that 'there will be various reasons both in users' side and information system's side respectively in forming non-user group in information service.' Setting this theoretical hypothesis into the possible form to test operational hypothesis are as follows :

(1) The passive user or non-user group researcher seem to show a significant difference in the length of service year as a researcher than the active user group researcher.

(2) If the technical librarian is lacking sincere attitude in his/her service, the user might become negative in using scientific information.

(3) The farther the distance between research laboratory where the researcher is working and the technical library, the more the degree of information use will be decreased.

2.2 Data collection and analysis

For the collection of data, self-reported questionnaires were used which had been finalized through the pre-test. Out of 500 questionnaires, 316(63.2%) were returned and all of them were used for final analysis. Data analysis was done by SPSS under the VAX computer(model 6000-310). 2test was used for statistical significance test between two groups, and to test the evenness of each dependent variable, ANOVA was conducted for the non-user and user group.

3. Analysis of non-use factors in information service

3.1 The proportion of non-user

It is appeared that the frequency of library visit and the number of books lent by 316 researchers were beneath a certain standard.¹⁾ Thus, 63 researchers were classified as non-user which is 19.9% of the total.

1) To define the meaning of non-user, the applied standard in this study are as follows :

- ① those who did not lend books at all or who lent book under 3 in 6 months
- ② those who visit library under 3 times in 6 months

3.2 The difference of length of service year between two groups

The question on the length of service year was analyzed after examining the result of free response with no classification to verify the difference of two groups by using cross tabulation.

The standard level of significance was set at $p < .005$. The result to verify the hypothesis 1, 'the passive user or non-user group researcher seem to show a significant difference in the length of service year as a researcher than the active user group researcher,' there was a significant difference between user and non-user group. The average length of service year of all researchers came out to be 84.7 months(7 years and 7 months).

The average length of service year of non-users' which is 106.0 months(8 years and 11 months) and users' 79.1 months(6 years and 7 months) showed statistically significant($\chi^2 = 8.60, p < .03$).

3.3 Attitude of technical librarian in information service and a difference between two groups

The hypothesis 2, 'if the technical librarian is lacking sincere attitude in his/her service, the user might become negative in using sci-

entific information' was proved. The proportion of user versus non-user for thinking librarian's service as 'kind' showed 83.3% : 16.7% which is a big difference. The level of significance between two groups was high($\chi^2 = 16.774, p < .002$)

Regardless of user or non-user, 60.2% of the respondents reported that attitude of technical librarian who provides information service was 'friendly.' However, there was a difference in the proportion of answering 'very kind' and 'kind'(user : non-user=64.4% 42.9%). 52.4% of non-user and 34.4% of user reported there was no difference. 4.8% of non-user and 0.8% of user answered 'unkind.' As the result showed, it was proved that technical librarian's insincere attitude has led the user to be negative in using scientific information. So, the hypothesis 2 was accepted.

3.4 Difference between two groups because of the distance of research laboratory

The result to test hypothesis 3, 'the farther the distance between research laboratory and the technical library, the more the degree of information use will be decreased' showed that the degree of information use was appeared low. As the distance is farther, in the case of user group, the degree of information

use was decreased, and for non-user group, it was increased. It was appeared that the level of significance was high. ($x^2=96.289$, $p < .000$)

Since the location of research facilities of research institute are posted not at one building but at several different buildings, where the researchers are working, the distance to technical library is a different environment at each researcher. The mean and standard deviation is given to check the level of significance of the distance effecting researchers at using scientific information. Based on this data, the result of conducted ANOVA showed as the average distance of non-user ($M=1440.79$, $SD=692.73$) was farther than the users' ($M=607.86$, $SD=492.35$).

Analyzing the difference of the distance of technical library and research laboratory between two groups, the result came out significantly ($x^2=96.28$, $p < .00$). As the mean and standard deviation shows, average distance of research laboratory and technical library was 773.92 meters. An average distance of non-users is 1440.79 meters comparing to users' 607.9 meters.

In a user's point of view, it backs up the general principle-the distance gets shorter to the library use increases and as it gets farther the frequency of use decreases. Thus, as in hypothesis 3, the farther the distance be-

tween research laboratory and the technical library, the more the degree of information use will be decreased. So hypothesis 3 is proved.

4. Conclusion

The researchers working in several major science & technology institutes were selected as samples for the study. The hypothesis was drawn that while the researchers who were working in the field of science and technology use the information service and some non-users who do not use the information service. To test the hypothesis and identify the factors for non-use, the data was gathered and analyzed. Considering the user and non-user as independent variable, the expected value and observed value of the dependent variable which were given from each specific items of questions was verified.

The summary of the results from the study is as follows :

(1) Among the researchers who were using science and technology information, the proportion of non-users takes up 19.9%.

(2) There was a tendency that degree of information gets lower as the researcher's length of service year gets longer. Researcher groups who use the scientific information frequently, the average length of service year

was 69.4 months comparing to non-user's was 104 months. This shows that as the length of service year in research institute gets longer, they did not rely much on the information service but develop their own information sources and channels for their research & development activities.

(3) The technical librarians' insincere and unfriendly attitude in providing information was one of the factors that made the users to be negative.

(4) The distance between technical library and research laboratory of researchers also had some effects in the degree of information use. The average distance of non-user group in this study was 1,441 meters compared to 608 meters of the users. This proves that the

easy of access of information is an important factor in science and technical information use.

This study which attempts to examine the factors affecting non-use of scientific information is just the beginning. Further studies which identify non-user's factors in the fields of humanities or social sciences and compare these academic fields would give some interesting points. In addition, if behavioral research method in the user study could be applied, it would be another contribution. Further more, sociometric research of the technical library users would open new dimension in understanding users' real information needs and behavior and enhance the efficiency of the users' information use.

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