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Impact Study of the Annual Review of Information Science and Technology. Final Report.

System Development Corp., Santa Monica, Calif.

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The basic objective of this study was to examine, apparently for the first time in communications research, the impact on professional communication of an annual review publication. A sample of users and non-users of Volume 1 of the Annual Review of Information Science and Technology was identified, and questionnaires were sent to nearly 3,000 of them. The respo˙dents were divided into three groups for analysis: those who had used the Annual Review, those who had only seen it or heard of it, and those who had not yet seen it or heard of it. Users of the Annual Review differed from non-users in a number of ways, particularly on measures of professional activity level, where they were uniformly higher than the non-users. They reported a variety of valuable uses. The impact of the Annual Review is already partially evident from the tendency of users to re-examine cited literature again, to seek new cited literature, and to seek contact with the authors of cited literature. Both the questionnaire and several informal interview sessions sought to elicit suggestions for improvement of the series. This study suggests that annual reviews have great potential for advancing many fields of inquiry and should, where possible, be encouraged and supported, preferably without demanding so precipitous a rate of growth toward self-support that the dilution in quality is ultimately self-defeating to the sponsoring organization. (Author/CM)

SDC

TM-4125

FINAL REPORT--Impact Study of the Annual
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Carlos A. Cuadra   Linda Harris   Robert V. Katter

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15 November 1968

U. S. Department of Health, Education, and Welfare
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TECHNICAL MEMORANDUM

(TM Series)

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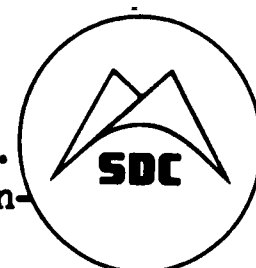
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FINAL REPORT

Contract No. OEC-9-8-080329-0089(095)

IMPACT STUDY OF THE ANNUAL REVIEW
OF INFORMATION SCIENCE AND TECHNOLOGY

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November 1968

Submitted to:

U.S. Department of Health, Education, and Welfare
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ABSTRACT

Annual Reviews are the most ambitious and highly organized members
of the class of communication tools that attempt to summarize and
critically evaluate widespread activities. The basic objective of
this study, supported by the U.S. Office of Education, System Devel-
opment Corporation, and Encyclopaedia Britannica, was to examine,
apparently for the first time in communications research, the impact
on professional communication of an annual review publication. A
sample of users and non-users of Volume 1 of the Annual Review of
Information Science and Technology was identified, and question-
naires were sent to nearly 3,000 of them. The respondents were
divided into three groups, for analysis: those who had used the
Annual Review, those who had only seen it or heard of it, and those
who had not yet seen it or heard of it. Users of the Annual Review
differed from non-users in a number of ways, particularly on mea-
sures of professional activity level, where they were uniformly
higher than the non-users. They reported a surprising variety of
valuable uses: current awareness in one's own area of interest;
current awareness in peripheral areas; learning in new areas;
checking on particular projects, activities, ideas, or individuals;
serving as a classroom text; and, simply, browsing. Although im-
pact studies generally require study over time, the impact of the
Annual Review is already partially evident from the tendency of
users to re-examine cited literature again, to seek new cited
literature, and to seek contact with the authors of cited litera-
ture. Both the questionnaire and several informal interview
sessions sought to elicit suggestions for improvement of the
series. Some improvements have already been made or are being
considered. Others, like making the Annual Review more tutorial
and less technical, have not, because they involve the serious
risk of making it less useful to the professionals whose activities
are most likely to accelerate progress in information science. This
study suggests that annual reviews have great potential for advanc-
ing many fields of inquiry and should, where possible, be encouraged
and supported, preferably without demanding so precipitous a rate of
growth toward self-support that the dilution in quality is ultimate-
ly self-defeating to the sponsoring organization.

ACKNOWLEDGMENT

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1.   <u>INTRODUCTION AND SUMMARY</u>

1.1   PURPOSE AND STRUCTURE OF THIS REPORT

This is the final report on the work of the Annual Review Impact Study at
System Development Corporation. The purpose of the study has been to develop
a better understanding, based on empirical evidence, of the functions of
annual review publications in professional communication, and particularly of
Volume 1 of the <u>Annual Review of Information Science and Technology</u>, and to
discover ways in which that particular review can be improved.

The study was carried out in two phases. The first phase, from June, 1967
through March, 1968, comprised the project planning, the development of survey
tools, and the conduct of a questionnaire and interview survey. This phase of
the work was supported by System Development Corporation, with some assistance
from Encyclopaedia Britannica, the current publisher of the Annual Review.
The second phase of the work comprised data reduction, data analysis, the in-
terpretation of results, and the preparation of this report. This phase of
the work was supported largely by the Library and Information Branch, Bureau
of Research, U.S. Office of Education.

This final report describes all of the work of the project and supersedes any
prior progress reports, published or unpublished. Sufficient detail is pro-
vided, both in the text and in the appendices, to permit adequate understand-
ing and technical appraisal by researchers and others, and also to permit
replication of all or part of the study. In the event that interested re-
searchers require information beyond that contained in this report, members
of the project staff will be pleased to respond to specific inquiries.

The final report consists of six sections, plus appendices. This first sec-
tion includes a summary of the entire study. Section 2 describes the back-
ground for the study and indicates the purposes to be served in undertaking
the study. Section 3 describes the design and execution of the survey, which
was the major work in the study. Section 4 describes the data analysis proce-
dures. Section 5 presents and discusses the results of the survey. Section 6
presents the conclusions and the implications of the study for professional
communication, for survey methodology, and for the Annual Review.

1.2   SUMMARY

1.2.1   <u>Issues and Goals in Assessing Professional Communication Techniques</u>

As the volume and variety of information needs and uses have increased, many
new information-communication tools have been developed and placed into opera-
tion. Partly because they can be very costly, they must be carefully evalu-
ated, not only to assess their individual utility (effectiveness) but also to
discern their effect (or "impact") on the use of other communication tools.
Such evaluation is necessary to adapt present communication institutions and
forms to changing times and to guide the development and financial support of
new institutions and forms.

Annual reviews are the most ambitious and highly organized members of the
class of communication tools that attempt to summarize and critically evaluate
widespread activities. While there are many annual review series in existence,
and more are being proposed and planned, there have been no empirical studies
of their impact on professional communication. The establishment in 1966 of
the Annual Review of Information Science and Technology, under the auspices of
the American Society for Information Science (then the American Documentation
Institute) and System Development Corporation, provided a unique opportunity
to undertake such a study, within a field that is itself vitally concerned
with communication. Accordingly, the study was initiated by SDC in July, 1967.
The two primary goals of the study were (1) to assess the impact of Volume 1
of the Annual Review on professional communication within the information
science community, and (2) to obtain information regarding means of improving
the Annual Review in subsequent volumes. It was also hoped that the study
might provide some preliminary guidance to funding agencies, professional
societies, and other groups interested in supporting annual review publica-
tions.

1.2.2   Design and Execution of the Survey

The main work in the study was that of conducting a survey of users and non-
users of the Annual Review. This involved three main tasks:

> (1) Identifying a suitable sample of users and non-users.
>
> (2) Determining, by means of questionnaires and interviews, the
>   attitudes and practices of these groups in relation to infor-
>   mation sources, including the Annual Review.
>
> (3) Analyzing and interpreting the results.

It was decided that using a mail questionnaire would be the most efficient and
least expensive way to supply the bulk of the data. Personal interviews were
held to amplify and verify the questionnaire data and to permit deeper explora-
tion of particular topics.

To identify the users, business reply postcards were sent to approximately
10,000 members of four professional organizations: the American Society for
Information Science, the Special Libraries Association, the Association for
Computational Linguistics, and the Special Interest Group on Information
Retrieval of the Association for Computing Machinery. The postcard asked
whether the person had seen, heard of, or used the Annual Review, and which
one of eight job categories accounted for the major portion of his profession-
al activities. The first question divided respondents into three groups:
those who had used the Annual Review (Users), those who had only seen it or
heard of it (Seen/Heard group), and those who had not yet seen it or heard

of it (Not-Seen/Heard group). The two groups of non-users were included in
the survey for the purpose of comparing literature-use practices and other
attributes, such as education, experience, place of employment, etc.

Nearly 3,700 postcards were returned, almost equally divided among the three
groups. From the returns, a sample of about 3,000 was selected for the ques-
tionnaire mailing. Separate questionnaires were developed for the three
groups, the User questionnaire being the most detailed. The questionnaires
had 12 questions in common that were related to information-seeking, so that
the three groups could be compared on demographic attributes.

Each version of the questionnaire was pre-tested and revised, using ASIS and
SLA members in the Los Angeles area. Most of the questions were pre-struc-
tured (i.e., they provided a list of choices) to make the coding and data
analysis easier. Some open-ended questions were included to stimulate sugges-
tions for improving the Annual Review and to provide for responses that could
not be anticipated when the questionnaire was written.

An original and one follow-up mailing were made, yielding an overall percentage
return of 70%. The final data set contained 2,012 usable questionnaires. In-
terview data to supplement the questionnaires were obtained at the October,
1967, Annual Meeting of the ASIS in New York, at a special meeting in Chicago
that same month, and at the 1968 Annual Meeting of the ASIS, in Columbus, Ohio.
These sessions were used to explore particularly intriguing questionnaire
responses and to obtain suggestions for the future improvement of the Annual
Review.

1.2.3   Data Analysis

The primary goal of the data analysis was to achieve an accurate and meaningful
description and interpretation of the 2,012 replies to the questionnaire. For
most of the data, the primary analysis technique was to construct frequency
tables by comparing (cross-tabulating) criterion variables (such as number of
Annual Review chapters read) against classification variables (such as primary
job activity). In several instances, where a single formattable question was
not adequate to reflect a certain attitudinal or behavioral phenomenon, the
responses to a number of different questions were combined to form a single
index, and the distribution of responses for the index was taken to represent
the desired measure. Four such indexes were developed: (1) the Professional
Organization Index, representing extent of organizational membership,
(2) Journals Read Regularly, representing extent of journal readership,
(3) Diversity of Authorship, representing professional publications activity,
and (4) the Read/Skim Index, representing the extent to which the Annual
Review was actually used.

The coding procedure for nonformattable data was to examine, verbatim, all
responses to each question, and then, by looking at the verbata, to derive for
each question a set of categories, based on some conceptual scheme, that ade-
quately represented the content of the replies. The data gathered through
individual and group interviews and discussions were, of course, nonformattable
and required this kind of qualitative, rather than quantitative, analysis.

1.2.4   Results

1.2.4.1   Characteristics of Annual Review Users

The largest numbers of Annual Review Users were employed in industrial or
business firms, with "management or administration" listed most frequently as
an important job activity. More than one-third of the Users reported spending
time in reference or other library work. The two non-User groups tended to
have the same occupational settings and types of work, but there was a greater
preponderance of industrial over university settings. The Seen/Heard group
were engaged, more than Users and Not-Seen/Heards, in library reference and
other library work. It was difficult to characterize the Not-Seen/Heard group;
they were seemingly the most research oriented and teaching oriented of the
three groups, but they were also more actively engaged in programming than
the other two groups.

The User group differed from both of the non-User groups in having proportion-
ately more professionally trained librarians, although more non-Users than
Users reported actually spending on-the-job time in library work. The Not-
Seen/Heard group appeared to be rather heterogeneous in educational and pro-
fessional background, and may have included many newcomers to the information
science field. Twice as many persons in the Not-Seen/Heard group had earned
degrees in liguistics, mathematics, and computer science as had persons in the
other two groups; a possible explanation for their being non-Users is that
their information channels are the computer literature--not the information
science literature that brings the Annual Review to the attention of Users.

More than half of each of the groups reported having worked in the field of
information science for 10 years or less (in spite of the fact that the defini-
tion of information science used in the survey was purposely made very broad).
The respondents were fairly young, professionally, or they considered informa-
tion science as a relatively new field of activity, or both. Users showed the
highest levels of professional activity of the three groups. They reported
reading more journals regularly, authoring more kinds of papers, attending more
professional meetings per year, and presenting more papers at those meetings.

Users of the Annual Review showed no tendency to use it as a substitute for
reading the primary literature: persons who read and skimmed the book exten-
sively also read journals extensively. (This finding was in agreement with
the findings of readership surveys in general, in which it is usually found

that extensive reading of one type of material is highly correlated with extensive reading of other types of material.)

The relative value placed on various information source differed. All three groups reported relying heavily on journals and periodical literature, but, in comparison with the other two groups, Users tended to place greater value on out-of-house colleagues, professional meetings, technical reports, and pre-prints--in a sense, the informal information channels. Both the Seen/Heard and Not-Seen/Heard groups placed somewhat more value on books than Annual Review users did.

An incidental characteristic of the sample was the higher questionnaire response rate for Not-Seen/Heards over Seen/Heards, and, in turn, of Seen/Heards over Users. The percentages of returned questionnaires appear to be inversely related to the length of the questionnaires. Another incidental characteristic was that about 60% of the respondents were males, this finding perhaps reflecting the membership characteristics of the organizations polled. The highest proportion of males was found among the Users and the lowest in the Seen/Heard group, perhaps because the highest percentage of practicing librarians is in the Seen/Heard group, and the majority of practicing librarians are women.

1.2.4.2 Acquisition of Annual Review Copies

Almost 60% of those in User group used a copy of the Annual Review that was more or less permanently available to them after they had put forth the initial effort to obtain it. This may attest to the need to have a copy easily available, for more effective use. University professors and staff tended to purchase the Annual Review, while employees of government and industry tended to rely on access to company-purchased copies. Twenty-five percent of the Users borrowed a copy through a library.

About half of the Users first heard of the Annual Review through an ASIS channel: announcements sent through the mail or made at the 1966 Annual Meeting. In contrast, only 14% of the Seen/Heard respondents heard of the book through ASIS information channels. This group, as a whole, did not appear to be greatly interested in information science, and fewer members of this group were ASIS members.

1.2.4.3 Extent of Interest and Readership

The Annual Review was intended to provide good coverage of the range of the interests of its ASIS audience. This intent was reflected in the diverse sub-ject matter of the 12 chapters. Users, the majority of whom are ASIS members, cited an average of five chapters that they considered to be within their fields of interest; Seen/Heard respondents, fewer of whom are ASIS members, cited an average of four.

The Users' professional interests appeared to be different from those of the Seen/Heard group. Users named the chapters that dealt with library automation and with information needs and uses as the two most closely related to their interests. The Seen/Heards placed these areas third and ninth, respectively, listing file organization and information centers and services as their areas of primary interest. Both groups placed automated language processing at the bottom of their interest list. The Users reported reading approximately four chapters in detail and skimming another four. Since some Users had not had Volume 1 for very long before answering the questionnaire, the total figure of eight chapters must be assumed to be an underestimate of the extent of readership.

1.2.4.4 Purposes Served by the Annual Review

To find out how well Volume 1 of the Annual Review served reference, current awareness, and other important information functions, both a structured and a "critical incident" question were included on the Users' questionnaire. Although the responses were not strictly comparable, they gave similar indications of the primary uses of the Annual Review: for keeping up with current work in one's areas of interest and in peripheral areas of interest, for checking on particular projects or ideas, for learning about areas not within one's current professional specialty, and for reading the original literature more selectively. Nearly a third of the Users also reported finding the Review moderately useful or very useful for identifying areas of information science that require further research. That use is particularly interesting, since there are probably relatively few readers whose work calls upon them to engage in such identification.

It is noteworthy that the use of the Annual Review for specific reference was not as prominent as its use for current awareness and learning, but it would have been unlikely for the Annual Review to be of great usefulness in specific reference work after the publication of only one volume. The Seen/Heard group was asked how they might, in the future, make use of the Annual Review. They, like the Users, emphasized current awareness, rather than reference. The figures obtained probably underestimate the eventual reference use of the series.

Perhaps the most interesting finding regarding uses of the Annual Review is that there are so many different ones, including low-frequency uses such as a classroom text and an aid in preparing speeches. A comparison of usefulness ratings with extent of readership showed that the higher the usefulness indicated for each of the purposes, the higher the readership. No significant difference in purposes of use were found among different groups of Users whose typical information-seeking activities were print oriented, colleague oriented, and so on.

1.2.4.5 Correlates of Previous Contact with Review-Cited Literature

All but 9% of the Users reported at least "some" prior contact with publica-
tions in their areas of interest that were cited in the Annual Review. A
third of the Users reported reading "quite a few" of these publications, and
5% of them said that they had read most of them. Analysis showed that the
extent of previous contact was significantly related to only one purpose of
reading the Annual Review: maintaining current awareness in one's own area
of interest. Those Users with high previous contact tended to find the Annual
Review much less useful for current awareness than those with low previous
contact, although this tendency decreased as the number of chapters read
increased. That is, the more chapters were read, the more useful was the
Annual Review for current awareness in one's own area--even with high previous
contact. Presumably, it is the critique that is important, rather than the
alerting function. One may wonder how these functions will change in impor-
tance as the literature in information science expands. If the authors are
forced to refer only briefly to many studies, readers may need to have exten-
sive previous contact with the publications cited in order to reap some of the
benefits of the Annual Review.

While the worth and function of high previous contact with cited publications
is not yet fully evident, it is clear that previous contact with the litera-
ture did not deter extensive reading and skimming. It was found that Users
with little previous literature contact also tended to be low on extent of
readership, as measured by the Read/Skim Index. However, Users with high
previous contact were equally likely to be low or high on the Read/Skim Index.
There was a positive relationship between previous contact and various kinds of
information activities, such as attendance at professional meetings and presen-
tation of papers at these meetings. Perhaps a general factor relating to high
professional activity level underlies this relationship.

1.2.4.6 Relationship of Annual Review Readership to Other User Characteristics

A number of relationships were found between the extent of readership of the
Annual Review, as measured by the Read/Skim Index, and other characteristics.
A cross-tabulation of this Index against the "professional age" variable showed
that Users who had worked in the information science field for less than 10
years tended to use the book less than those who had been in the field longer.
The most likely explanation for this is that newcomers do not yet have suffi-
cient breadth and depth of experience to need a tool like the Annual Review or
to use it effectively. This possibility is supported by the finding that the
majority of Users with more experience who found the Review "very useful" for
current awareness were also high on the Read/Skim Index.

There is also some relationship between readership and primary job activities.
Persons engaged in library reference work tended to use the Annual Review less
than average. Consultants, on the other hand, tended to be heavy users. This

is not surprising, since consultants obviously have to read extensively to
maintain their competence in their field. Nor is it surprising that a positive
correlation was found between extent of readership and rated importance of the
Annual Review as an information source. The more the Annual Review is read,
the more important it becomes to the readers.

1.2.4.7 Impact of the Annual Review

To evaluate the impact of a particular information technique or tool, it is
necessary to obtain data over a period of time. Since the present survey
involved data obtained at only one point in time, a true measure of impact is
not yet available. Nevertheless, some conclusions can be drawn on the basis
of some of the questionnaire items.

More than 90% of the Users reported at least "some" prior contact with the
literature cited in the Annual Review. Nevertheless, more than half of those
Users were led to reexamine the literature. Thirty percent of those who
examined the literature again did so to "review details'; twenty percent said
that they examined a publication again to reevaluate it in the light of an
Annual Review author's comments.

Over half of the Users tried to obtain Annual Review-cited literature that they
had not seen before, indicating considerable acceptance of the volume as an
authoritative guide to valuable literature. Additional corroboration of the
stimulative effect of the Annual Review was the fact that 10% of the Users
reported attempting to contact cited authors after reading the Annual Review.
Forty-five percent of the Users reported that the Annual Review suggested to
them specific ideas for future research projects or studies.

Of some interest is the fact that persons who had had high previous contact
with cited publications had a greater tendency to reexamine publications and
to contact mentioned authors than did those who had had low previous contact.
This may be more evidence of the level-of-professional-activity dimension
mentioned earlier. There is clear evidence that as the extent of readership
increases, so does every form of post-reading behavior. This strong correla-
tion of reading with important post-reading behavior suggests that the Annual
Review, even its first volume, had fulfilled one of its goals: to stimulate
productive activity in information science.

1.2.4.8 User Suggestions for Improvement

Users had a number of opportunities to offer suggestions for changes and
improvement in the Review. They were asked whether they would prefer that one
chapter be published each month instead of collecting the chapters in book
form annually; the annual form was preferred by two to one. Explanations
indicated that the annual volume is preferred because it surveys the entire
state of the art, is more permanent, and has an index.

Suggestions for improvement covered style of writing, contents, organization, information access tools, and mechanics of production. It was suggested that authors give more detailed information--e.g., about the results of studies-- and that they be more critical and evaluative. There were a number of sug- gestions for better organization of the chapters and more cross-comparison among them. Suggestions were given for adding--and, in a few instances, deleting--specific chapters. It was also suggested that the publication cycle be changed so that the book would be available before the ASIS convention (normally in October).

Some of the ideas expressed in these suggestions have already been adopted, either in Volume 2, which became available at approximately the time the survey was underway, in Volume 3, published in September, 1968, or in Volume 4, now in preparation. The publication time has been shortened; Volume 3 covered the full calendar year 1967 but was published in September, 1968, a full month before the ASIS convention.

A "Feedback Forum" held with the Editor of the Annual Review and staff members at the 1968 ASIS Annual Meeting developed additional interesting suggestions. It was suggested, for example, that the information science field did not require an annual review, since there was so little "real progress." Other suggestions that drew more audience support were for better coverage of the secondary services and the addition of a single overview chapter for each volume.

1.2.5   Discussion

1.2.5.1   Role and Impact of the Annual Review

The Annual Review of Information Science and Technology serves many different and important purposes. It has demonstrated, even in its first year, an impact on professional communication. It does not appear to reduce the use of other information channels but may, in fact, enhance their use. Information channels tend to reinforce each other, and the effects are strongest for channels, such as reviews, that point toward other information channels.

The possibility exists that the questionnaire technique used in the study inflated the measures of impact, by making the respondents conscious of being studied. Any such inflation would probably be offset, however, by the rela- tively brief exposure that the Annual Review has had for many users. Responses based on such brief exposure undoubtedly underestimate the potential usefulness of the series, particularly since the existence (in 1966) of only one volume limited its use for reference purposes. The impact of the Annual Review is probably much greater now than it was at the time of the survey, not only for these reasons indicated, but also because various improvements have continued to be made. Some suggested improvements, e.g., adopting a more tutorial and less technical orientation, have not been made because, even though they could

increase audience appeal and sales, they would make the Annual Review less
useful to the very professionals whose activities are most likely to help
accelerate the growth and advancement of information science.

1.2.5.2   Methodological Implications of the Study

The present study was concerned with both impact and effectiveness. One
needs to consider both because they are interrelated and because the distinc-
tive characteristics and effectiveness of a communication tool are determining
factors with respect to its impact.

The response rate on the survey was surprisingly high, and the data are very
rich and provide a good baseline for future studies of the Annual Review.
Also gratifyingly useful was the experimental design, which permitted many com-
parisons between users and non-users of the Annual Review.

Since this is the first extensive empirical study of an annual review publica-
tion, it is highly desirable to schedule follow-up studies, perhaps beginning
in the Fall of 1969. The questionnaire technique may be useful to continue,
although one would certainly make some changes in particular items, to make the
questionnaire a more sensitive instrument for our purposes. It would also be
desirable, in follow-up work, to adopt, where possible, somewhat less obstrusive
measurement procedures, to avoid conscious or unconscious response bias.

1.2.5.3   Implications for Sponsorship of Annual Reviews

This study suggests that annual reviews may have enormous potential for ad-
vancing many fields of inquiry and should, where possible, be encouraged and
supported. Although it is not easy to determine the circumstances under which
a "field" exists and is ready for an annual review publication, one should keep
in ming that an annual review may itself be able to play a role in accelerating
the cohesive development of a field. Some areas, like computational linguistics,
do not yet seem ready; other areas, such as education, seem over-ready for
annual reviews.

Should the Federal Government support the development of annual review publica-
tions? The answer would certainly seem to be "yes" for fields in which the
Government has an important stake, since annual reviews demonstrably enhance
professional communication and, therefore, technical progress. Care must be
taken, however, by sponsoring organizations—Federal or other—not to expect of
demand too precipitous a rate of movement toward self-support. If such pressure
leads to quality-diluting shortcuts or low technical standards, in the prepara-
tion of reviews, this will ultimately be slef-defeating to the sponsoring
organization.

Whatever the kind and extent of annual review support, it is important to con-
tinue the empirical study of such publications, to help provide better-informed
judgments about current and promising communication tools.

2.   ASSESSMENT OF PROFESSIONAL COMMUNICATION: ISSUES AND GOALS

2.1   ASSESSING NEW COMMUNICATION TECHNIQUES

It is well recognized that the large-scale transfer of scientific and
technical information has become progressively more ramiform and complex
as the variety and volume of information needs have increased and a
concomitant variety of communication channels and techniques have developed.
Science and technology have generated new information at such an accelerated
pace that scientists and technicians have found it increasingly difficult
to locate, store, retrieve, and disseminate information effectively.
Recognition of this difficulty has led to many experimental innovations,
both in organization and techniques, as older approaches to information
transfer are found to be inadequate.

The problem has gained national attention, in the Congress, in the executive
branch of the Federal Government, and in the private sector. Over the past
twelve years, more than twenty major studies have focused on problems of
scientific communication. The concern is evident in many quarters, as
witness the emergence of such organizations as EDUCOM, COSATI (Committee on
Scientific and Technical Information), and SATCOM (Scientific and Technical
Communication).

The concern is also evident in the extensive development of new facilities
and services such as information analysis centers, document clearinghouses,
and new kinds of indexing and abstracting services. It is also reflected
in the willingness of several kinds of organizations, both public and
private, to support basic research and advanced development directed toward
the invention of more effective transfer mechanisms.

Some of the suggested solutions to this complex problem have included
application of computer technology, technical and organizational changes in
primary and secondary publication mechanisms, changes in the organization
of national policy-making groups, and massive application of Federal
resources. Many of these suggestions are already being tried, with varying
degrees of success. New techniques in information retrieval and selective-
dissemination-of-information have been experimented with in many disciplines
and areas of scientific and technical work. Reprography and printing
technology are both developing rapidly and are having many important effects
on the rate at which innovations in information transfer can be developed
and implemented. Finally, the information problem is being alleviated by
data compilations and analyses, literature reviews, and state-of-the-art
studies.

These several innovations are costly and need to be evaluated, particularly
in situations where they are competing for the same support funds. They
need to be assessed not only in terms of their individual utility and

effectiveness, but also with respect to their interaction and mutual impact
as communication channels and devices. Evaluating information systems, and
services and media, however, is still difficult because evaluation
techniques are not yet grounded upon an adequate body of theory and practice,
and highly reliable and replicable evaluation techniques are yet to be
developed. Nevertheless, some of the methods and tools adapted from the
behavioral sciences can be useful, both in developing a more viable
evaluation technology, and in learning more about communication techniques.
One such method or approach will be discussed here, in connection with the
project to assess the initial impact of the recently-established Annual
Review of Information Science and Technology.

2.2   MEASURES OF EFFECTIVENESS VERSUS MEASURES OF IMPACT

A communication technique can be evaluated from two viewpoints: effective-
ness and impact. Knowledge of effectiveness is a self-evident requirement;
one must know how well the technique does the job for which it was intended,
and one must know what kinds of shortcomings may require attention. The
need to appraise the impact of communication techniques and media may not be
quite as self-evident, but it is equally or more important. Impact informa-
tion tells whether and how new techniques and media affect the process of
scientific and technical communication. For example, one may introduce a
bibliography into a field, as an information resource for its professionals.
From an effectiveness standpoint, one might look at the comprehensiveness
or accuracy of the bibliography or at such factors as typographic clarity,
etc. From an impact standpoint one would want to know what changes, if any,
the availability of the bibliography made in the information-seeking or
information-sharing behavior of its users. These changes will range from
altered behavior toward the library, colleagues, and other information
sources previously relied upon, to the initiation of personal contacts with
other professionals whose names come to the user's attention through the
bibliography. Effectiveness measures are more narrow, well defined and
short-term in nature. From a methodological standpoint, one does not
ordinarily attempt to look past the immediate situation for subtle or long-
range effects. On the other hand, impact measures tend to be broader, more
diffuse, and rather long-term in nature. They often produce surprising
information of a sort that could not easily have been predicted.

Well-conceived impact studies can provide much more basic, generalizable
and useful kinds of knowledge of information-seeking and information use
behavior than effectiveness studies. This is especially true with respect
to innovative communication techniques. With "settled" institutions or
media, such as established journals, enough experience may have accrued so
that the effectiveness measures cover the important questions and potential
outcomes. However, when one is dealing with innovations, especially in
technical areas where there is a high rate of change, the experience base
for accurately selecting the proper modes of effectiveness evaluation is

not yet developed. The discovery of such new modes is the most important element in adapting present communication institutions and forms to changing times and in providing guidance for the development and financial support of new institutional forms.

2.3   ASSESSING THE IMPACT OF THE ANNUAL REVIEW

Annual reviews are the most ambitious and highly organized members of a class of communication tools that attempt to serve as "condensed representations" of widespread activities. (Other members of this class are progress surveys, data compilations and state-of-the-art reports.) While no longer "innovative" in concept--there are over 500 annual review series in existence--they are certainly evidencing an upsurge in attention and application. There is a widespread and growing conviction among professionals concerned with scientific and technical communication that there should be much greater use of this kind of communication device. As one government official put it several years ago:

> Information science and technology have grown at such a pace in
> recent years that attempts to "take stock" of accomplishments seem
> even more important at times than new research and development.*

More recently, strong support of critical, incisive progress reviews has been voiced by SATCOM, now completing an extensive study of ways in which the Federal government and the private sector can work together to improve scientific and technical communication.

Interestingly enough, the faith in progress reviews is based almost entirely on a priori considerations. A careful literature search has turned up only one empirical study that involved the impact or effects of annual reviews. This study, part of the project on scientific communication performed by the American Psychological Association,** mentioned a number of values of the Annual Review of Psychology, but the project did not provide any information on changes in communication or professional effectiveness that accompany the introduction and continuing availability of an annual review. Because these changes are necessarily dynamic, one could not expect to develop an accurate understanding of impact behavior from a single study. Rather, one must expect to sample from several--even many--stages, beginning as early in the life of the innovation as possible.

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*BROWNSON, HELEN L. Foreword. In: Cuadra, Carlos A., ed. Annual Review of Information Science and Technology, vol. 1. Interscience, New York, 1966, p. v.

**American Psychological Association. Project on Scientific Information Exchange in Psychology. Reports of work performed under NSF Grant-281. Washington, D. C., 1965, Vol. 2, p. 12-14, 245.

In 1966 an opportunity developed to sample for the first time the first stage in the use of a new annual review publication. In response to the need voiced by many professionals in the information science field for regular progress reviews, the National Science Foundation, the American Society for Information Science (then the American Documentation Institute) and System Development Corporation joined, in 1964, to establish the Annual Review of Information Science and Technology. The purpose of this series was and is to describe, relate, and critique the most important work that has been reported in the field during each calendar year and to do this with sufficient accuracy, comprehensiveness, and objectivity that professionals in the field may rely on it as an authoritative and timely progress report.

The inaugural volume of the Review was issued in September, 1966. Judging from the favorable reviews in the journal literature and from the unexpectedly high sales, this volume passed the "effectiveness" test. However, no evaluation of the book was available from the standpoint of its "impact." Because the introduction of the Review provided a rather unique opportunity to obtain certain kinds of impact-related data that could very likely never be obtained at a later date, an Annual Review Impact Study was initiated.

2.4   STUDY GOALS AND LIMITATIONS

As indicated earlier, SDC has been a co-sponsor of the Annual Review, and SDC personnel manage and edit the Review, on behalf of ASIS. Thus the goals of the study reflected interest both in the impact on professional communicators of this kind of publication and in the improvement of the Review per se.

With regard to the first goal--assessing impact--it was clear that the goal could not be fully achieved, since no empirical information on the professional communication practices of the survey sample was available prior to the survey. (Ideally, impact studies should include both "before" and "after" data.) Nevertheless, the survey could provide baseline information against which information obtained at a later point in time could be compared. The information obtained in this study would, of course, be of interest in its own right, quite apart from its value as a basis for future comparisons.

The second goal--obtaining information for improving the Review--raised questions like these:

1)   How does reading the Review relate to other patterns of information use, and to personal attributes?

2) What specific functions does the Review serve and how is it likely to affect patterns of scientific communication (i.e., information-seeking and information use) among information scientists?

3) What changes do readers feel would most improve the usefulness and value of the Review?

It was also hoped that the study might provide some preliminary guidance to funding agencies, professional societies, and other groups interested in supporting annual review publications.

The approach and specific procedures used in addressing these goals are described in the following section.

3.   DESIGN AND EXECUTION OF THE SURVEY

The main work in the Annual Review Impact Study was conducting a survey of
users and non-users of the Review. The survey itself involved three main
tasks:

        (1) identifying a suitable sample of Review users and non-users;

        (2) determining, by means of questionnaires and personal contact,
             the attitudes and practices of these groups in relation to
             information sources, including the Review, and

        (3) analyzing and interpreting the results.

There are a number of pitfalls in all survey research, notably the danger
that respondents will be affected by the knowledge that they are being
measured. That is part of the reason why it has been said* that a survey
is not first on a careful researcher's list of preferred information sources.
Nevertheless, the disadvantages must be weighed against the advantages, such
as low cost and ease of use. Researchers must resort to a survey when the
needed information is not available by other means and when no natural
event is going to make it available. Since the desired information about
the use of the Review was not available from any source other than the first
users of the book, the survey technique was chosen. Later, however, the
impact of the review may become evident in references to it from significant
new projects undertaken in the fields it covers.

It was decided, at the outset of the study, that use of a mail questionnaire
would be the most efficient and least expensive way to supply the bulk of the
data. However, the study was planned so that the impact of the Review would
be examined both by mail questionnaires and personal interviews. This
enhanced the validity of the study design.

3.1   SAMPLING

To identify the users, business reply postcards (See Figure 1) were sent in
window envelopes to approximately 10,000 members of four professional societies:
The American Documentation Institute (now the American Society for Information
Science), the Special Libraries Association, the Association for Machine
Translation and Computational Linguistics (now the Association for Computational
Linquistics), and the Special Interest Group on Information Retrieval of the

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*Paisley, William J. "Some Decision Points in Survey Research" In: Studies in
Journalism and Communications. Study No. 6: Decision Points in Mass Communi-
cation Research--Survey, Content Analysis, Historical and Experimental Methods,
edited by Donald L. Shaw. UNC, Chapel Hill, N.C., June 1967.

Association for Computing Machinery. These organizations were selected on
the assumption that the largest concentration of Review readers would be
found in them.* The postcard asked whether the person had seen, heard of,
or used, the Annual Review, and which one of eight job categories accounted
for the major portion of his professional activities. The first question
devided respondents into three groups: those person who had used the
Annual Review, those who had only seen it or heard of it, and those who had
not yet seen it or heard of it. (Throughout the remainder of this report,
these groups will be referred to as Users, Seen/Heads, and Not-Seen/Heards,
respectively.) It was felt to be important to include non-users--the latter
two groups--in the survey so that they could be compared with users. It was
hoped that such a comparison, involving information-use practices and demo-
graphic attributes, such as education and place of employment, would help to
explain why some professionals use the Annual Review and other do not.

The job categories on the postcard were intended to divide respondents into
eight categories, each of which could be sampled to obtain the required num-
ber of subjects for the questionnaires. However, almost 15 percent of the
respondents checked more than one job activity, so it was not possible to
follow the original plan completely. Instead, questionnaires were sent to
almost all Users. The job activity data from the postcards were retained,
for possible use later in the analysis. (Multiple responses were treated
as though they comprised a separate new category.)

Almost 3700 postcards were returned, almost equally divided among the three
groups. Figure 2 shows mailings and returns for the postcards. Because a
final data set of about 2000 questionnaires was desirable, for purposes of
analysis, and because the normally expected percentage of returned
questionnaires for a professional sample is somewhat under 60 percent, an
initial sample of about 3300 appeared necessary. With only a few exceptions,
questionnaires were sent to all Annual Review Users. For the Seen/Heard
and Not-Seen/Heard groups, the two largest job activity categories (library
or information systems service, and administration of library or information
systems, for each group) were randomly reduced to a more manageable size
before the questionnaires were mailed. The total number actually mailed
was almost 3000.

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*Polling the members of four other professional associations was considered,
 but rejected, either because there would have been too much overlap with
 members of the four primary organizations (as determined by a quick telephone
 sample of Los Angeles members), or because the organization's activities were
 not closely related to those of ASIS. The four were: the American Associa-
 tion of Law Libraries, the Association of American Medical Libraries, the
 Division of Chemical Literature of the American Chemical Society, and the
 Society of Technical Writers and Publishers.

Dear colleague:

    With the assistance of the American Documentation Institute, Special Libraries Association, and Stanford's Institute for Communication Research, System Development Corporation is trying to identify users of the *Annual Review* of *Information Science and Technology*. The goal of the study is to determine patterns of information media use in different professions.

    We would appreciate your answering three brief questions and returning this postcard to us. Thank you.

<div align="center">

Linda Harris
Study Director

</div>

If your address is incorrect, please make the appropriate change.

Have you seen or heard of the *Annual Review?*

    ____Yes   ____No,

Have you used the *Annual Review?*

    ____Yes   ____No

Which one of the following best represents your activities during the past year?

_____Library or information systems service

_____Design/development of library or information systems

_____Research in library or information systems

_____Research in language or language processing

_____Administration of library or information systems

_____Research management

_____Teaching or educational research

_____Marketing or sales

_____Other_____

<div align="center">

Figure 1. Postcard Used to Identify Annual Review Readers

</div>

3.2   DEVELOPMENT AND USE OF THE QUESTIONNAIRE

Separate questionnaires were developed for the User, Seen/Heard, and Not-Seen/Heard groups. The User questionnaire was the most detailed, containing 25 questions. The questionnaire for the Seen/Heard and Not-Seen/Heard groups contained 15 and 12 questions, respectively. The three questionnaires, shown in Appendix A, together with the corresponding cover letters, had 12 questions in common that were related to information-seeking and information-use behavior and to demographic attributes, so that the three groups could be compared on the same measures of reported behavior. The additional questions posed to the User group dealt with awareness, use, and impact of the Annual Review.

In an attempt to obtain roughly comparable data for the Users and Seen/Heards, two questions on the User questionnaire were rephrased to be suitable for the Seen/Heard questionnaire.

POSTCARDS MAILED

Organization	Number
American Documentation Institute	2500, including 33 in Canada
Special Libraries Association	6500, including 300 in Canada and 59 in Europe
Special Interest Group on Information Retrieval of the Association for Computing Machinery	1100, including 37 in Canada
Association for Machine Translation and Computational Linguistics	500, including 8 in Canada

POSTCARDS RETURNED

Job Activity Category	Users	Seen/Heard	Not-Seen/Heard	TOTAL
Library or information systems service	193	334*	418*	945
Design/development of library or information systems	187	94	117	398
Research in library of information systems	90	37	33	160
Research in language or language processing	34	32	119	185
Administration of library or information systems	263	266*	254*	783
Research management	39	17	48	104
Teaching or educational research	52	37	60	149
Marketing or sales	9	12	29	50
Students	19	17	19	55
Other**	47	65	1/2	284
Multiple Response	200	141	216	557
Returned, with no response (=117 total)				
TOTAL	1133	1052	1485	367C

* Cut, randomly, to 150 before mailing questionnaires
** The largest group consisted of students, who were placed in a separate category

Figure 2. Postcards Mailed and Returned

For example, on one question, Users saw this version:

> "Even if you have not read or skimmed all chapters of
> the Annual Review, which ones do you consider to be within
> your particular area of professional interest?"

>> (the chapter titles were listed, verbatim)

The Seen/Head group saw this version:

> "The following is a list of Annual Review chapter topics.
> Please check the ones you consider to be within your
> particular area of professional interest."

>> (the chapter titles were paraphrased, to
>> indicate the chapter contents better)

The prupose of these questions was to get information on the views and
behavior of someone who was aware of the existence of the Annual Review,
but who had not yet used it.

Each version of the questionnaire was pre-tested and revised several times,
using ASIS and SLA members in the Los Angeles area. Most of the questions
were pre-structured (i.e., provided a list of choices) to make the coding
and data analysis easier; some open-ended questions were included to stimulate
suggestions for improving the Annual Review and to provide for responses that
could not be anticipated when the questionnaire was written.

The questionnaires were mailed from and returned to the Institute for Communi-
cation Research at Stanford University, which was cooperating with SDC on the
survey. It was agreed that this use of the Institute address would increase
the likelihood of receiving frank evaluations of the Annual Review. A summary
report of the survey results was offered as an incentive for returning the
questionnaire.* An original and one follow-up mailing were used, yielding an
overall percentage return of 70% (see Figure 3). The final data set contained
2012 usable questionnaires. Broken down by groups, the return rate was 60%
(N=641) for Users, 70% (N=512) for the Seen/Heard group, and 82% (N=859) for
the Not-Seen/Heards. The high response rate for the latter group might be
attributed to the fact that their questionnaire was the shortest of the
three versions.

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*Summaries (see Appendix B) were requested by 85% of the respondent. They
were distributed in October, 1968.

	USERS	SEEN/HEARD	NOT-SEEN/HEARD
FIRST MAILING			
Mailed out	1031	750	1050
Returned	434	339	583
SECOND MAILING			
Mailed out	597	411	467
Returned	207	173	276
TOTAL RETURNED			
N=	641 (60%)	512 (70%)	859 (82%)

Figure 3.   Questionnaires Mailed and Returned

3.3   GATHERING OF SUPPLEMENTARY DATA

Data to supplement the questionnaires were obtained on three occasions. The first was at the ASIS 30th Annual Convention in New York in October, 1967; by then, many questionnaires had been returned, and ASIS readers whose responses were particularly intriguing were asked to attend informal group discussions to talk about the Annual Review and to offer suggestions for improving it in the future. In addition, individual interviews were held with readers. Because of the busy schedules of most convention attendees, only about 20 interviews were held. Some of these sessions were tape recorded, with the permission of the participants.

Supplementary data were also gathered, in October, 1967, at a special meeting in Chicago, at the headquarters of Encyclopaedia Britannica (the current publisher of the Annual Review). Six readers from the Chicago area took part in this meeting. Finally, a "Feedback Forum" was held at the 1968 ASIS Convention in Columbus, Ohio, on October 21.

4.   DATA ANALYSIS

4.1   CODING AND ANALYSIS OF FORMATTABLE DATA

The primary goal of the data analysis was to achieve an accurate and meaningful
description of the 2012 replies to the questionaire. (It was decided to exclude
from the analysis the information on job activites from the business reply
postcards. The questionnaires provided similar information, and since they
were mailed after the postcards, the job activity information provided by the
questionnaires could be presumed to be more current.)

The analysis needed to take into account the fact that some of the questionnaire
items involved pre-structured (formattable) data and others involved free
response (nonformattable) data. The first data analysis procedure was to
obtain an inventory of all responses to each question. On the basis of the
inventory, some comparison of the three respondet groups was made, and then
decisions were made as to how to proceed with the rest of the analysis.
Several important conclusions are based on a comparison of demographic
attributes and professional communication patterns for the three groups.
Furthermore, some of the demographic attributes were used only for the
intergroup comparison, and not in any other portion of the analysis, since
they did not yield any information about communication patterns within each
of the three groups. These attributes are membership in professional organi-
zations, highest earned degree, year and field of that degree, and sex.

The data inventory showed that no further analysis should be attempted for
the three questions shown in Figure 4. The replies to the first of these
questions adequately indicated the types of information Users are obtaining
from the Review, but since types of information are very general, further
analysis of these figures would be neither fruitful nor justifiable. The
response distribution for the second question showed that the "often-sometimes-
never" scale was unsatisfactory for making fine distinctions among Users, and
that the list of activities was certainly not exhaustive. Thus no further
analysis was attempted for this question, either. Respondents in all three
groups were asked, in Question 25, for a description of their professional
specialties. The replies varied so much in length and specificity that coding
of this question was not attempted. More reliable information was obtained
from replies to Question 24, regarding the respondents' primary job activities.

12. Have you obtained from the Annual Review itself information about any of the following?

___ideas or theories   ___a system

___methods or procedures   ___a project

___results or data   ___other (please specify)

___an individual and his work   _____

14. How often have you used the information you've obtained from the Annual Review for each of the following activities?

	Often	Sometimes	Never
Ordering documents or publications	___	___	___
Searching the literature as a service to others	___	___	___
Writing reports, articles and papers	___	___	___
Preparing lectures or speeches	___	___	___
Writing your own review of the literature	___	___	___
Preparing a bibliography or reading list	___	___	___
Exchanging information with your colleagues	___	___	___
Other (please specify)	___	___	___

25. Please describe the area of your professional specialty for the most time-consuming activity you listed in question 24 (e.g. library science, library systems, information systems, language processing, engineering, etc.)

If you have a different specialty for the second most time-consuming activity listed, describe it too.

(This question not coded.)

Figure 4. Questions not Subjected to Further Analysis

The second decision was to code 18 Seen/Heard respondents as Not-Seen/Heads because they replied that they had first heard of the Review as a consequence of receiving the questionnaire.

To show major trends in the data more clearly, the categories for several variables were combined on the basis of a shared concept or theoretical orientation. For example, in the question, "How did you first hear of the Annual Review?" responses in response categories 1, 2, and 3 in Figure 5, below, were combined, because they show that an ADI related channel was the first source of information for respondents marking those choices. Categories 7-12 were combined because each of them alone did not contain enough cases to support a cross-tabulation analysis. They were included in the analysis but not interpreted, because they are too heterogeneous to be interpretable Therefore the analysis was confined to patterns of communication within channels A-D.

In some cases, a variable with several categories was simply dichotomized to form categories such as, "response/non-response," or "high/low." When this was necessary, the split was made closest to the median of the response distribution.

Whenever the coding task was to record numerical answers, such as "number of chapters read in detail," a small sub-sample of questionnaires was used to determine the range of responses, and then categories were established so that the distribution of responses would approximate the normal curve as closely as possible.

When the procedures were completed, the next major analysis technique used for the formattable survey data involved construction of frequency tables by comparing (cross-tabulating) criterion variables (such as number of Review chapters read) against classification variables* (such as primary job activity). Response percentages were computer for each cell of these frequency, or contingency, tables.

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*Defined by exhaustive and mutally exclusive attributes by which respondents are classified.

2.   How did you first hear of the Annual Review?   (check one)

A
    ___1___   preliminary announcement of contract award

    ___2___   announcement or program prior to 1966 ADI Annual Meeting

    ___3___   1966 ADI Annual Meeting

B   ___4___   journal advertisement

C   ___5___   publisher's direct mail advertisement

D   ___6___   colleague

E
    ___7___   book review

    ___8___   citation in a bibliography

    ___9___   library

    __10___   bookstore

    __11___   other (please specify) _____

    __12___   can't remember

Figure 5.   Response Categories for First Information
Source about the Review

4.2   FORMATION OF INDEXES

A broad questionnaire survey often requires more than one question to
adequately probe an attitudinal or behavioral phenomenon. To measure
such a phenomenon, the responses to a number of different questions are
combined to form a single index, and the distribution of responses for
the index is taken to represent the desired measure.

Three summative indexes[*] were created from portions of the survey data.
The first, which will be referred to the Professional Organization
Index, represents the total number of professional organizations in
which each respondent is a member. This is generally considered to
be a better indicator of professional communication activity than an
analysis of which respondents belong to each individual organization.

The second summative index, Journals Read Regularly, is intended as one
measure of extent of professional information use: it is a count of
number of journals read regularly (almost every issue). The relevant
question asked, "Which journals do you read or scan regularly?" The
rationale behind the question, however, was that a more accurate and less
inflated report of journal reading would be obtained by requiring a
specific list of titles. Nevertheless, coding this question proved
to be extremely difficult because many respondents replied, "Too many
to mention."

The third index reflects Diversity of Authorship. The basic question,
posed to the three groups, asked how many different kinds of reports
and publications a respondent had authored or co-authored within the
past five years. Authorship of any of the six kinds of materials--books,
chapters in books, journal articles, technical reports, unpublished
papers, book reviews--was assigned a value of one, and the Index was
created by summing the values for each kind of material. Thus, the
maximum possible value on the Index for any one respondent was six.

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[*]In a summative index, all values of the variables to be combined are
added and then the resulting distribution of values is divided into
categories to form levels of the index. In a Boolean index, on the other
hand, the levels are formed by combining values of the variables in
all possible ways.

A fourth index, based on Boolean logic, measured total extent of readership
of the Review. This index, the Read/Skim Index, was formed as the sum of
number of chapters read and proportion skimmed. The latter
variable was defined in terms of the following ratio: chapters actually
skimmed (Y)/chapters <u>possible</u> to skim after reading (X) chapters in detail.
(See Figure 6.) Skimming had to be defined this way because skimming and
reading are mutually exclusive behaviors, and it is impossible to skim a
chapter immediately after reading it in detail. Because the Read/Skim Index
is not a weighted combination of two variables, a respondent who read one
or two chapters in detail and skimmed about nine was considered equivalent,
for analysis purposes, to one who had read six to nine chapters and skimmed
about five.

4.3   CODING AND ANALYSIS OF NONFORMATTABLE DATA

The nonformattable data includes replies to the three "open-ended" questions,
(questions 11, 16, and 17 on the User questionnaire), replies listed in the
"other" category for several prestructured questions, and information
obatined from interviews with Annual Review Users at three different meetings.

The coding procedure for two of the three open-ended questions (11 and 17) was
to type, verbatim, all responses to each question, and then, by looking at
the verbata, to derive for each question a set of categories, based on some
conceptual scheme, that adequately represented the content of the replies.
Question 16 was not coded.

Figure 7 illustrates the branching coding scheme used for question 11
(Users), "For what purpose did you last use the Annual Review?" This
question is dubbed the "critical incident" question, because it refers to
the most recent incidence (and therefore probably the most easily recalled
incidence, as far as the reader is concerned) of Review use.

No. of Chapters Read in Detail		No. of Chapters Skimmed	Level of Read/Skim Index
0 = NR	and	0 = NR	0
		1-3	1
		4-6	2
		7-12	4
1-2	and	0 = NR	0
		1-3	1
		4-6	3
		7-12	5
3-5	and	0 = NR	1
		1-3	2
		4-6	4
		7-12	5
6-9	and	0 = NR	2
		1-3	3
		4-6	5
		7-12	5
10-12	and	0 = NR / 1-3 / 4-6 / 7-12	5

Response Percentage	Level of Read/Skim Index
3%	0
16%	1
12%	2
10%	3
18%	4
41%	5

Figure 6. Formation of the Read/Skim Index
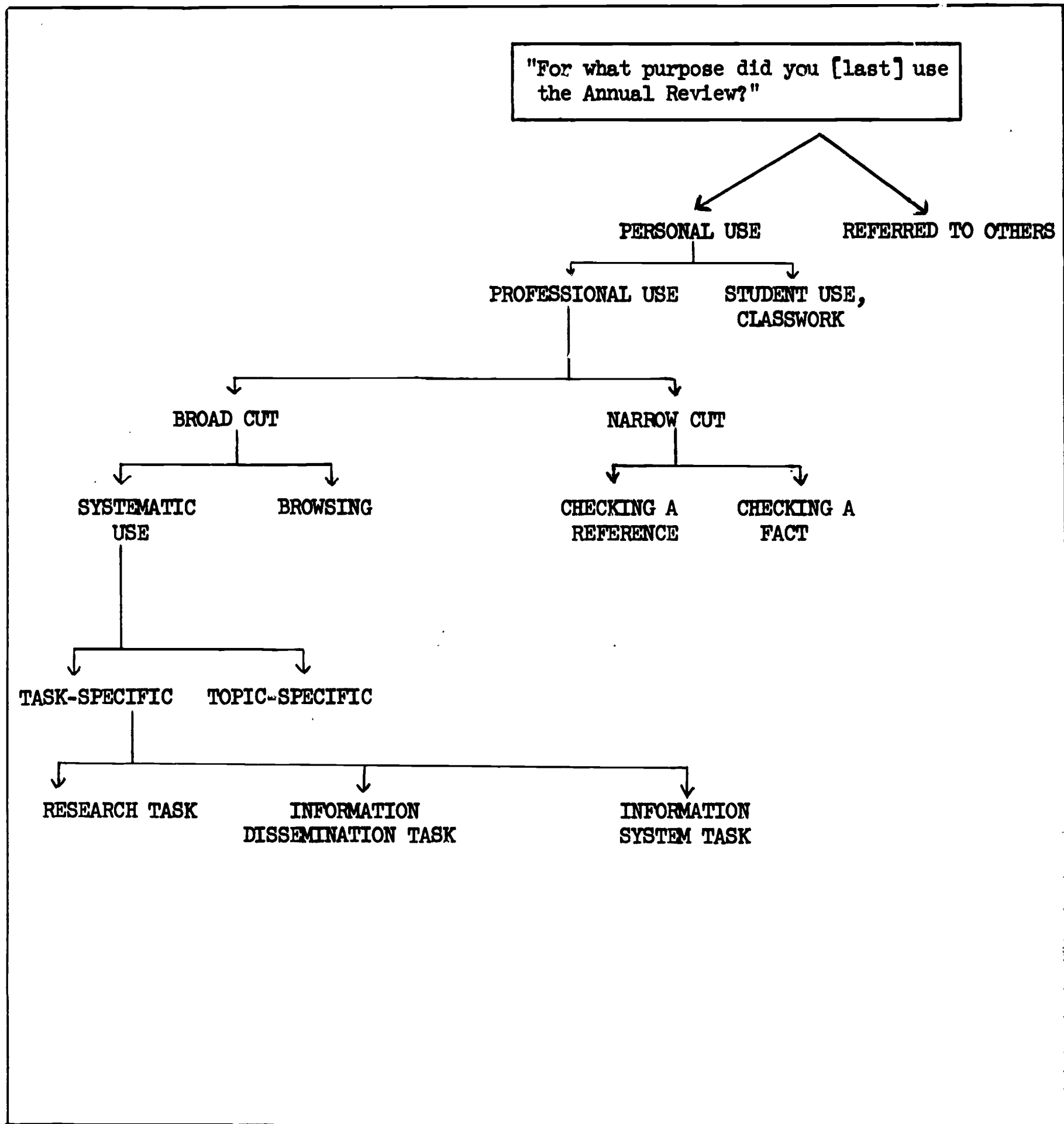
Figure 7. Coding Scheme for Critical Incident Question

A binary-decision scheme (two alternatives at a time)[*] was developed to code the responses, some no more than two words long, some very detailed sentences. It was assumed that a reader who is putting the Review to a professional use can take a "broad cut" or a "narrow cut" through it. If he takes a narrow cut, he might be checking either a reference (citation) or a fact. This implies a very brief, purposive use of the Review.

The broadest possible use of the book was defined to be browsing, and this includes responses such as "state-of-the-art," "current awareness," "general" or "background" information, and "review." The heterogeneity of the responses does not allow a further breakdown of this category into, for instance, a brushing-up or review function vs. a learning or orientation function. On the other hand, learning is implicit in many of the branches of this tree structure, so it would be difficult to attribute learning only to one goal of Annual Review use.

Complementary to browsing is a systematic use of the Review that is still more general than the reference function. Any respondent who actually stated his purpose could fall into either the task-specific category (e.g., a project) or the topic-specific category (mention of a specific chapter title or topic within the scope of the book). (If a respondent combined both task- and topic-specific goals within the same response, the task-specific one was preserved, because these, in general, were more meaningful.) In turn, tasks were divided into research tasks (information-seeking in connection with explicit research), personal information dissemination tasks (e.g., use of the book in connection with the writing of a paper or proposal, with teaching or lecturing, or other information/communication activities), and information system tasks (e.g., information flow activities, such as "selecting items for inter-library loan"). Five percent of the respondents indicated multiple purposes of their last use of the Annual Review, and if these purposes were not specific tasks, the first one mentioned was coded.

Code categories were also developed for replies to Question 17 for Users. They are shown in Figure 8.

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[*] Funkhouser, G. Ray, "Binary Coding," Appendix VI, Final Report, Patterns of Adult Information Seeking, Sept., '66, Edwin B. Parker and William J. Paisley, Institute for Communication Research, Stanford University. (U.S.O.E. 4 10 193; PN 2583)

17. "In the future, what aspects of the Annual Review might
     be changed to make it more useful?" They are:

Style of Writing

1. Level of criticism
2. Level of detail

Content of Volume

3. Range of coverage
4. Addition of specific Chapters
5. Deletion of specific Chapters
6. Summary Section

Organization of Volume

7. Organization of Chapter Content
8. Coordination among the Chapters

Tools for Access

9.   Sources of cited publications
10. Prices of cited publications
11. Indexes, appendices, and bibliography

Mechanics of Production

12. Publication cycle
13. Typography

Miscellaneous

14. Price of the Annual Review
15. Other

Figure 8. Code Categories for User Question 17

A coding scheme was not developed for Question 16, shown in Figure 9, below. Close inspection of replies to this question showed that it was misunderstood by many respondents. For example, replies that a chapter of the Review appearing monthly would be "more current" reflect a misinterpretation of the possibilities suggested: the chapter would still review the previous year's literature, but only in one topic area—and a different topic would be covered each month. Furthermore, both publication schedules were viewed as time-saving by respondents on both sides of the question. Because of the apparent ambiguities in this question, a coding scheme was not devised for the replies. However, the most frequently cited reasons for preferring each publication schedule were determined by inspecting the verbata.

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16. "If one chapter of the Annual Review were to be published each month instead of collecting the chapters in book form annually, how do you think the value of the Annual Review would chang? A different chapter each month would be? (check one)"

___much less useful ___somewhat less useful ___equally useful ___somewhat more useful ___much more useful

Why? _____

Figure 9. User Question 16

Many of the lists in the pre-structured questions on all three versions of the questionnaire "other" category to capture miscellaneous responses not anticipated when the questionnaire was written. Because the "other" responses, were so few (with one exception), they were not coded.

The data gathered through individual and group interviews and discussions at the 1967 and 1968 ASIS conventions, and at the 1967 meeting at Encyclopaedia Britannica headquarters are essentially nonformattable and necessarily required qualitative, rather than quatitative, analysis.

5.   RESULTS

The survey provided a great deal of data, some of which defies easy interpretation or even easy description. The purpose of this section is to present the survey data and the results of analyses performed on it. For ease of presentation, the results will be discussed in terms of eight major topics of interest in the study:

- Characteristics of Annual Review Users

- Acquisition of Annual Review Copies

- Extent of Interest and Readership

- Purposes Served by the Annual Review

- Correlates of Previous Contact with Review-Cited Literature

- Relationship of Readership to Other User Characteristics

- Impact of the Annual Review

- Suggested Areas for Improvement

Some of the survey variables encompassed by particular topics above are inter-related. The final section of the report will attempt to synthesize and provide a general interpretation of the findings.

5.1   CHARACTERISTICS OF ANNUAL REVIEW USERS

More than one third of the items on the questionnaires were addressed to the general question "Who are the users of the Annual Review and what are they like?" Sections 5.1.1 through 5.1.4 describe the findings on this question.

5.1.1   Occupational Setting and Type of Work

Figure 10 shows three questions dealing with respondents' occupational setting and their type of work. These questions, like the others discussed in Section 5.1, were asked of all three groups, to permit comparisons between those who use the Annual Review and those who do not. (Both the Seen/Heard and the Not-Seen/Heard groups are considered to be non-users.)

23. In what type of organization are you currently employed?

	Users	Seen/ Heard	Not- Seen/ Heard
university	27%	20%	25%
government agency	14	13	11
industrial or business firm	36	42	39
non-profit corporation, organization	13	11	9
private foundation	1	2	0
public library	1	2	3
public school	0	1	1
other, multiple response	6	8	10
NR, not employed	2	1	2
Totals	100%	100%	100%

24. Please rank the following job activities by placing a 1 in front of your most time-consuming activity, a 2 in front of your second most time-consuming activity, etc. Ignore activities you do not usually engage in.

(The following are total response percentages, for each category, regardless of the ranks assigned.)

library reference, bibliographic service	37%	50%	42%
other library service (e.g. cataloging, acquisitions)	26	40	36
research	44	39	47
design or development	44	30	32
management or administration	67	65	60
programming	14	15	27
consulting in your professional specialty	37	32	36
teaching	22	17	24
studying for a degree	13	13	14
writing or editing	36	28	29
publishing	5	4	6
indexing or abstracting	20	22	14
sales	4	4	4
other	6	6	7
Totals	(Not applicable)		

25. Please describe the area of your professional specialty for the most time-consuming activity you listed in question 24 (e.g., library science, library systems, information systems, language processing, engineering, etc.).

If you have a different specialty for the second most time-consuming activity listed, describe it too.

(This question was not coded.)

Figure 10.   Questions Relating to Locale and Type of Work

The largest numbers of Annual Review Users are employed in industrial or
business firms; the next most common places of employment are universities,
government agencies, and non-profit organizations. The occupational settings
for each of the two non-user groups follow the same pattern, but there is a
greater preponderance of industrial over university settings for the non-
users than there is for the Users.

There is somewhat more dissimilarity between Users and non-users in job
activities, as indicated by the response percentages for Question 24. All
three survey groups mention "management or administration" most frequently
as an important job activity, but they differ noticeably on other job activ-
ities. Half of the Seen/Heard group, but only 37% of the Users, report
spending time in library reference work; there is a similar preponderance,
for the Seen/Heard group, in the activity "other library service." In con-
trast with non-users, Annual Review Users seem somewhat more likely to be
engaged in writing or editing.

The Not-Seen/Heard group is difficult to characterize. They are seemingly
the most research-oriented and teaching-oriented of the three groups, but
they are also much more actively engaged in programming than the User and
Seen/Heard groups. Perhaps more people in the Not-Seen/Heard group tend to
have rather specialized interests that do not place them in contact with the
information channels that brought the Annual Review to the attention of the
User and Seen/Heard groups. Yet, the Not-Seen/Heards are very active in
library work (more active than Users but less active than the Seen/Heard
group), and it is surprising that, one year after the publication of the
Annual Review, it had still not come to their attention.

One can only speculate, at this point, on whether the two non-user groups will
become Annual Review Users. Presumably, some of the Not-Seen/Heard group
will become Users, since the survey itself had the effect of calling their
attention to the Annual Review. Presumably, too, some of the Seen/Heard
group will become Users, although the extent of change may not be large.
The Seen/Heard group has a relatively greater library service orientation
than the other groups, and it may include a large number of professionals
who will continue to notice and catalog the Annual Review, without actually
using it as a source of information.

5.1.2   Education and Professional Background

Three questions dealt primarily with educational and professional background.
(See Figure 11.) The Annual Review Users differ from the other two groups
in having relatively more M.L.S. degrees and relatively fewer B.A. or B.S.
degrees as the highest earned degree. To put it differently, the User
group has the largest number of professionally trained librarians (although
Figure 10 above shows that more non-users than Users are actually engaged in

	Users	Seen/ Heard	Not-Seen/ Heard
26. What is your highest earned degree?			
no degree	1%	0%	0%
B.A., B.S.	19	27	31
B.L.S.	5	6	6
M.A., M.S.	24	22	22
M.L.S.	29	23	15
Ph.D., M.D., Ed.D.	15	12	16
other	5	4	2
NR	2	6	8
Totals	100%	100%	100%
Year earned:			
before 1935	3%	6%	4%
1935-1940	6	6	6
1940-1945	7	8	6
1945-1950	10	7	11
1950-1955	19	17	15
1955-1960	15	14	15
1960-1965	25	24	25
after 1965	11	9	10
NR	4	9	8
Totals	100%	100%	100%
27. Major field in which highest degree was earned:			
library science	43%	38%	28%
psychology, sociology	3	3	3
linguistics, math, computer science	7	9	17
physics, chemistry	13	12	7
engineering	7	7	8
biological sciences	2	3	2
education	2	3	3
business administration	4	3	5
English, history	4	4	7
other	12	11	12
NR	3	7	8
Totals	100%	100%	100%
22. How many years have you worked in the field of information science-- i.e., documentation, library science, information systems research, or related fields?			
less than five years	24%	24%	30%
5-10 years	29	30	26
10-15 years	19	19	17
15-20 years	15	8	12
20-30 years	9	13	8
over 30 years	3	4	5
NR	1	2	2
Totals	100%	100%	100%

Figure 11.   Questions Relating to Education and Professional Background

library work). The User group also has more doctorates than the Seen/Heard group, though slightly fewer than the Not-Seen/Heard group. The preponderance of non-library science B.A. and B.S. degrees in the latter group, together with the 16% doctorates, suggests that this group is rather heterogeneous and may include many newcomers to the information science field, e.g., computer specialists who are beginning to work in the area of library automation.

Some evidence for this speculation comes from the responses to Question 27. Only 28% of the Not-Seen/Heard group had earned their highest degree in library science, compared with 38% for the Seen/Heard group and 43% for the Users. Correspondingly, twice as many of the Not-Seen/Heard group had earned degrees in linguistics, mathematics and computer science as had the respondents in the other two groups. These findings also support the notion that the Not-Seen/Heard group uses information channels different from those that brought the Annual Review to the attention of the Users, e.g., the computer literature, as opposed to the library or documentation systems literature.

The responses to Question 22 provide additional evidence for the idea that the Not-Seen/Heard group includes more newcomers to library and information science than the other groups. The median experience level for Users is slightly higher than that for the Seen/Heard group, which experience level is, in turn, slightly higher than that for the Not-Seen/Heard group. The most interesting finding from Question 22 is that more than half of each group reports having worked in the field of information science for 10 years or less, in spite of the fact that the definition of information science used in the question was purposely made very broad. This finding suggests that the survey respondents perceive information science as a relatively new field of activity. The results could also mean that the respondents are relatively young, professionally. If "professional age" is taken from the year that the highest degree was earned, the data from Question 26 show that for all three groups, the median professional age is about 10 years. Indeed, this is a young sample.

5.1.3   Professional Activity

Four questions sought information regarding the respondent's level of professional activity, i.e., membership in professional societies and use of professional communication channels. They are shown, together with response percentages, in Figure 12.

Users show the highest levels of professional activity. Seventy-nine percent of the Users belong to ASIS (formerly ADI)--a result expected because ASIS co-sponsored the Annual Review, and acquisition of the Review was made easier for ASIS members. Only 45% of the Seen/Heard and 19% of the Not-Seen/Heard groups belong to ASIS. Presumably, if more persons in these two groups had the interests and motivation to belong to ASIS, they would also be Users.

	Users	Seen/ Heard	Not-Seen/ Heard

18. To which of these professional organizations or associations in the field of information science do you belong?

	Users	Seen/Heard	Not-Seen/Heard
ADI (now ASIS)	79%	45%	19%
SLA	50	56	47
ALA	24	22	16
ACM	22	20	34
AMTCL	5	6	12
Totals		(Not Applicable)	

TOTAL NUMBER of Organizations, including others not specifically coded due to extremely low response percentages:

PROFESSIONAL ORGANIZATIONAL INDEX:

	Users	Seen/Heard	Not-Seen/Heard
none, NR	1%	0%	1%
one	20	33	44
two	31	36	33
three	27	22	13
four	13	5	5
five	6	2	2
six	1	1	1
seven or more	1	1	1
Totals	100%	100%	100%

21. How many local or national professional meetings (conventions, conferences, symposia, etc.) have you attended during the past year?

	Users	Seen/Heard	Not-Seen/Heard
none, NR	9%	15%	16%
one-two	33	40	43
three-five	39	29	26
six or more	19	16	15
Totals	100%	100%	100%

At how many of these meetings did you present a paper?

	Users	Seen/Heard	Not-Seen/Heard
none, NR	63%	81%	81%
any response	37	19	19
Totals	100%	100%	100%

Figure 12.   Questions Regarding Professional Activity

	Users	Seen/ Heard	Not-Seen/ Heard

19. Which journals and other scientific periodicals do you read or scan regularly (that is, almost every issue)? (Specific journals numbered over 50 different ones, and were not coded. NUMBER of journals:)

"JOURNALS READ REGULARLY" INDEX:

	Users	Seen/ Heard	Not-Seen/ Heard
none, NR	8%	13%	10%
one-four	31	33	42
five-seven	28	23	21
eight-eleven	12	17	13
twelve or more	21	14	14
Totals	100%	100%	100%

20. Approximately how many of each of the following materials have you authored or co-authored in the past five years?

(The number of materials authored was not counted; all responses were taken to be of equal value.)

	Users	Seen/ Heard	Not-Seen/ Heard
books	11%	9%	9%
chapters in books	21	12	10
journal (or periodical) articles	48	32	29
technical reports	42	32	33
unpublished papers	52	34	37
book reviews	22	15	17
Totals		(Not Applicable)	

DIVERSITY OF AUTHORSHIP INDEX: SUMMATION OF ABOVE RESPONSES:

	Users	Seen/ Heard	Not-Seen/ Heard
none, NR	23%	40%	39%
one	21	23	23
two	20	17	19
three	17	11	10
four	12	5	5
five	5	3	3
six	2	1	1
Totals	100%	100%	100%

Figure 12.   Questions Regarding Professional Activity
(Continuation)

The Not-Seen/Heard group has a great many more members in ACM and AMTCL than the other two groups, a finding consistent with the earlier comment that the Not-Seen/Heard group is more computer-oriented than the other groups. Interestingly enough, SLA has the most members of any professional organization among both the Seen/Heard and Not-Seen/Heard groups, and half of the Users belong to it, too. Among the SLA respondents, the percentages of Users, Seen/Heard, and Not-Seen/Heard were much more evenly balanced than among the ASIS members. This suggests both that the interest patterns of the SLA membership are more heterogeneous than those of the ASIS membership and that these interests are not as closely mapped by the Annual Review as are those of ASIS members.

Analysis of the data shown in Figure 12 showed that, on the average, persons in the User and Seen/Heard groups belong to one more professional organization than those in the Not-Seen/Heard group. Users, on the average, attended more professional meetings during the last year and presented more papers at these meetings. The average number of journals read regularly was higher for Users, as were the different kinds of materials authored during the past five years.

This general impression of greater professional activity by Users is brought out more clearly in Figure 13, which compares the three groups on four professional activities. The statistically significant result is that the User group--and within that group, those high on the Read/Skim Index*--demonstrates the highest activity on each of the four measures.

From Figure 13, it is evident that the "low" and "high" Users** differ most on number of journals read regularly and number of professional meetings attended. Yet the three major groups differ from each other most on the index of Authorship Diversity, and on presentation of papers at professional meetings. An explanation for this may lie in the fact that journal readership and meeting attendance tend to involve exposing oneself to information, that is, information input, whereas the other two variables reflect information production, or output of information. It is probably easier to absorb than to produce information, and maybe that is why information outputs better discriminate among the three groups. However, among the Users alone, information inputs are the better discriminators, probably because amount of information absorbed is a function of one's total network of complementary information sources.

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*The Read/Skim Index was defined in Section 4.

**Based on dichotomizing the Read/Skim Index with 59% of the respondents in the "low" category, and 41% in the "high" category.

	USER Read/Skim Index		SEEN/	NOT-SEEN/
	High	Low	HEARD	HEARD
JOURNALS READ REGULARLY				
Five or More	68%	56%	54%	48%
Less than Five	32	44	46	52
TOTALS	100%	100%	100%	100%
DIVERSITY OF AUTHORSHIP				
Two or More Types	60%	53%	38%	39%
Less than Two	40	47	62	61
TOTALS	100%	100%	100%	100%
NUMBER OF PROFESSIONAL MEETINGS ATTENDED DURING PAST YEAR				
Three or More	64%	53%	46%	41%
Less than Three	36	47	54	59
TOTALS	100%	100%	100%	100%
PRESENTATION OF PAPERS AT MEETINGS				
One or More	41%	34%	19%	19%
None	59	66	81	81
TOTALS	100%	100%	100%	100%
N=	261	380	512	859
		(= 641)		

Figure 13.   Professional Activities of the Three Groups

The data in Figure 13 indicate no tendency for the Annual Review to serve as
a substitute for journals; Users who read and skim it extensively also read
journals extensively. As has been observed in previous studies of scientific
communication, reading correlates with reading, and the high correlation
observed here would tend to mask any tendency for some individual readers to
read the Annual Review instead of journals.

To provide information on the use of professional communication channels,
Question 15 asked respondents to assess the importance to them of a number of
information sources. Figure 14 shows the results for all three groups. The
list of information sources in the Figure includes "formal" information
channels (e.g., technical reports, journal literature), informal channels
(e.g., colleagues, professional meetings), and channels that often require a
combination of formal and informal techniques for effective communication--
e.g., preprints.

The intent of Question 15 was to have respondents rate the information
sources independently of each other, not in order of importance. Thus, we
cannot compare the percentage figures and conclude that Users value col-
leagues within their own place of employment more than they do outside col-
leagues. The correct interpretation would be that 44% of the Users value in-
house colleagues as a very important information source, and a smaller percentage
(40%) of the Users value outside colleagues as a very important information
source. (One must also remember, of course, that we are discussing the value
of these information sources in relation to current work.)

The three groups of respondents can justifiably be compared for each individ-
ual information source. For example, in-house colleagues are "very impor-
tant" to more persons in the Not-Seen/Heard group than in either of the other
two groups. Since the Not-Seen/Heard group is generally less active than the
other two groups in their information use, it is understandable that they
would rely more heavily on nearby information sources, easy to use. The
situation is difficult to interpret for outside colleagues, because of oppo-
site trends in the "very important" and "moderately important" columns. Here
we find that more Users than Seen/Heards and Not-Seen/Heards consider outside
colleagues as "very important" information sources.

In comparison with the other groups, Users also tend to place greater value
on professional meetings, technical reports, and preprints (together with
outside colleagues) as very important sources of information. The Not-Seen/
Heard group tends to value books and reprints (together with in-house col-
leagues) as very important information sources. The Seen/Heard group appears
to be less active than the User group in their use of various information
sources. Like the Not-Seen/Heard group, they place somewhat more value on
books than Annual Review Users do.

In general, the differences among the three groups shown in Figure 14 reflect
some of the same differences in information-use behavior that were suggested
by other data from the survey. Annual Review Users are most apt to

15. How important is each of the following information sources in helping to provide information you need for your current work?

		Very Important	Moderately Important	Of Little or No Importance	Do Not Use This Information Source (+NR)
Colleagues within your own place of employment	U:	44%	38%	12%	8%
	S̄/H:	.41	31	17	11
	N-S/H:	52	32	11	5
Colleagues outside your own place of employment	U:	40	44	7	9
	S̄/H:	28	48	14	10
	N-S/H:	26	51	17	6
Professional meetings and symposia	U:	31	52	11	6
	S̄/H:	27	50	17	6
	N-S/H:	18	51	25	6
Journal and periodical literature	U:	63	32	2	3
	S̄/H:	61	33	4	2
	N-S/H:	58	34	6	2
Technical reports	U:	43	39	8	10
	S̄/H:	28	35	19	18
	N-S/H:	30	39	18	13
Books, Textbooks	U:	18	55	20	7
	S̄/H:	21	45	25	9
	N-S/H:	36	40	19	5
The Annual Review	U:	24	58	10	8
Preprints of periodical articles	U:	13	24	26	37
	S̄/H:	10	21	24	45
	N-S/H:	8	21	28	43
Reprints of periodical articles	U:	12	34	27	27
	S̄/H:	11	32	28	29
	N-S/H:	17	31	28	24
Abstracting/indexing	U:	28	40	17	15
	S̄/H:	29	28	21	22
	N-S/H:	30	25	20	25
Bibliographies	U:	22	25	20	13
	S̄/H:	23	36	22	19
	N-S/H:	26	34	25	15
"Other"	U:	2	1	0	97
	S̄/H:	2	1	0	97
	N-S/H:	8	2	1	89

Figure 14.   Importance of Various Information Sources

consider informal channels as important information sources--and the corroborating data (extensive authorship, and meeting attendance) indicate that these channels are indeed used more by users of the Annual Review than by non-users.

5.1.4   Incidental Characteristics of the Sample

For such a large-scale survey, and such a long questionnaire for Users, the overall response rate of 67%, as shown in Figure 15, is excellent. Response rates between 50% and 60% are normally expected for a sample of professionals like this one. The percentages of returned questionnaires appear to be inversely related to the length of the questionnaires. More persons in the Not-Seen/Heard group returned questionnaires than did those in the other two groups, probably because the Not-Seen/Heard questionnaire was the shortest.

About 60% of the respondents were males, this finding perhaps reflecting the membership characteristics of the organizations polled. The highest proportion of males was found among the Users, and the lowest in the Seen/Heard group. One explanation for this might be that the highest percentage of practicing librarians is in the Seen/Heard group, and the majority of practicing librarians are women.

QUESTIONNAIRE RESPONSE RATE:	User	Seen/ Heard	Not-Seen/ Heard
Received after first mailing	38%	45%	52%
Additional questionnaires received after second mailing	18	23	25
Total Response Rate (67%)	56%	68%	77%
Initial N =	1133	752	1113
28. Your Sex:			
Male	68%	56%	61%
Female	32	44	39

Figure 15.   Incidental Characteristics of the Sample

5.2   ACQUISITION OF ANNUAL REVIEW COPIES

The first question inquired into the ways in which respondents in the User group acquired copies of the Annual Review. (See Figure 16.) Responses to the question show that almost 60% of the readers used a copy that was more or less permanently available to them after they had put forth the initial effort to obtain it. Twenty-five percent of the Users borrowed the Annual Review through a library. This suggests that it is important to have the Annual Review easily available, for more effective use.

Another question (No. 2 on the User questionnaire) asked both Users and the Seen/Heard group how they first heard of the Annual Review. The responses point up some interesting differences between Users and Seen/Heard respondents. About half of the Users first heard of the Annual Review through an ADI (ASIS) channel--announcements sent through the mail or made at the 1966 ADI Annual Meeting, where Volume I was displayed and sold. Once information about the Annual Review was obtained from ASIS, some people were apparently interested enough to obtain the book. Almost 80% of these people were ASIS members. In contrast, only 14% of the Seen/Heard respondents first heard about the volume through ASIS information channels. They were much more likely to have heard of the book through a colleague, or a publisher's announcement or advertisement. One plausible hypothesis for the difference is that the Seen/Heard group is not greatly interested in information science. This group would, of course, contain relatively few ASIS members and would therefore hear about the Annual Review primarily through publisher announcements and advertisements in a variety of trade publications. The hypothesis receives support from the finding, reported earlier, that the Seen/Heard group includes more professional librarians and library service-oriented personnel than the other groups.

The data in Figure 17, which shows sources of Annual Review copies for people in different occupational settings, suggest that university personnel are likely to expand their personal libraries by purchasing the Annual Review, while employees of government and industry tend to rely on access to company-purchased copies. This is also shown by the fact that the company library is tha main source for the 31% who borrowed a copy and who are employed in industry. Approximately the same proportion of people in a university, in government, and in industry borrowed the Annual Review copy they used.

	Users	Seen/Heard
1. How did you obtain the Annual Review copy you have used?		
purchased a personal copy	31%	
used a desk or office reference copy purchased with company or staff funds	28	
borrowed it from an individual	6	
borrowed it from a university library	10	
borrowed it from a company library	15	
other	9	
no response, don't know, can't remember	1	
Total	100%	
2. How did you first hear of the Annual Review?*		
preliminary announcement of contract award	11%	4%
announcement prior to 1966 ADI Meeting	21	6
1966 ADI Meeting	17	4
journal advertisement	7	8
publisher's advertisement	7	16
colleague	12	8
book review	2	3
citation in a bibliography	1	2
library	4	5
bookstore	0	0
other, multiple response	8	6
no response, can't remember	10	38
Totals	100%	100%

*Question number 1 on the Seen/Heard questionnaire.

Figure 16.   Questions Concerned with Noticing
and Obtaining the Annual Review

EMPLOYER	Purchased a Personal Copy	Used an Office Reference Copy	Borrowed* a Copy	Other	Totals	N=
UNIV.	36%	17%	32%	15%	100%	175
GOV'T.	29	32	30	9	100	92
INDUSTRY	24	34	31	11	100	229
OTHER**	34	29	29	8	100	145

TOTAL NUMBER OF USERS = 641

*Borrowed from an individual, a university library, or a company library

**E.g., non-profit corporation.

Figure 17.   Sources of Annual Review Copies

5.3   EXTENT OF INTEREST AND READERSHIP

Before Volume I of the Annual Review was published, there was considerable
speculation by the editorial staff regarding the likely range of interests
of the audience and the extent to which a given user would read the Annual
Review. The hope, of course, was that not one but several chapters would be
of interest. Two questions, shown in Figures 18 and 19, elicited information
on this topic. Question 3 in Figure 19 was intended to yield information
that would determine the match between the Annual Review's coverage of topics
in information science and respondents' interests. (The chapter titles were
listed for Users and paraphrased for the Seen/Heard group.) Users cited an
average of five chapters they considered to be within their fields of inter-
est, while Seen/Heard respondents cited an average of four.

The Users' interest patterns appear to be different from those of the Seen/
Heard group. Users named the chapters on Library Automation and on Informa-
tion Needs and Uses as the two most closely related to their interests, while
the Seen/Heard group placed these third and ninth, respectively. The Seen/
Heard respondents considered the chapters on File Organization and on Infor-
mation Centers and Services the top two in their fields of interest. Both
groups considered the chapter on Automated Language Processing the least
germane to their fields of interest. Some caution is needed in interpreting
the rankings shown in Figure 19. In some instances (for example, in the area
of information needs and uses) the paraphrasing may have been less than ideal
and may have influenced the judgments in unpredictable ways.

Question 4 (Figure 18) examined the extent to which those in the User group
actually read the Annual Review. The responses indicate that Users read a
good portion of the volume. The median number of Annual Review chapters
read in detail was approximately four, while the median number skimmed was
also approximately four. Thus, the approximate number of chapters read and
skimmed by a typical User was eight. This might be an underestimate,
because some readers may not have had Volume 1 very long.

4. Of the above 12 chapters, how many have you:				
Read in detail?		Skimmed?		
none, NR	19%	none, NR		12%
one-two	23	one-three		25
three-five	34	four-six		35
six-nine	17	seven-twelve		28
ten-twelve	7		Total	100%
Total	100%			

Figure 18. Question Concerning Extent of Annual Review Readership

3. Even if you have not read or skimmed all chapters of the Annual Review, which ones do you consider to be within your particular area of professional interest?

	Users %	Users Rank	Seen/Heard %	Seen/Heard Rank
Professional Aspects of Information Science and Technology (Educational Programs and Trends in Information Science)*	47%	7	29%	9.5
Information Needs and Uses in Science and Technology (Behavioral Studies of Information Needs and Uses)	62	2	29	9.5
Content Analysis, Specification and Control (Analysis, Description and Indexing of Document Content)	39	9	51	4
File Organization and Search Techniques	58	4.5	60	1
Automated Language Processing (Automated Language Processing and Computational Linguistics)	25	12	20	12
Evaluation of Indexing Systems (Evaluation Studies of Indexing Systems and Terminology)	59	3	47	5
New Hardware Developments (New Hardware Developments for Information Systems)	33	11	34	8
Man-Machine Communication (Man-Machine Communication and Interaction Studies)	38	10	28	11
Information System Applications	57	6	42	6
Library Automation	64	1	53	3
Information Centers and Services	58	4.5	58	2
National Information Issues and Trends	45	8	36	7

*Some of the chapter titles were paraphrased for the Seen/Heard questionnaire, to aid respondents who might not be familiar with the Annual Review contents.

Figure 19. Question on Range of Interests in Annual Review Content

The relationship between reading and skimming is shown in Figure 20. The figure is read as follows: Of those persons who read 2 or fewer chapters in detail, 43% skimmed three or fewer chapters, 28% skimmed four to six chapters and 29% skimmed seven or more chapters. The 6% figure on the lower right hand cell suggests that some respondents, contrary to the questionnaire instructions, included the introductory chapter in their counts. Only by doing this could they have read six chapters in detail and skimmed seven more.

The most notable inference to be drawn from the figure is that medium reading is strongly correlated with high skimming; Users who seek specific information in the Annual Review are likely to skim much of the rest of the book.

Number of Chapters Read in Detail	Number of Chapters Skimmed			Total	N =
	3 or fewer	4-6	7 or more		
2 or fewer	43%	28%	29%	100%	269
3 - 5	24%	34%	42%	100%	218
6 or more	47%	47%	6%	100%	154
				Total No. of Users =	641

Figure 20.   Relationship Between Reading and Skimming

An alternate indicator of exposure to the book is the Read/Skim Index, Figure 21. The skewed distribution of responses for the Read/Skim Index (41% are in the highest category, which represents maximum reading and skimming) might suggest a possible misinterpretation of the question. Some readers may have mistakenly thought that the number of chapters read and the number skimmed should add to the total number of chapters in the Annual Review, and this would have caused them to be placed in the highest category on the Index. However, it is also plausible that Users who are motivated to be fully acquainted with the material in the Annual Review might tend to skim all chapters that they do not read in detail; thus, they might legitimately have read and skimmed a total of 12 chapters.

Additional comments on extent of readership are made in Section 5.6, which discusses the relationship between Annual Review readership and several other User characteristics.
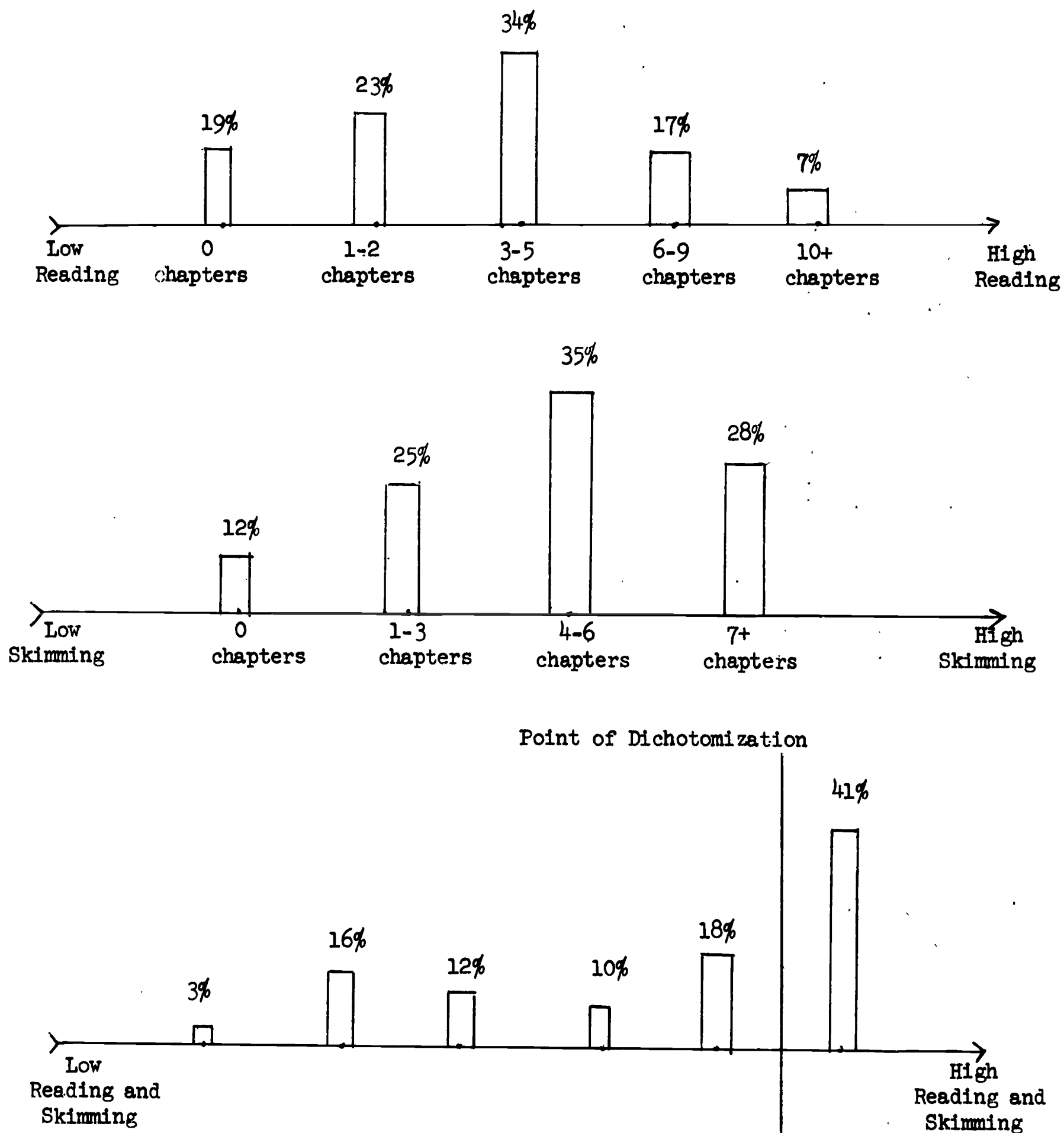
Figure 21.   Distribution of Responses for Reading,
             Skimming, and the Read/Skim Index

5.4   PURPOSES SERVED BY THE ANNUAL REVIEW

To find out how well the Annual Review serves reference, current awareness,and other important information functions, both a structured question and an open-ended "critical-incident" question were included on the Users' questionnaire. The critical-incident question ("For what purpose did you [last] use the Annual Review?") was asked first, to prevent response biases from the structured question. Figure 22 illustrates the coding scheme used for the critical-incident question, and response percentages for each branch. The responses indicate that the major professional uses of the book are for reference, browsing, information-seeking on a specific topic, and information-dissemination tasks, such as teaching and writing.

Replies to the structured question ("In general, how useful has the Annual Review been to you in serving each of the following [nine] goals?") followed similar patterns, as indicated in Figure 23. "Keeping up"--both in the respondents' own areas and in peripheral areas--was the use for which Users found the Annual Review most valuable. Another important use appears to be "learning," which is comparable to systematic, "topic-specific" information-seeking in the critical-incident question. Learning is implicit in other categories of the critical-incident question, too, such as "student use," "research task," and "browsing." In fact, the "learning" and "keeping up" motives suggest one basis for the strength of the browsing response (34%) observed for the critical-incident question. The Annual Review probably plays a major role in the continuing education of its readers--a role that was intended in the original planning of the book.

The use of the Annual Review for specific reference is not as prominent as its use for current awareness and learning, but it should be remembered that the survey dealt only with Volume 1. At this writing, Volumes 2 and 3 have been published; in all probability, use of the Annual Review volumes for specific reference has grown with the publication of the additional volumes.

Almost 40% of the Users find the Annual Review useful for "reading the original literature more selectively"--a result that clearly indicates the impact of the Annual Review. Other evidence of impact comes from the high percentages of Users who indicated that, after reading the Annual Review, they tried to obtain some of the publications cited and that they re-examined publications they had already read. (Section 5.7 provides a more detailed discussion of impact.)

Although replies to these two questions are quite similar, the response percentages cannot be strictly compared because of the differences in the wording of the questions: a reader may not have found his last use of the book to be particularly valuable. Readers undoubtedly use the Annual Review for additional purposes, which they may not have remembered as they answered the

"For what purpose did you [last] use the Annual Review?"

```
                                    PERSONAL USE          REFERRED TO OTHERS
                                       (97%)                    (3%)

                              PROFESSIONAL USE        STUDENT USE,
                                  (92%)               CLASSWORK (5%)

                    BROAD CUT (78%)              NARROW CUT (14%)

          SYSTEMATIC        BROWSING        CHECKING A        CHECKING A
          USE (44%)          (34%)          REFERENCE (8%)    FACT (6%)

   TASK-SPECIFIC    TOPIC-SPECIFIC (18%)
   (26%)

   RESEARCH TASK (7%)      INFORMATION              INFORMATION
                           DISSEMINATION TASK (18%)  SYSTEM TASK (1%)
```
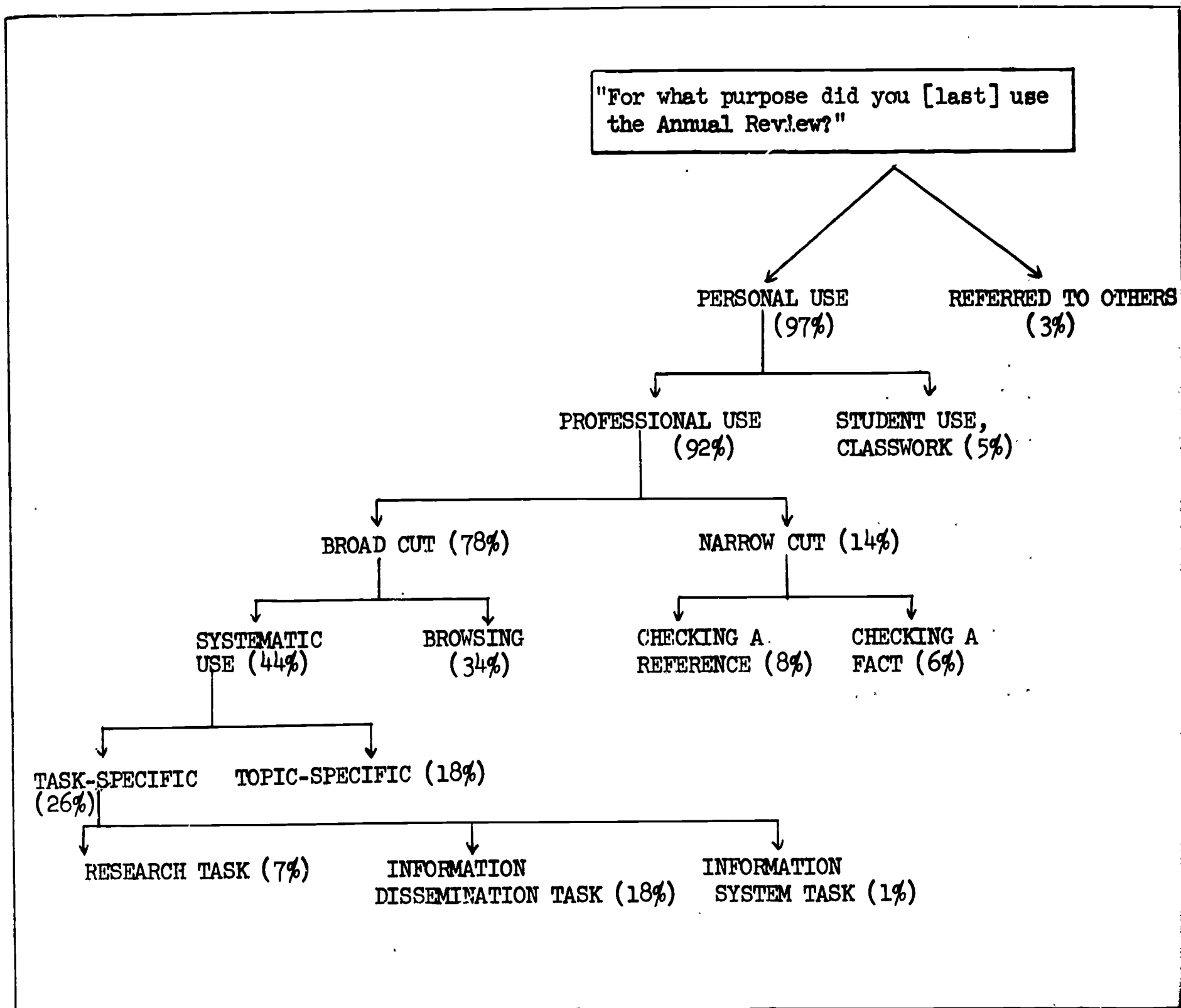
Figure 22.   Coding Scheme and Response Percentages for
             Critical Incident Question (N = 551 cases)

13. In general, how useful has the Annual Review been to you in serving each of the following goals?

	Very Useful	Moder- ately Useful	Of Little or No Use	Have Not Actually Used It for This Function Yet (+NR)		Totals
Keeping up with current work in your own areas of interest	33%	47%	8%	12%	=	100%
Keeping up with current work in peripheral areas of interest	35	39	6	20	=	100
Checking on particular projects or ideas	19	36	14	31	=	100
Checking on activities of individuals	5	17	16	62	=	100
Learning about an area not within your professional specialty	22	29	8	41	=	100
Reading the original literature more selectively	15	24	15	46	=	100
Identifying areas of information science that require further research	14	20	10	56	=	100
Allocating research and development funds more effectively	2	4	10	84	=	100
Other (please specify)_____	4	2	0	94	=	100

N = 641

Figure 23. Purposes Served by the Annual Review

questionnaire. Furthermore, many respondents probably had not found suffi-
cient time to use the book in many different ways by the time they replied to
the questionnaire.

Figure 24 elaborates the goals listed in Question 13 in terms of the Read/Skim
Index. One would read the figure this way: 32% of the 129 readers who found
the Annual Review of little use for keeping up in their own areas of interest
were high on the Read/Skim Index--i.e., they read and skimmed the book exten-
sively. The rest of those 129 readers (68%) were low on the Read/Skim Index.
The major conclusion to be drawn from Figure 24 is that the higher the useful-
ness indicated for each of the purposes, the higher the readership--a conclu-
sion that was to be expected. The relationship between readership and useful-
ness is statistically significant for all eight uses; however, the results of
the statistical tests do suggest that reading and skimming are "functional
equivalents" for some uses of the Annual Review. In order to "keep up," for
example, a User may skim some chapters of the Annual Review, and read others.

The eight uses of the Annual Review were cross-tabulated against the informa-
tion sources listed in Question 15 (See Section 5.1.3)--that is, colleagues,
professional meetings, journal literature, books, etc. The goal of this
analysis was to determine how the Annual Review is used by people whose
typical information patterns are print-oriented, colleague-oriented, etc.
For example, how would someone who relies on colleagues and professional
meetings as his main information sources use the Annual Review? Unfortu-
nately, no significant differences in use patterns were evident regardless
of typical use of any of the ten information sources. Since other studies of
information channel use indicate that use of an additional information tool
such as the Annual Review should make a difference in the way other information
sources are perceived and used, it seems possible that the questions asked were
not sufficiently sensitive to detect small differences.

One of the questions posed to respondents in the Seen/Heard group was designed
to parallel Question 13. As shown in Figure 25, these respondents would also
use the Annual Review predominantly for current awareness, rather than for
reference.

The analysis of two additional questions for Users, shown in Figure 6, was
limited to an inspection of the percentage results--i.e., no cross-tabulations
were performed. The results show the types of information obtained from the
Annual Review, and activities associated with use of the Review. Users most
often found information on ideas or theories and methods or procedures. The
fact that only 24% of the Users found information on results or data may ex-
plain why a major suggestion for improvement of the Review (discussed in Sec-
tion 5.8) was to provide more information on results of the studies that are
cited.

LEVELS OF USEFULNESS OF THE ANNUAL REVIEW FOR:	PERCENTAGE HIGH ON READ/ SKIM INDEX	PERCENTAGE LOW ON READ/ SKIM INDEX	N=
KEEPING UP IN OWN AREA			
Low	32%	68%	129
Medium	39	61	298
High	48	52	214
KEEPING UP IN OTHER AREAS			
Low	24	76	166
Medium	46	54	248
High	48	52	227
CHECKING ON PROJECTS			
Low	38	62	287
Medium	37	63	233
High	55	45	121
LEARNING			
Low	34	66	313
Medium	42	58	186
High	54	46	142
IDENTIFYING RESEARCH GAPS			
Low	37	63	427
Medium	47	53	126
High	50	50	88
CHECKING ON INDIVIDUALS			
Low	39	61	499
Medium	44	56	108
High	56	44	34
READING THE ORIGINAL LIT. MORE SELECTIVELY			
Low	40	60	387
Medium	39	61	155
High	47	53	99
ALLOCATING R&D FUNDS MORE EFFECTIVELY			
Low	40	60	599
Medium	54	46	28
High	57	43	14

Figure 24. Extent of Reading and Skimming, According to
Purposes Served by the Annual Review

Use of the Annual Review for "exchanging information with your colleagues" received the most responses in the "often" category of Question 14. These results are intriguing, because they suggest that the Review, which is an impersonal information channel, may also be used as an adjunct to interpersonal communication. Other activities frequently associated with use of the Review are writing reports, articles, and papers, and ordering documents.

In the future, for which purposes do you think you may use the Annual Review? *	Seen/Heard
keeping up with current work in your own areas of interest	66%
keeping up with current work in peripheral areas of interest	46
checking on particular projects, ideas, or activities of individuals	24
other	4

*Multiple responses were permitted, so totals will not equal 100%.

Figure 25.   Formatted Question to Seen/Heard Group
             on Anticipated Use of Annual Review

12   Have you obtained from the Annual Review itself information about
      any of the following?*

      ideas or theories   51%
      methods or procedures   50
      results or data   24
      an individual and his work   22
      a system   31
      a project   26
      'other'   4

14.   How often have you used the information you've obtained from the
      Annual Review for each of the following activities?

	Often	Some-times	Never(+ NR)	Total
Ordering documents or publications	6%	42%	52%	100%
Searching the literature as a service to others	3	29	68	100
Writing reports, articles and papers	9	43	48	100
Preparing lectures or speeches	8	27	65	100
Writing your own review of the literature	4	12	84	100
Preparing a bibliography or reading list	8	33	59	100
Exchanging information with your colleagues	10	46	44	100
Other	3	2	95	100

*Multiple responses permitted, so totals will not equal 100%.

Figure 26.   Additional Questions on Purposes Served by the Annual Review

5.5   CORRELATES OF PREVIOUS CONTACT WITH ANNUAL REVIEW-CITED LITERATURE

The variable "previous contact with cited publications," representing
familiarity with the publications cited in the Annual Review before reading
the Annual Review, is the sole indicator of a respondent's relationship to
the book's content prior to publication of Volume 1. Thus, it is the only
measure that can be used with any of the other variables to indicate the
impact, or changes, brought about by the Annual Review. (In contrast, there
are five measures of post-reading behavior, to be reported below.)

5.5.1   Primary Findings

Only 8% of the respondents to Question 5, below, had had "practically no"
contact with the cited publications; the rest of the respondents were able
to claim at least "some" contact (53%), if not more exhaustive contact
(38%). One can say, therefore, that 38% of the readers had had "high"
previous contact, and 62% "low" previous contact.

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5. About how many of the publications cited in the
    chapters within your particular areas of interest
    had you read before you saw them cited in the
    Annual Review?

NR	1%
practically none	8
some	53
quite a few	33
most	5
Total	100%

</div>

Figure 27. Previous Contact with Annual Review-Cited Literature

It is difficult to place any great confidence in the particular numbers obtained. They could be the result of a poorly worded question that did not adequately discriminate among respondents. The meaning of "some" contact is vague, and it is a very easy response to mark on the questionnaire. On the other hand, the question could be a good indirect measure and internal data check on the function of the Annual Review. If over half the readers in this survey actually were not very well acquainted with the current publications in the field of information science before reading the Annual Review, then their primary use of the Annual Review to "keep up" with the literature, as shown by other data, is understandable.

The desirability of a reader's having had extensive acquaintance with the publications cited in the Annual Review is another issue, probably dependent on the purposes for which it is read. Analysis of the data shows that the extent of previous contact is significantly related to only one purpose of reading the Annual Review: keeping up in one's own area of interest. Those with high previous contact tend to find the Annual Review much less useful for keeping up than those with low previous contact, although this tendency decreases with increasing number of chapters read. That is, the more chapters read, the more useful is the Annual Review for current awareness in one's own area--even with high previous contact. This is probably a manifestation of the value of the critique of the literature that the Annual Review provides. The role of extensive previous acquaintance with the cited publications is probably also a function of the extent to which Annual Review chapter authors offer brief, evaluative (rather than reportorial) comments about the publications. If the literature in information science keeps expanding to the point where some of the studies of moderate importance cannot even be mentioned (for one reason or another) by Annual Review authors, and in addition the authors write very briefly about each one of the very important studies or developments, it may become vital for readers to have extensive previous contact with the publications cited, in order for them to benefit at all from the book! This, in turn, limits the effectiveness of the Annual Review as a teaching or orientation tool.

While the worth and function of high previous contact with cited publications may not yet be evident, it is certainly apparent that previous contact does not serve as a deterrent to extensive reading and skimming. Figure 28 shows that those with low previous contact with cited publications have a strong tendency to be low on reading/skimming behavior, while those with high previous contact are as likely to be low as they are to be high on the index. Although this can be interpreted as an artifactual correlation between the "aided recall" provided by reading the Annual Review and recognizing cited publications, it is equally likely that the apparent consequences of high previous contact could be explained by personal attributes such as job activities, information-use activities (such as journal readership), or normal information-source patterns. These are discussed in the next section.

	Previous Contact with Cited Publications	
Read/Skim Index	Low	High
Low	62%	49%
High	38	51
Totals	100%	100%
N =	400	241

Figure 28. Annual Review Readership in Relation to Previous Contact with Cited Publications

5.5.2   Relationships between Previous Literature Contact and Other Personal Attributes

There is no change in the previously reported tendency for Users with little previous literature contact to be low on Annual Review chapter readership, as measured by the Read/Skim Index, when the six job activities that are best represented among Users are considered.* However, for Users with "high" previous contact, the 49-51 split on the Read/Skim Index does change for some activities. Being involved primarily in library reference activities seems to make a difference; the split is 57-43. For those with high previous contact, those naming "research" activities also tend to be significantly lower on readership than those not in research. This is not too surprising. Researcher personnel tend to be rather specialized in their interests, and it is possible that no more than two or three chapters in the Annual Review will be of direct interest to active researchers.

_____

*Hypotheses regarding a relationship between two variables are tested by the addition of a third, or control, variable to the cross-tabulation. If the basic direction of the relationship changes substantially, then the relationship is said to be spurious. If the trends in the original table remain the same, then the relationship is not spurious, and the hypothesis is not rejected.

Being involved in design/development, management and administration, and consulting does not seem to affect the original relationship between "high" previous contact and readership. Finally, writers and editors with high previous contact are significantly higher readers/skimmers. An explanation for this might lie in the nature of the activity itself: writers may be active readers by nature.

There is also a relationship between previous contact with cited publications and various kinds of information-use activities. Attendance at three or more professional meetings, and presentation of even one paper at a meeting, pushes those with high previous contact in the direction of high reading/skimming behavior. Even though these data are significant by the chi-square test, they do not support an inference of any causal relationship. Since we have no actual knowledge of the time order of these three variables, the use of reading/skimming behavior as the dependent variable is arbitrary. Nevertheless, the three do provide an interesting correlation, interpretable as a high general activity level in these respondents' information-use behavior.

The relationship between previous contact and reading/skimming level seems to be a function of the particular information sources involved. Of the Users with high previous contact who consider colleagues within their organizations and professional meetings to be "very important" information sources, slightly more than half are high on the Read/Skim Index. Other study data would have led one to predict almost a 50-50 split. Although these changes suggest that interpersonal communication is a factor in prompting one to read the Annual Review, they are really too slight to be given much importance. A slight and equally insignificant change in the opposite direction is evident for Users who consider preprints to be very important information sources. Their high previous contact with cited publications, presumably as a function of their reading of preprints, tends to make only 43% of them high on the Index, instead of 51%. Similar small changes were evident for Users with low previous contact for whom technical reports, reprints, and abstracting or indexing services are important information sources. Again, these changes would need further analysis to explain their significance (if any) for understanding the original relationship between previous contact and reading/skimming.

5.6   RELATIONSHIP OF ANNUAL REVIEW READERSHIP TO OTHER USER
           CHARACTERISTICS

5.6.1   Number of Years in Information Science

As indicated earlier (Section 5.1.2), all of the questionnaires asked "How
many years have you worked in the field of information science--i.e.,
documentation, library science, information systems research, or related
fields?" The resulting data for Users were also shown earlier, in Figure 11.
Since the median of the response distribution falls very close to the ten-
year point, the distribution was divided at that point. To investigate
the relationship between this "professional age" variable and the Read/Skim
Index, the two were cross-tabulated. The results, which are shown in
Figure 29, indicate that Users who had worked in the information science
field for less than 10 years tended to use the book less than those who
had been in the field longer.

		Number of Years in Information Science	
		< 10	≥ 10
Read/Skim Index	Low	63%	55%
	High	37%	45%
	Totals	100%	100%
	N =	343	298

Figure 29.   Relationship between Annual Review Readership
             and Professional Age

There are several possible explanations for this finding. One is that new-
comers to information science do not yet have the breadth of interest and
experience to warrant reading (or skimming) of many different chapters.
Because of the way the Annual Review is prepared--with a fairly experienced
professional audience in mind--newcomers are unlikely to be equipped to use
it effectively. Another related possibility is that those with more experi-
ence in the field may have roots in the peripheral and parent fields from

which information science has grown and, therefore, need the critical-review
or orientation-to-new-literature aspects of the Annual Review to keep up in
their specialties. Additional analysis supports the latter explanation:
the majority of Users with more experience who found the Review "very useful"
for keeping up with the literature are indeed high on the Read/Skim Index,
i.e., they read a great deal of the Review. And of the respondents with
more experience and who valued the book for orientation or learning about
peripheral areas, 70% were high on the Index--a considerable increase from
the 45% that would be expected on the basis of the results shown in Fig-
ure 29.

5.6.2   Primary Job Activities

To investigate User characteristics that might influence readership of the
Review, a cross-tabulation was made between the Read/Skim Index and the
five job activities with the highest response percentages (management/
administration, design/development, research, library reference, and
consulting). Only two significant differences among readers who spend any
portion of their time in the five activities were found. Those in
consulting tend to be heavy users of the Annual Review, while those in
library reference work tend to use the Annual Review less than average.
Both of these trends seem easy to explain. Consultants have to read
extensively to maintain their competence in any given field, while
librarians, whose daily work is not "information science," may find that
the Review is too "academic" for their purposes and are therefore discouraged
even from skimming it.

5.6.3   Importance of the Annual Review as an Information Source

The goal of this analysis was to determine how important the Annual Review
is to different kinds of readers. Figure 30 is the result of cross-
tabulating the Read/Skim Index by one part of question 15 for Users, the
importance of the Annual Review as an information source. The figure
shows that importance is positively related to readership. The figure
could be interpreted in two ways: the greater the perceived importance of
the Annual Review, the more it is read; or, the more it is read, the more
important it becomes to the readers. The data provide much greater support
for the latter interpretation. The experience of Users could have discon-
firmed the expectation that the Annual Review would be valuable, but it did
not.

Read/Skim Index	Importance of the Annual Review as an Information Source				
	Very Important	Moderately Important	Not Important	Totals	N =
Low	18%	62%	20%	100%	380
High	32	53	15	100	261

Figure 30. Relationship between Annual Review Readership and Judged Value of the Review as an Information Source

5.7   IMPACT OF THE ANNUAL REVIEW

As indicated earlier, it is necessary to obtain data over a period of time to determine what impact a particular technique or tool has had on professional communication. In a sense, all of the data obtained in the present survey serve primarily as baseline data against which later data can be compared, to provide a true measure of impact. Nevertheless, some conclusions about the impact of the Annual Review can be drawn on the basis of the questionnaire items.

One way to measure the impact of the Annual Review is to note the information-seeking behavior it prompts. Questions 6 through 10, shown in Figures 31 and 32, sought to assess the Users' behavior toward the publications cited in the Annual Review. Over 90% of the Users reported (Question 5, Section 5.5) at least "some" contact with the publications cited before they read the book; yet more than half examined some of these publications again, as shown by the data from Question 6 in Figure 31. Various reasons were indicated (Question 7, Figure 31, below), the most frequent being simply to "review details." It is an interesting and important finding that 20% of those who re-examine a publication as a result of reading the Annual Review do so to re-evaluate it in the light of an Annual Review author's comments. Although one cannot prove, from the data, that the re-evaluation was rewarding and productive, this is a reasonable supposition. Some support for this belief comes from the responses to Question 8. Over half of the Users tried to obtain Annual Review-cited publications that they had not seen before. This would certainly seem to indicate acceptance of the Annual Review chapter authors as authoritative guides to valuable literature.

6. Did you examine any of these publications again as a result of reading the Annual Review?
    Yes: About how many did you examine again?

1 - 5	29%
6 - 10	15
11 - 15	5
16 - 20	2
21 - 30	1
more than 30	1
No, NR, none	47
Total	100%

7. If you have examined any of the publications again, what were your reasons for examining them? To:

	Yes	No	Totals
review details you'd forgotten	30%	70%	100%
re-evaluate a publication in light of an Annual Review author's comments	20	80	100
cite a publication or use the information in a report, review, or article of your own	19	81	100
obtain information on other works by a publication's author	5	95	100
other	3	97	100

8. After reading the Annual Review, have you tried to obtain some of the publications cited in it that you hadn't read before?
    Yes: About how many?

1 - 5	31%
6 - 10	15
11 - 15	5
16 - 20	2
21 - 30	1
more than 30	1
No, NR, none	45
Total	100%

Figure 31. Behavior Toward Publications Cited in the Annual Review

9. As a result of reading the Annual Review, have you tried
    to contact any of the authors mentioned for information
    regarding their current work?

        Yes   10%
        No, NR   90%

10. Has the Annual Review itself ever suggested to you
    specific ideas for future research projects or studies?

        Yes   45%
        No   55%

Figure 32. Additional Effects of Annual Review Readership

Additional corroboration of the stimulative effect of the Annual Review
comes in the responses to Questions 9 and 10 (Figure 32). Ten percent of
the Users tried to contact cited authors, as a result of reading the Annual
Review. This seems like a rather remarkable amount of personal contact for
a publication to trigger. It would be most interesting to see how this
figure changes over time.

The responses to Question 10 also provide something of a surprise, with 45%
of the Users reporting that the Annual Review suggested to them specific
ideas for future research projects or studies. It would be of some interest
to learn whether reading the Annual Review suppressed some previously
developed research ideas by indicating either that the problem involved
was already being worked upon extensively or that it was much more difficult
than the reader had supposed. Answers to such questions must await another
survey opportunity.

Some other interesting relationships are apparent from the data. The
analysis summarized in Figure 33 shows that those with high previous contact
with cited publications have a greater tendency to re-examine publications
and to contact mentioned authors than do those with low previous contact.
On the other hand, they are somewhat less likely to get specific ideas for
future research. The difference is small (only five percentage points),
but it is not in the direction one might expect.

	Post-Reading Behavior			
	Re-Examine Publications	Seek New Publications	Contact Authors	Contemplate Future Research
Previous Contact with Cited Publications				
Low	47%	55%	8%	47% N=400
High	61	55	12	42 N=241

Figure 33.   Amount of Previous Contact with Cited Publications
Among those Active in Post-Reading Behavior

Figure 34 elaborates these results by presenting some particularly clearcut
and revealing trends for users at different levels of readership. The
conclusions are that as total readership increases, so does every form of
post-reading behavior. This strong correlation of reading with important
post-reading behavior suggests that the Annual Review, even in its first
volume, had fulfilled one of its goals: to stimulate productive activity
in information science.

Post-Reading Behavior

Chapters Read in Detail	Re-examine Publications	Seek New Publications	Contact Authors	Contemplate Future Research	
Low (0-2 chapters)	39%	37%	6%.	35%	N=266
Medium (3-5 chapters)	57	62	9	52	N=215
High (6-12 chapters)	69	73	16	52	N=160
				(Total Users = 641)	
Read/Skim Index					
Low	46	47	8	39	N=380
High	62	65	11	54	N=261
				(Total Users = 641)	

Figure 34.   Readership Among those Active in
Post-Reading Behavior

5.8   USER SUGGESTIONS FOR IMPROVEMENT

5.8.1   Future Changes in the Annual Review

Users had several opportunities to offer suggestions for changes and
improvement in the Review. Two questionnaire items, shown in Figure
35, invited comments.

16. If one chapter of the Annual Review were to be published
    each month instead of collecting the chapters in book
    form annually, how do you think the value of the Annual
    Review would change? A different chapter each month
    would be:

less useful	52%
equally useful, multiple response	17
more useful	25
NR	6
Total	100%

WHY?

17. In the future, what aspects of the Annual Review might
    be changed to make it more useful?

    (This question was coded separately. Response
    percentage = 34%)

Figure 35. Questions Eliciting User Suggestions
            for Improvement

Answers to the free-response portion of Question 16 were not classified
into different categories, because the question apparently was ambiguous
to some readers. (See Section 4.4 for discussion of the coding practice
adopted for data analysis.) However, the responses are still of some
value.

Reasons given for thinking that a monthly chapter would be more useful were
that the chapters would be easier to file and retrieve later and that
they would save reading time (both of these were also listed as reasons
for preferring an annual volume!); that it would be easier to absorb the
information in a monthly chapter; and that a monthly chapter would be more
current and would reduce the publication lag.

Respondents who preferred the annual volume cited its usefulness as a bound, collective review that surveys the entire state-of-the-art and that reassures them that they have missed nothing important in their areas of interest during the year. These respondents also appreciated the fact that the Annual Review is an edited review, with index and bibliographies, and that, as a bound volume, it is more permanent.

The response rate for Question 17 was 34%, or 220 responses. Figure 36 shows the response categories, which were developed by inspecting all the answers and then classifying the responses into the six classes shown in the figure.

Some of the ideas expressed in these suggestions had already been taken into account in the preparation of Volume 2, which was published approximately one month after the survey was initiated. Others have been implemented in later volumes. For example, regarding style of writing, authors are regularly encouraged by the Editor to make their descriptions of studies informative, rather than merely indicative, and to supplement their descriptions with an appraisal of the significance of the work described and its relationship to other work. This guidance is re-inforced during the process of reviewing and criticizing the first-draft manuscripts.

With respect to content, each volume has seen changes in coverage, with an eye to providing a better mapping of the domain of information science. For example, in lieu of a broad-brush treatment of "Information Systems Applications" in Volume 1, separate chapters have appeared in later volumes on applications in chemical documentation, in medicine, and in education.

The interest in "better organization" is comparatively strong but not easy to respond to. Organization has been improved in Volumes 2, 3, and 4 by capitalizing on the experience with Volume 1 to make clearer divisions among the chapters and to place them in the most logical sequence. Some effort has also been made to provide coordination among the chapters, although their nearly simultaneous completion each April precludes any really detailed cross-chapter comparisons.

Access tools have been improved since Volume 1. More sources of publications are given and plans are under way to develop a cumulative index to Volumes 1 through 4. No plans have been made, however, to include price information in the chapter references, since this information is not uniformly available to the authors.

The publication cycle has been shortened; Volume 3, covering all of calendar year 1967, was available before September 20, one month before the annual ASIS convention. The third volume also introduced a new type-face, designed especially for the Annual Review series.

Suggestion	Frequency of Mentioning
Style of Writing	
1. Authors should be more critical	7%
2. Authors should give more detailed information, e.g., results of studies	12
Content of Volume	
3. Review should reflect all that is going on in information science (even though information science is still in a formative stage)	4
4. Specific chapters (named) should be added	16
5. Specific chapters (named) should be deleted	1
6. Review should include a summary of work in progress	3
Organization of Volume	
7. Material should be better organized	12
8. There should be better coordination among the chapters, with more comparison	14
Tools for Access	
9. Sources of cited publications should be listed	2
10. Prices of cited publications should be given	1
11. Provide new indexes, appendices, combined bibliography	7
Mechanics of Production	
12. Publication cycle should be changed, e.g., so book would be available before the ASIS convention	10
13. Typography should be improved	2
Miscellaneous	
14. Price of the Review should be changed	2
15. (Compliments, e.g.,"I like it the way it is")	7
Total	100% N=220

Figure 36. Suggestions for Improving the Annual Review

The price of the Annual Review is not subject to editorial control,
except in the sense of limiting the number of pages that will be permitted
for each volume. Fairly strict page limitations were used for Volume 3,
to meet a maximum acceptable price agreed upon between ASIS and the
publisher.

Survey respondents and ASIS members had additional opportunities to
provide feedback on the Review at informal group discussion sessions and
in personal interviews. Group discussions and personal interviews were
held with about 20 Users at the October 1967 ADI Annual Meeting in New
York, and at a meeting in Chicago at Encyclopaedia Britannica, also in
October 1967. These Users were invited to indicate how they used the
Review and to offer suggestions for improving it. The uses of the Review
listed by respondents in this small subsample were essentially the same
as the uses listed on the questionnaire. The suggestions from these
discussions for improving the Review include making the cited publications
more easily available and including more detailed information (such as
study results) in the chapters.

A "Feedback Forum" with the Editor of the Review and staff members was
held at the 1968 ASIS Annual Meeting in Columbus, Ohio, and numerous
suggestions for improvement were discussed.

One person was concerned over the relatively weak coverage of the
secondary services in Volume 3 and the planned Volume 4. She conceded
that secondary services and facilities were touched upon in several
chapters of Volume 3 but felt that it would be more desirable to cover
them in their own right, even on a bi-annual basis, than to "bury" the
mentions in various other chapters.*

One person questioned whether an annual review was necessary in the
information science field. She argued that advancement is very slow and
that there are few "real" developments. Several members of the audience
commented that, even if true, this situation would not necessarily reduce
the need for a synthesis of what was being done in the field. The same
person also went to considerable pains to describe the difference between
the highly selective, critical, penetrating type of review aimed at only
the "front-of-the-wave" workers, and the more descriptive, superficial,
tutorial review with wider coverage of material. She was most interested
in the first kind and thought it a waste of time to try to get exhaustive
coverage. There was dissenting opinion from the floor, and the chair

---

*A subsequent outcome of the meeting was the decision to add a short
chapter on the Secondary Services to the current Volume (4).

pointed out several other use goals of the Annual Review and cited the survey results to indicate that the Annual Review served many goals for many people. Someone suggested that the Review should include both critical and tutorial chapters, and this was ignored, by all hands.

There was also considerable discussion on the overlap in coverage among the chapters. One person was annoyed by the overlap; others felt that it was inevitable. One person suggested that the Editor would be derelict if all overlap were eliminated, presumably because very few persons read every chapter of the Annual Review. Thus, each chapter has to be relatively self-contained, even at the risk of some overlap with other chapters.

There was considerable sympathy for the idea, expressed by one member of the audience, that adding some kind of overview chapter would improve the Annual Reviews. While a brief introductory statement preceding each chapter might provide part of the inter-chapter linkage that appeared desirable to the audience, more of them felt that a single chapter would be preferable. The Editor pointed out the implications for the production schedule of adding a final overview chapter, to be prepared after all of the other chapters were completed, and it seemed clear that most members of the audience would not be as much in favor of an overview if it meant introducing a substantial delay in the availability of each volume. The suggestion that the overview of Volume 3 appear in Volume 4 did not meet with much enthusiasm.

A related suggestion, ardently advocated by one member of the audience, was for the inclusion of "rapporteurs" for each chapter. These would be high-status persons (persons who could "speak with authority from another viewpoint") who would be asked to do short papers, to appear at the ends of each chapter. There would be no opportunity for rebuttal from the author. Two or three former chapter authors joined in vigorously to object to the idea, one in particular indicating that this procedure would be an excellent way to dry up the supply of chapter authors. The Editor pointed out the scheduling difficulties this suggestion would impose, indicating it would not be possible to maintain the present production schedule, which is the shortest he is aware of for an annual review.

Other suggestions included using previous authors as additional reviewers for current chapters; providing the authors with on-line editing capability; putting the chapter references at the end of the volume, presumably to eliminate duplication of entries; and adopting "more flexible scheduling," so that chapters would not be planned until it was known what literature had been produced during a given calendar year.

All of the suggestions will be discussed with the ASIS Advisory Committee, for their possible value in planning future Annual Reviews.

5.8.2   Nonformattable Responses in the "Other" Categories

A different form of feedback was the non-structured responses in the "Other" category of several questions. The incidence of these responses was very small, and almost all of them could have been classified into the structured categories. Most responses that could not be so classified reflected a misinterpretation of the question. The "Other" categories of Questions 13 and 14, discussed earlier, in Section 5.4, provide examples of this misinterpretation. Questions 13 and 14 attempted to separate purposes for using the Annual Review from activities associated with using the Review. Both questions provided an "Other" category. The responses in this category for both questions, however, seemed to confuse purpose and activities. For instance, "learning" and "general background" were two responses to Question 14, which asked about activities associated with use of the Review. Some amount of such confusion is probably an inevitable result of any initial survey, and it is fortunate that there were few responses in the "Other" categories in this survey.

A rather unusual response in the "Other" category for Question 13 was use of the Review "to assess the competition." If this response had had to be categorized, it could have been placed in the "current awareness" category, but it is much more intriguing just by itself. This response suggests that the Review, which is an impersonal information channel, was used, in part, as a substitute for an interpersonal channel, such as professional meetings, which are often used to assess the activities of competing organizations.

6.　　　DISCUSSION

6.1　　ROLE AND IMPACT OF THE ANNUAL REVIEW

Many previous studies of professional communication have pointed to the impor-
tance and high use of review literature. The results of the present study,
dealing with a particular form of review literature--an annual review--confirm
and extend the previous findings. Readers of the <u>Annual Review of Information
Science and Technology</u> find it useful for many different functions. This in
itself makes it a rather unusual information tool. A textbook provides orien-
tation to a field; a journal article usually conveys information about a
particular new concept or activity; bibliographies, particularly selective
ones, point to useful literature. The Annual Review serves these and other
equally important functions--particularly, critical evaluation--in a single
package.

Evidence has been described that Users of the Annual Review engaged in such
post-reading behavior as reexamining cited publications that they had already
seen, seeking new publications cited, and attempting to contact authors cited
in the Annual Review chapters. Users also reporting getting new ideas for
research as a result of reading the Annual Review. All this is clear evidence
of extensive impact. The fact that the Annual Review does not appear to reduce
the use of other information channels--Users have not given up reading the
primary literature--is not a deficiency but an asset. Evidence from user
studies indicates that, except in some rare instances, use by scientists of
one information channel does not displace use of other channels. Rather, the
greater use of one channel leads to greater use of the other channels, too.
The ERIC system, which one might suppose is in some way subversive to journal
use, may actually enhance it. All information channels have something of a
"synergistic" effect--they interact and mutually reinforce each other. This
effect seems to be particularly strong for those channels, such as annual
reviews, that point toward other information channels. The Annual Review
seems to stimulate, not displace use of these channels.

This study found the impact of the Annual Review to be high. Now, it was
mentioned earlier that persons who are aware that their behavior is being
observed, as they were in this survey, tend to modify it--or to modify their
reports about it--to accord with their surmises about an experimenter's motives
and values. Since their surmises may have colored some of their answers, it is
possible that the high impact found should be partially discounted. On the
other hand, the time available for the Annual Review to even have been heard of
before the survey was relatively short; that it was rather widely known, and
that those who reported using it found it as useful, for as many purposes, as
they did, suggest that any inflation in the answers to the questionnaire is
probably offset by the brief exposure on which the survey was based. It can be
concluded, therefore, that the Annual Review's impact was in fact not only high,
but remarkably swift. Beyond that, it can be assumed that its impact is now
much greater than it was at the time of the survey, not only because of the

greater time that has elapsed, but also because the three volumes that now exist support a reference use that was necessarily limited when only one volume was available.

There is another reason to assume that the impact of the Annual Review has grown. Those readers who made suggestions for improvements touched upon a number of changes that, in their opinion, would make the Annual Review more useful. Many of those changes have been made, and it is reasonable to suppose that they have helped to increase both effectiveness and impact.

Some of the changes that were suggested, such as that of making the Annual Review more tutorial are, in effect, suggestions to deliberately change the type of impact the Annual Review seems to have had and to make it effective for quite another audience than the one that seems to have found it effective thus far. These changes, of course, involve some serious risks. If one were to draw a curve representing the professional-activity level, or the contri- bution of various information of scientists and specialists, the distribution would in all likelihood be skewed. There would be a very few highly active and influential contributors, a large number of somewhat less active contri- butors, and a still larger number of even less active contributors. Finally, there would be a very large number whose contributions to the field, because of their limited experience, opportunity, or talent, are quite small. The latter group is the one that might benefit most from a tutorially oriented annual review publication, and thus it is tempting to adopt such an orientation, not only to serve an educational goal but also, perhaps, to tap a broader market. One needs to say "perhaps" because some user studies suggest that a not insignificant proportion of the largest group displays "information apathy"; because of their work situation or personal goals, they do not seek out infor- mation and they tend to ignore it even when it is readily available. Even if a much less technical and sophisticated treatment--one, in fact, that would be of very limited use to the smaller group of energetic and conscientious pro- fessionals whose activities are most likely to help accelerate the growth and advancement of the information science field.

One way to minimize the market-limiting effect of a sophisticated, or fairly sophisticated, annual review treatment is to give close attention to what are termed the presentation attributes of the book, i.e., the attributes other than content. One can, by careful choice of formats, typeface, graphic displays, and even paper stock, increase the attractiveness and inviting qualities of a book without compromising the quality of its technical content. It is also possible to increase the inviting qualities of the book by including an intro- ductory chapter that, by previewing highlights or summarizing major trends, encourages further reading of the book. An introductory chapter need not, of course, alter the content of the remainder of the book. A number of readers have suggested such a step, and it is under consideration.

6.2   METHODOLOGICAL IMPLICATIONS OF THE STUDY

The point has already been made that the present study was concerned with both
impact and effectiveness. One reason for not limiting the study to impact
measures was that there were very few such measures that one could hope to
obtain with the very narrow time base involved in this study—less than one
year. It is, in other words, too early for an accurate assessment to be made
of the impact of the Annual Review on professional communication.

A second, equally important, reason for being concerned both with impact and
effectiveness is that the two are interrelated and may interact in several
important ways. Consider, for example, a new text that is highly readable,
well organized, and attractive, but that is technically glib and superficial.
Such a text may drive texts of much higher technical quality right out of the
market. In such a situation, one would consider the new text to have high
impact but poor effectiveness, if we define effectiveness in terms of advanc-
ing the field of inquiry. On the other hand, there may be some publications
that are highly effective but have little impact because their limited sales
make them very difficult to obtain and use.

The ideal kind of appraisal of a communication tool is one in which the effec-
tiveness of the tool itself is examined before examining its impact on other
communication tools or channels. Such an appraisal procedure helps to ensure
that judgments about the actual or potential impact of the tool take into
account the distinctive characteristics of the tool being assessed. Some
annual reviews severely discourage the citation of unpublished reports; others,
including the Annual Review of Information Science and Technology, encourage
their use, to provide a richer and more current literature base for the analysis
of progress. The Annual Review also gives painstaking attention to technical
and bibliographic accuracy, through a complex reviewing mechanism; some other
annual reviews consider the quality of the chapter contributions to be entirely
the concern of the authors and accept the contributions very much "as is."
Obviously, one should know the characteristics of the particular annual review
publication being studied, to interpret or generalize findings regarding its
impact.

The data from this survey are not only rich with respect to the impact of
Volume 1 of the Annual Review; they also provide a good baseline for future
studies of the Review's impact. This first study provides a valuable "before"
measure of impact, so that changes over time can be determined by periodic
measurements. Because the data are so rich, it should later be possible to
perform a number of secondary analyses, i.e., additional analyses of the same
variables, but with a different focus. The new publishers of the Annual Review,
Encyclopaedia Britannica, have used pre-publication order forms for Volume 3
that also offer Volumes 1 and 2 to the buyer. By matching the names and
business affiliations of people who have ordered Volume 3 with the names and
business affiliations of survey respondents, one can identify appropriate

samples on which various other kinds of pre- and post-reading behavior can be examined.

From a methodological point of view, the survey was very successful. The response rate (67%) was surprisingly high. The size of the sample, and the response rate, permitted a sound analysis of the data. Each of the three groups was large enough that the results of the cross-tabulations could show trends clearly. The comparison of Users, Seen/Heards, and Not-Seen/Heards proved to be a useful design for the study because the latter two groups could serve as control groups. And although the findings of the survey cannot be generalized to apply to all information scientists, they are likely to be true for most members of ASIS.

When the study is repeated, one will certainly wish to make some changes in the questionnaire. The questions that permitted free responses might be modified to make them easier to code. For example, the critical-incident question ("For what purpose did you [last] use the Annual Review?") might be re-worded so that the environment and activity associated with the last use of the book might also be determined. Also, a follow-up question to the critical-incident question might probe further the browsing use of the Review that emerged from this question. Browsing is an important adjunct of information-seeking and information use, and interesting and/or useful information is often found by browsing through a book like the Review.

The rate of non-response for each question varied widely. This may have been due to laziness, impatience with the questionnaire, misunderstanding of the question, lack of information, or lapse of memory. The questions that elicited a high non-response rate in this study should either be deleted from future studies, or re-worded.

It would also appear desirable, in the future, to adopt somewhat less obtrusive measurement procedures than were involved in the present study, so that the risk of having respondents second-guessing the questionnaire can be avoided. The way to avoid it is to use less obtrusive measurement procedures, such as counting sales, citations, and/or instances of library use of the Annual Review.

The questionnaire data were collected in the Fall of 1967. It seems highly desirable to schedule the first follow-up for the Fall of 1969, after the fourth volume in the series is published. The sample should include some of the same persons--Users and non-Users--involved in the initial survey; it should also involve a number of persons not previously included in the survey. Whatever the experimental design, the data initially obtained should be regarded as a valuable resource in a thus far unique inquiry into the role of annual reviews in professional communication.

6.3   IMPLICATIONS FOR SPONSORSHIP OF ANNUAL REVIEWS

The general finding that review publications are widely and increasingly useful,
and the finding from this study that an annual review publication can be a
powerful stimulant to professional communication, have an important implication
for professional associations, publishers, and organizations that sponsor
scientific and technical research. It is that annual reviews may have enormous
potential for advancing the field of inquiry and should, where possible, be
encouraged and supported.

When is an annual review desirable? Presumably when the literature of a field
has grown to such a size that it is difficult or impossible for most of the
active and conscientious professionals to keep fully in touch with developments.
In practice this condition is not easy to identify because the characteristics
of a "field" are not well understood. One cannot easily tell whether a given
range of activities constitutes a single field or clusters of unrelated sub-
fields. Some clues can be gained by such techniques as examining the inter-
citations among the journals supported in a "field"; the more the inter-
citation, the more one is justified in considering the activities as repre-
senting a single field. Yet, an annual review may _itself_ be able to accelerate
the development of a cohesive field from fragmentary subfields by facilitating
contact with the literature of other subfields and, thus, encourage the recogni-
tion of related activities in these subfields. There is some reason to believe
that the Annual Review may be having some such effect in the field of informa-
tion science, which, only a few years ago, was considered a field by many fewer
people than the number that are now willing to regard it as such.

In spite of the difficulty of providing any precise answer to the questions,
"When is an annual review desirable?", there are some situations in which the
decision that it is desirable is justified. The most obvious is that in which
a large number of professionals--perhaps upwards of 3,000--are not served by
any existing annual review. Using this standard, there are obviously several
fields that are overripe for an annual review (or for more annual reviews).
Education is a prime example. On the other hand, fields or areas such as com-
putational linguistics are not ready, because the practitioners are few, the
literature is sparse and, as yet, manageable, and the rate of change is not
particularly rapid. Such areas may well be served by chapters in more wide-
ranging annual reviews until the growth of the area warrants a separate annual
review.

Some annual reviews have been developed as commercial enterprises by private
publishing concerns. Others, like the Annual Review, have been developed with
subsidies from the Federal Government. Should annual reviews be subsidized,
and, if so, for how long? Again, no clear answer can be given--certainly not
from the present study. The Annual Review of Information Science and Technology
was probably supported because the Federal Government has a substantial stake
in more effective information processing and professional communication, and

because the field was not commercially attractive to any publisher of annual
reviews. Most of the funds provided by Government agencies to new publica-
tions are regarded as "seed money," and are proffered with the more or less
explicit expectation that the publication will become self-supporting in a few
years. The present study certainly confirms the wisdom of helping to initiate
the Annual Review: the series has stimulated and will undoubtedly continue to
stimulate professional communication and will thus help to accelerate technical
progress, to the benefit of the Federal Government and the information com-
munity as a whole. The study also raises some interesting questions about the
effect of pressure toward self-support. Such pressure is obviously necessary:
there are more potential annual reviews and other publications than could
easily be supported with Federal funds, and eventual self-support must be
encouraged. Yet, if too precipitous a rate of movement toward self-support
is demanded, it can be achieved only by the adoption of quality-diluting short-
cuts in chapter preparation, technical criticism and editing, or bibliographic
accuracy, or--as indicated earlier--by moving toward a popularized or tutorial
orientation. If such an orientation destroys the usefulness of an annual
review for precisely the group that exercises technical influence and leader-
ship in the field, then the pressure for rapid self-support is ultimately
self-defeating to the sponsoring organization, whether it be a Federal agency,
a professional society, or any other organization that wishes to achieve
progress, rather than profit.

Whatever the support for particular annual review publications, it seems
essential to seek, wherever possible, empirical data on both effectiveness and
impact, to the end that better-informed judgments about current and promising
new communication tools can be made. The present study has provided an initial
foundation of empirical data on which, it is hoped, a more comprehensive
understanding of review literature can be built.

APPENDIX A: QUESTIONNAIRES AND COVER LETTERS

Annual Review Professional Use Study

1. How did you obtain the Annual Review copy you have used?

    ___ purchased a personal copy   ___ borrowed it from a university library

    ___ used a desk or office reference copy   ___ borrowed it from a company library
         purchased with company or staff funds
                                                          ___ other (please specify) _____
    ___ borrowed it from an individual
                                                          _____

2. How did you first hear of the Annual Review? (check one)

    ___ preliminary announcement of contract   ___ colleague
         award
                                                          ___ book review
    ___ announcement or program prior to 1966
         ADI Annual Meeting   ___ citation in a bibliography

    ___ 1966 ADI Annual Meeting   ___ library

    ___ journal advertisement   ___ bookstore

    ___ publisher's direct mail advertisement   ___ other (please specify) _____

                                                          ___ can't remember

3. Even if you have not read or skimmed all chapters of the Annual Review, which ones
   do you consider to be within your particular area of professional interest?

    ___ Professional Aspects of Information Science and Technology

    ___ Information Needs and Uses in Science and Technology

    ___ Content Analysis, Specification and Control

    ___ File Organization and Search Techniques

    ___ Automated Language Processing

    ___ Evaluation of Indexing Systems

    ___ New Hardware Developments

    ___ Man-Machine Communication

    ___ Information System Applications

    ___ Library Automation

    ___ Information Centers and Services

    ___ National Information Issues and Trends

4. Of the above 12 chapters, how many have you: read in detail?_____   skimmed?_____

5. About how many of the publications cited in the chapters within your particular areas
   of interest had you read before you saw them cited in the Annual Review?

    ___ practically none   ___ some   ___ quite a few   ___ most

6. Did you examine any of these publications again as a result of reading the Annual
   Review?

    ___ Yes: About how many did you examine again?

                        ___ 1-5   ___ 11-15   ___ 21-30

                        ___ 6-10   ___ 16-20   ___ more than 30

    ___ No

-2-

7. If you have examined any of the publications again, what were your reasons for examining them?   To:

___ review details you'd forgotten

___ re-evaluate a publication in light of an Annual Review author's comments

___ cite a publication or use the information in a report, review, or article of your own

___ obtain information on other works by a publication's author

___ other (please specify) _____

8. After reading the Annual Review, have you tried to obtain some of the publications cited in it that you hadn't read before?

___ Yes: About how many?

___ 1-5	___ 11-15	___ 21-30
___ 6-10	___ 16-20	___ more than 30

___ No

9. As a result of reading the Annual Review, have you tried to contact any of the authors mentioned for information regarding their current work?

___ Yes: About how many have you tried to contact? _____ .

___ No

10. Has the Annual Review itself ever suggested to you specific ideas for future research projects or studies?

___ Yes

___ No

11. When did you last use the Annual Review?

___ within the past week　　　　　　___ within the past 3 months

___ within the past month　　　　　 ___ more than 3 months ago

For what purpose did you use the Annual Review at that time? _____

_____

_____

_____

12. Have you obtained from the Annual Review itself information about any of the following?

___ ideas or theories　　　　　　　___ a system

___ methods or procedures　　　　　___ a project

___ results or data　　　　　　　　 ___ other (please specify) _____

___ an individual and his work

-3-

13. In general, how useful has the Annual Review been to you in serving each of the following goals?

	Very Useful	Moderately Useful	Of Little or No Use	Have Not Actually Used It for This Function Yet
Keeping up with current work in your own areas of interest	___	___	___	___
Keeping up with current work in peripheral areas of interest	___	___	___	___
Checking on particular projects or ideas	___	___	___	___
Checking on activities of individuals	___	___	___	___
Learning about an area not within your professional specialty	___	___	___	___
Reading the original literature more selectively	___	___	___	___
Identifying areas of information science that require further research	___	___	___	___
Allocating research and development funds more effectively	___	___	___	___
Other (please specify) _____	___	___	___	___

_____

14. How often have you used the information you've obtained from the Annual Review for each of the following activities?

	Often	Sometimes	Never
Ordering documents or publications	___	___	___
Searching the literature as a service to others	___	___	___
Writing reports, articles and papers	___	___	___
Preparing lectures or speeches	___	___	___
Writing your own review of the literature	___	___	___
Preparing a bibliography or reading list	___	___	___
Exchanging information with your colleagues	___	___	___
Other (please specify) _____	___	___	___

-4-

15. How important is each of the following information sources in helping to provide information you need for your current work?

	Very Important	Moderately Important	Of Little or No Importance	Do Not Use This Informatio Source
Colleagues within your own place of employment	___	___	___	___
Colleagues outside your own place of employment	___	___	___	___
Professional meetings and symposia	___	___	___	___
Journal and periodical literature	___	___	___	___
Technical reports	___	___	___	___
Books, textbooks	___	___	___	___
The Annual Review	___	___	___	___
Preprints of periodical articles	___	___	___	___
Reprints of periodical articles	___	___	___	___
Abstracting/indexing services	___	___	___	___
Bibliographies	___	___	___	___
Other (please specify) _____	___	___	___	___

_____

16. If one chapter of the Annual Review were to be published each month instead of collecting the chapters in book form annually, how do you think the value of the Annual Review would change? A different chapter each month would be? (check one)

___ much less useful　　___ somewhat less useful　　___ equally useful　　___ somewhat more useful　　___ much more useful

Why? _____

_____

17. In the future, what aspects of the Annual Review might be changed to make it more useful?

_____

_____

_____

-5-

18. To which of these professional organizations or associations in the field of information science do you belong?

___ ADI   ___ AMTCL   ___ ACS, Chem. Lit. Div.

___ SLA   ___ IEEE   ___ APA

___ ALA   ___ AAAS   ___ Other (please specify) _____

___ ACM   ___ STWP   _____

19. Which journals and other scientific periodicals do you read or scan regularly (that is, almost every issue)? _____

_____

_____

20. Approximately how many of each of the following materials have you authored or co-authored in the past five years?

Books   _____   Technical reports   _____

Chapters in books   _____   Unpublished papers   _____

Journal (or periodical) articles   _____   Book reviews   _____

21. How many local or national professional meetings (conventions, conferences, symposia, etc.) have you attended during the past year? _____   At how many of these meetings did you present a paper? _____

22. How many years have you worked in the field of information science—i.e., documentation, library science, information systems research, or related fields?

___ less than 5 years   ___ 10-15 years   ___ 20-30 years

___ 5-10 years   ___ 15-20 years   ___ over 30 years

23. In what type of organization are you currently employed?

___ university   ___ private foundation

___ government agency   ___ public library

___ industrial or business firm   ___ public school

___ non-profit corporation or   ___ other (please specify) _____
     organization

24. Please rank the following job activities by placing a 1 in front of your most time-consuming activity, a 2 in front of your second most time-consuming activity, etc. Ignore activities you do not usually engage in.

___ library reference or bibliographic service   ___ teaching

___ other library service (e.g., cataloging,   ___ studying for a degree
     acquisitions)   ___ writing or editing

___ research   ___ publishing

___ design or development   ___ indexing or abstracting

___ management or administration   ___ sales

___ programming   ___ other _____

___ consulting in your professional specialty

-6-

25. Please describe the area of your professional specialty for the most time-consuming activity you listed in question 24 (e.g., library science, library systems information systems, language processing, engineering, etc.) _____

    _____

    If you have a different specialty for the second most time-consuming activity you listed, describe it too. _____

26. What is your highest earned degree?

    ___ no degree   ___ M.A., M.S.

    ___ B.A., B.S.   ___ M.L.S.

    ___ B.L.S.   ___ Ph.D., M.D., Ed.D.

                                     ___ Other (please specify) _____

    Year earned:

    ___ before 1935   ___ between 1950-1955

    ___ between 1935-1940   ___ between 1955-1960

    ___ between 1940-1945   ___ between 1960-1965

    ___ between 1945-1950   ___ after 1965

27. Major field in which highest degree was earned:

    ___ Library Science   ___ Computer Science   ___ Education

    ___ Psychology   ___ Physics   ___ Bus. Admin.

    ___ Sociology   ___ Chemistry   ___ English

    ___ Linguistics   ___ Engineering   ___ History

    ___ Mathematics   ___ Biological Sciences   ___ Other (please specify

                                                        _____

28. Your sex: Male ___   Female ___

        _____ Please check here if you would like to receive a summary report of the study
               findings.

QUESTIONNAIRE FOR SEEN/HEARD GROUP

Annual Review Professional Use Study

1. How did you first hear of the Annual Review? (check one)

___ preliminary announcement of contract award

___ announcement or program prior to 1966 ADI Annual Meeting

___ 1966 ADI Annual Meeting

___ journal advertisement .

___ publisher's direct mail advertisement

___ colleague

___ book review

___ citation in a bibliography

___ library

___ bookstore

___ other (please specify) _____

___ can't remember

2. The following is a list of Annual Review chapter topics. Please check the ones you consider to be within your particular area of professional interest.

___ Educational Programs and Trends in Information Science

___ Behavioral Studies of Information Needs and Uses

___ Analysis, Description and Indexing of Document Content

___ File Organization and Search Techniques

___ Automated Language Processing and Computational Linguistics

___ Evaluation Studies of Indexing Systems and Terminology

___ New Hardware Developments for Information Systems

___ Man-Machine Communication and Interaction Studies

___ Information System Applications in Medicine, the Military, Law, Business, Chemistry, and Education

___ Library Automation

___ Information Centers and Services

___ National Information Issues and Trends

-2-

3. In the future, for which purposes do you think you may use the Annual Review?

___ Keeping up with current work in your own areas of interest

___ Keeping up with current work in peripheral areas of interest

___ Checking on particular projects, ideas, or activities of individuals

___ Other (please specify) _____

_____

4. How important is each of the following information sources in helping to provide information you need for your current work?

	Very Important	Moderately Important	Of Little or No Importance	Do Not Use This Information Source
Colleagues within your own place of employment	___	___	___	___
Colleagues outside your own place of employment	___	___	___	___
Professional meetings and symposia	___	___	___	___
Journal and periodical literature	___	___	___	___
Technical reports	___	___	___	___
Books, textbooks	___	___	___	___
Preprints of periodical articles	___	___	___	___
Reprints of periodical articles	___	___	___	___
Abstracting/indexing services	___	___	___	___
Bibliographies	___	___	___	___
Other (please specify) _____	___	___	___	___

_____

5. To which of these professional organizations or associations in the field of information science do you belong?

___ ADI	___ AMTCL	___ ACS, Chem. Lit. Div.
___ SLA	___ IEEE	___ APA
___ ALA	___ AAAS	___ Other (please specify) _____
___ ACM	___ STWP	

_____

-3-

6. Which journals and other scientific periodicals do you read or scan regularly (that is, almost every issue)? _____

_____

_____

7. Approximately how many of each of the following materials have you authored or co-authored in the past five years?

Books	_____	Technical reports	_____
Chapters in books	_____	Unpublished papers	_____
Journal (or periodical) articles	_____	Book reviews	_____

8. How many local or national professional meetings (conventions, conferences, symposia, etc.) have you attended during the past year? _____ At how many of these meetings did you present a paper? _____

9. How many years have you worked in the field of information science—i.e., documentation, library science, information systems research, or related fields?

___ less than 5 years   ___ 10-15 years   ___ 20-30 years

___ 5-10 years   ___ 15-20 years   ___ over 30 years

10. In what type of organization are you currently employed?

___ university   ___ private foundation

___ government agency   ___ public library

___ industrial or business firm   ___ public school

___ non-profit corporation or   ___ other (please specify) _____
    organization

11. Please rank the following job activities by placing a 1 in front of your most time-consuming activity, a 2 in front of your second most time-consuming activity, etc. Ignore activities you do not usually engage in.

___ library reference or bibliographic service   ___ teaching

___ other library service (e.g., cataloging,   ___ studying for a degree
    acquisitions)
                                                        ___ writing or editing
___ research
                                                        ___ publishing
___ design or development
                                                        ___ indexing or abstracting
___ management or administration
                                                        ___ sales
___ programming
                                                        ___ other _____
___ consulting in your professional specialty

-4-

12. Please describe the area of your professional specialty for the <u>most</u> time-consuming activity you listed in question 11 above (e.g., library science, library systems, information systems, language processing, engineering, etc.) _____

_____

If you have a different specialty for the <u>second</u> most time-consuming activity you listed, describe it too.

_____

13. What is your highest earned degree?

___ no degree   ___ M.A., M.S.

___ B.A., B.S.   ___ M.L.S.

___ B.L.S.   ___ Ph.D., M.D., Ed.D.

                                     ___ Other (please specify) _____

Year earned:

___ before 1935   ___ between 1950-1955

___ between 1935-1940   ___ between 1955-1960

___ between 1940-1945   ___ between 1960-1965

___ between 1945-1950   ___ after 1965

14. Major field in which highest degree was earned:

___ Library Science   ___ Computer Science   ___ Education

___ Psychology   ___ Physics   ___ Bus. Admin.

___ Sociology   ___ Chemistry   ___ English

___ Linguistics   ___ Engineering   ___ History

___ Mathematics   ___ Biological Sciences   ___ Other (please specify)

                                                   _____

15. Your sex: Male ___   Female ___

        _____ Please check here if you would like to receive a summary report of the study findings.

QUESTIONNAIRE FOR NOT-SEEN/HEARD GROUP

Annual Review Professional Use Study

1. How important is each of the following information sources in helping to provide information you need for your current work?

	Very Important	Moderately Important	Of Little or No Importance	Do Not Use This Information Source
Colleagues within your own place of employment	___	___	___	___
Colleagues outside your own place of employment	___	___	___	___
Professional meetings and symposia	___	___	___	___
Journal and periodical literature	___	___	___	___
Technical reports	___	___	___	___
Books, textbooks	___	___	___	___
Preprints of periodical articles	___	___	___	___
Reprints of periodical articles	___	___	___	___
Abstracting/indexing services	___	___	___	___
Bibliographies	___	___	___	___
Other (please specify) _____	___	___	___	___

_____

2. To which of these professional organizations or associations in the field of information science do you belong?

___ ADI   ___ AMTCL   ___ ACS, Chem. Lit. Div.

___ SLA   ___ IEEE   ___ APA

___ ALA   ___ AAAS   ___ Other (please specify) _____

___ ACM   ___ STWP

_____

-2-

3. Which journals and other scientific periodicals do you read or scan regularly (that is, almost every issue)? _____

_____

_____

4. Approximately how many of each of the following materials have you authored or co-authored in the past five years?

Books _____   Technical reports _____

Chapters in books _____   Unpublished papers _____

Journal (or periodical) articles _____   Book reviews _____

5. How many local or national professional meetings (conventions, conferences, symposia, etc.) have you attended during the past year? _____ At how many of these meetings did you present a paper? _____

6. How many years have you worked in the field of information science—i.e., documentation, library science, information systems research, or related fields?

___ less than 5 years   ___ 10-15 years   ___ 20-30 years

___ 5-10 years   ___ 15-20 years   ___ over 30 years

7. In what type of organization are you currently employed?

___ university   ___ private foundation

___ government agency   ___ public library

___ industrial or business firm   ___ public school

___ non-profit corporation or organization   ___ other (please specify) _____

_____

8. Please rank the following job activities by placing a 1 in front of your most time-consuming activity, a 2 in front of your second most time-consuming activity, etc. Ignore activities you do not usually engage in.

___ library reference or bibliographic service   ___ teaching

___ other library service (e.g., cataloging, acquisitions)   ___ studying for a degree

___ research   ___ writing or editing

___ design or development   ___ publishing

___ management or administration   ___ indexing or abstracting

___ programming   ___ sales

___ consulting in your professional specialty   ___ other _____

-3-

9. Please describe the area of your professional specialty for the <u>most</u> time-consuming activity you listed in question 8 above (e.g., library science, library systems, information systems, language processing, engineering, etc.) _____

_____

If you have a different specialty for the <u>second</u> most time-consuming activity you listed, describe it too.

_____

10. What is your highest earned degree?

___ no degree   ___ M.A., M.S.
___ B.A., B.S.   ___ M.L.S.
___ B.L.S.   ___ Ph.D., M.D., Ed.D.
                                 ___ Other (please specify) _____

Year earned:

___ before 1935   ___ between 1950-1955
___ between 1935-1940   ___ between 1955-1960
___ between 1940-1945   ___ between 1960-1965
___ between 1945-1950   ___ after 1965

11. Major field in which highest degree was earned:

___ Library Science   ___ Computer Science   ___ Education
___ Psychology   ___ Physics   ___ Bus. Admin.
___ Sociology   ___ Chemistry   ___ English
___ Linguistics   ___ Engineering   ___ History
___ Mathematics   ___ Biological Sciences   ___ Other (please specify)

_____

12. Your sex: Male ___   Female ___

_____ Please check here if you would like to receive a summary report of the study findings.

Institute for Communication Research
Stanford University
Stanford, California

September 13, 1967

Dear Colleague:

Recently you were kind enough to reply to a postcard regarding use of the _Annual Review of Information Science and Technology_. Stanford University's Institute for Communication Research and System Development Corporation are currently examining the impact of the Annual Review as an information tool, and we would like to have the benefit of your experience and views for this study.

Specifically, we would appreciate your completing this brief questionnaire and returning it to the Institute for Communication Research in the envelope provided. The identification number on the questionnaire is to permit us to contact non-respondents, in accordance with standard sampling procedures. The information you provide will not be associated in any way with your name during data analysis.

We will be pleased to send you a summary report of study findings if you indicate your interest at the end of the questionnaire.

Thank you for your cooperation.

Linda Harris
Study Director

┌─────────────────────────┐
│ COVER LETTER TO USER   │
│ AND SEEN/HEARD GROUPS   │
└─────────────────────────┘

                              Institute for Communication Research
                              Stanford University
                              Stanford, California

                              September 25, 1967

Dear Colleague:

Recently you were k*nd enough to reply to a postcard regarding
use of the Annual Review of Information Science and Technology.
Stanford University's Institute for Communication Research and
System Development Corporation are currently examining the impact
of the Annual Review as an information tool, and part of this
study involves analysis of information sources of those who have
not yet read the Annual Review. Thus we would like to have the
benefit of your participation in this study.

Specifically, we would appreciate your completing this brief
questionnaire and returning it to the Institute for Communication
Research in the envelope provided. The identification number on
the questionnaire is to permit us to contact non-repondents, in
accordance with standard sampling procedures. The information
you provide will not be associated in any way with your name
during data analysis.

We will be pleased to send you a summary report of study findings
if you indicate your interest at the end of the questionnaire.

Thank you for your cooperation.

                              Linda Harris
                              Study Director

+-----------------------------+
| COVER LETTER TO |
| NOT-SEEN/HEARD GROUP |
+-----------------------------+

Institute for Communication Research
Stanford University
Stanford, California

October 7, 1967

Dear Colleague:

Recently, we sent you a brief questionnaire regarding your use of the
Annual Review of Information Science and Technology. Since we have
not yet received a reply, I am writing to you again, to ask that you
complete the questionnaire at your earliest convenience.

As you are aware, our study on information use patterns in the
information science field depends upon successful collection of data
from a representative sample of professionals. I am especially eager
for your views to be included in our study, because you have been a
user of the first volume of the Annual Review. Your reactions to it
will therefore help us to assess its impact as an information tool.

In case the previous questionnaire sent to you was lost in the mail
or misplaced, another copy is enclosed, together with a reply envelope.
(If you have returned a questionnaire to use by the time this letter
reaches you, please disregard it.) The identification number on the
questionnaire is to permit us to contact non-respondents, and also
to guarantee that the information you provide will not be associated
in any way with your name during data analysis.

We will be pleased to send you a summary report of study findings if
you indicate your interest at the end of the questionnaire.

Thank you for your cooperation.

Sincerely yours,

Linda Harris
Study Director

FOLLOW-UP LETTER
TO USERS

Institute for Communication Research
Stanford University
Stanford, California

October 17, 1967

Dear Colleague:

Recently, we sent you a brief questionnaire regarding your profes-
sional information sources and your contact with the Annual Review
of Information Science and Technology. Since we have not yet
received a reply, I am writing to you again, to ask that you complete
the questionnaire at your earliest convenience.

As you are aware, our study on information use patterns in the
information science field depends upon successful collection of
data from a representative sample of professionals. I am eager
for your views to be included in our study. Although you have not
been a user of the Annual Review, the information we have requested
from you will help us to assess its impact as an information tool.

In case the previous questionnaire sent to you was lost in the mail
or misplaced, another copy is enclosed, together with a reply
envelope. (If you have returned a questionnaire to us by the
time this letter reaches you, please disregard it.) The identi-
fication number on the questionnaire is to permit us to contact
non-respondents, and also to guarantee that the information you
provide will not be associated in any way with your name during
data analysis.

We will be pleased to send you a summary report of study findings
if you indicate your interest at the end of the questionnaire.

Thank you for your cooperation.

                                        Sincerely yours,

                                        Linda Harris
                                        Study Director

FOLLOW-UP LETTER TO
SEEN/HEARD GROUP

Institute for Communication Research
Stanford University
Stanford, California

October 19, 1967

Dear Colleague:

Recently, we sent you a brief questionnaire regarding your professional information sources. Since we have not yet received a reply, I am writing to you again, to ask that you complete the questionnaire at your earliest convenience.

As you are aware, our study on information use patterns in the information science field depends upon successful collection of data from a representative sample of professionals. We are eager for your views to be included in our study, even though you are not yet a user of the <u>Annual Review of Information Science and Technology</u>, because knowledge of other information sources relevant to our field will assist our analysis.

In case the previous questionnaire sent to you was lost in the mail or misplaced, another copy is enclosed, together with a reply envelope. (If you have returned a questionnaire to us by the time this letter reaches you, please disregard it.) The identification number on the questionnaire is to permit us to contact non-respondents, and also to guarantee that the information you provide will not be associated in any way with your name during data analysis.

We will be pleased to send you a summary report of study findings if you indicate your interest at the end of the questionnaire.

Thank you for your cooperation.

Sincerely yours,

Linda Harris
Study Director

FOLLOW-UP LETTER TO
NOT-SEEN/HEARD GROUP

APPENDIX B: SUMMARY REPORT TO SURVEY RESPONDENTS

SUMMARY REPORT

STANFORD UNIVERSITY
STANFORD, CALIFORNIA 94305

.INSTITUTE FOR COMMUNICATION RESEARCH

October 14, 1968

Dear Colleague in Information Science:

At this time last year, you were answering a questionnaire about your use of
Volume 1 of the Annual Review of Information Science and Technology (ARIST).
You indicated that you would like to receive a summary of the results of the
survey, so I am writing to you to report some major findings and conclusions.
A more detailed report of study findings will be submitted to the U. S. Office
of Education after November 15. Copies of the report are likely to be avail-
able through the ERIC system.

Thanks to your participation, the survey was very successful. The final data
set contains 2012 questionnaires from readers and nonreaders of the ARIST, and
on possible ways to improve it in the future.

Questions covered the extent and purposes of use of the book, the information-
seeking behavior it prompted (such as "writing to an author for more infor-
mation"), important information sources used in addition to the ARIST, and
demographic information. We found that respondents read, on the average, four
chapters of the ARIST, primarily to keep up with the literature in their own
areas of professional interest. Other major uses of the book, however, are for
reference, for learning about a peripheral area of interest, and for teaching
or lecturing.

ARIST readers tend to be more active professionally than nonreaders: they
attend meetings and symposia, present papers at these meetings, belong to
several professional associations, write journal articles and technical reports,
and read several journals on a regular basis. These results and others are
presented in more detail on the following pages.

By now, you probably have seen Volumes 2 and (possibly) 3 of the ARIST, and
your evaluation of the book's value may have changed since you answered our
questionnaire. An informal group discussion with the editorial staff and
Advisory Committee members is scheduled for October 21, 1968 at the ASIS
Meeting in Columbus. It would be a pleasure to see you there.

Once again, let me express my appreciation for your participation in the study.

Cordially,

Linda Harris
Study Director

SUMMARY OF IMPACT STUDY OF THE
ANNUAL REVIEW OF INFORMATION SCIENCE AND TECHNOLOGY*

Linda Harris
Institute for Communication Research,
Stanford University

The Annual Review of Information Science and Technology (ARIST) was i 'roduced
as a critical review of current literature to aid professionals in the difficult
and often frustrating task of keeping up with the literature in their special-
ties. The purpose of this survey was to determine how well the ARIST has
accomplished this goal, and how the book has affected the process and patterns
of scientific communication. To obtain a valid measure of those patterns, we
compared readers and nonreaders on several measures of information-processing
activities and demographic attributes.

Our first task was to identify readers and nonreaders of the ARIST within the
universe of information scientists. Business reply postcards were sent to the
10,000 members of four professional organizations: American Society for Infor-
mation Scientists (ASIS--formerly American Documentation Institute), Special
Libraries Association, Special Interest Group on Information Retrieval of the
Association for Computing Machinery, and Association for Computational Linguis-
tics (formerly Association for Machine Translation and Computational Linguis-
tics).

About 3,700 postcards were returned, almost equally divided among readers, non-
readers, and a middle group who had seen the ARIST or heard of it, but not yet
read it carefully. Detailed questionnaires were sent to all of the readers; a
separate version excluding questions about readership of the ARIST was sent to
the other two subgroups. After two mailings, the response rate was 70%, or
2,012 questionnaires.

The two major portions of the analysis were a comparison of the three respondent
subgroups on demographic and information-processing attributes, and a separate
analysis of the readers' uses of the book.

The readers, nonreaders, and "seen-heard" subgroups differed very little on
personal attributes such as number of years in information science, highest
earned degree, major field for that degree, and place of employment. A typical
respondent from any of these subgroups probably would have a "professional age"

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of less than 10 years in information science and would be an employee of an
industrial or business firm. He is also likely to hold a degree, at either the
Bachelor or Masters level, in library science.

However, the groups do differ considerably in several other characteristics.
For example, almost 80% of the readers are ASIS members, whereas only 45% of
the seen-heard subgroup and 19% of the nonreaders belong to ASIS. (This shows
that the ARIST is publicized mainly through ASIS channels.) In addition, the
highest percentages of respondents in all three subgroups are employed in
management, design, and research, as opposed to library and other activities.
Library activities are not well represented among the reader group, perhaps
because the librarians tend to skim the book for awareness of content and not
for absorption of information.

These demographic attributes do not fully account for differences in readership.
Other factors--such as professional communication patterns--were also investi-
gated. Previous research has shown that certain patterns of information
exchange and levels of communicative activity are characteristic of the scien-
tists who are at the forefront of developments in their disciplines. Our data
also support these findings. ARIST readers use information channels more than
respondents in either of the other two subgroups. The typical reader is a
prolific author of papers and technical articles; he reads almost every issue
of at least five professional journals; he attends about three professional
meetings each year, and he presents a paper for at least one of these meetings.
One conclusion from these results is that the ARIST apparently does not serve
as a substitute for professional journals, because journal readership and ARIST
readership are highly correlated. Thus, we find that the ARIST functions as an
addition to a list of information sources used by already-active information
scientists.

What goals of information-seeking does the ARIST satisfy, and how does it com-
pare with other information sources used by professionals in the field?

The data suggest several functions performed by the ARIST that might be labeled
"continuing education." One manifestation of continuing education is current
awareness of the literature. Almost 80% of the readers use the ARIST to keep
up in their own areas of interest, and 74% also find it useful to keep up in
peripheral areas. To many readers, "keeping up" seems to mean "making sure I
haven't missed important literature in my field during the past year."

Other important aspects of continuing education are orientation, interpretation,
and critique. Over half the readers use the ARIST to learn about an area out-
side their specialties. Furthermore, almost 40% of the readers use it to read
the primary literature more selectively, and more than half report that they
reexamined articles after having read of them in the ARIST. The importance
assigned by readers to such critique (which is not widely available from
journals) is reiterated by numerous suggestions for more critique in future
volumes of the ARIST.

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The reference aspect of information-seeking--checking facts, references, and conclusions--is also supported by the survey data. Over half the readers find the ARIST useful for checking on particular projects or ideas, and 22% use it to check on activities of individuals.

Another interesting but rather mysterious finding is that readers who have been information scientists for less than 10 years do not use the ARIST as much as those who have been in the field for more than 10 years. The newcomers read the ARIST much more for orientation than they do for current awareness. Neither demographic nor information-use attributes fully explain this relationship.

For many readers, all these uses of the ARIST are intermediate steps to other information goals. For example, a number of the respondents who teach university courses use the book to introduce their students to information science and to guide them through the literature.

Despite the wide range of functions reportedly performed by the ARIST, no significant correlation was found between the purpose of ARIST use and the importance attributed to other information sources, such as colleagues, journals, professional meetings, reprints of articles, etc. This is surprising, because other data in our study confirm the relationship between, for example, journal readership and ARIST readership, and we conclude that some response bias may be operating here to prevent the painting of a complete statistical picture of information use patterns.

Although certain information use patterns are not clear, the data do allow us to document information-seeking behavior that preceded and followed use of the ARIST. Readers were asked how much contact they had had with the cited publications before reading the ARIST. Over 60% had had at least some contact with cited publications within their areas of interest, and 38% were well acquainted with many of the publications.

Respondents who had had relatively little prior contact with the cited publications tend to have read comparatively little in the ARIST, but those with more previous contact are equally likely to report high ARIST readership as they are to report low readership. Readers with more previous contact with the cited publications tend to find the ARIST less useful for current awareness than for other purposes. Although we do not know the exact function that previous contact with cited publications performs, we know that it does not act as a deterrent to use of the ARIST. This variable deserves further study; it could become a valuable predictor of readership in other contexts, such as the initiation of new information services.

Information-seeking after reading the ARIST was also examined in the study. We have already mentioned the fact that 53% of the readers were led to reexamine publications cited in the ARIST. In addition, more than half of the readers tried to obtain some of the publications cited in the ARIST that they had not

4

read before, and 10% tried to contact an author who was cited. Finally, 45%
state that the ARIST has suggested to them specific ideas for future research
projects. All of these findings are positively correlated with extent of
readership. As number of chapters read increases, so does post-reading behavior
for all of these measures.

In conclusion, the data have helped to provide valuable insights into use of the
ARIST. Such variables as previous contact with cited publications, number of
years in information science, and browsing as a purpose for use of the ARIST
can help to provide a basis for the planning and funding of annual review publi-
cations. The data collected in this initial study should also provide a founda-
tion for future studies in this area.