

SPEEDS AND SDI
A COMPARATIVE STUDY

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[The Five Laws of Library Science demand a System for Pin-pointed, Exhaustive, and Expeditious Dissemination of Subjects (=SPEEDS). A System for Selective Dissemination of Information (=SDI) aims at expeditious channelling of nascent micro subjects, from whatever source, to those points where the probability of their usefulness is high, preventing the points from being swamped by indiscriminate distribution of new information. Therefore, the service rendered by the SDI system is a good approximation to "SPEEDS". The functional elements of "SPEEDS" that can be deduced from the Five Laws comprise (1) knowing the subject interest of specialists ; (2) knowing the subjects embodied in documents ; (3) matching them to select the recipients of the service ; (4) connecting the right recipients with the right documents ; and (5)

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entertaining the responses from recipients. The functional elements of the SDI system are in conformity with those deduced from the Five Laws. The more specific the subject interest of a specialist is, the more difficult it is for him to express it with precision; and the specific subject interest *at the moment* does not continue to be the same for any length of time. To satisfy the ideal set up by *SPREED*, the SDI system should take into consideration in its design these empirical facts of experience.]

0 Terminology

01 IDEA

The product of thinking, reflecting, imagining, etc got by the intellect by integrating with the aid of logic a selection from the apperception mass, and/or what is directly apprehended by intuition, and deposited in the memory.[15]

02 KNOWLEDGE

The totality of the ideas conserved by the humans. In this sense, knowledge = universe of ideas. [16]

03 INFORMATION

Idea communicated by others or obtained by personal study and investigation. [17]

04 SUBJECT

An organised or systematised body of ideas, whose extension and intension are likely to fall coherently within the field of interest and comfortably within the intellectual competence and the field of inevitable specialisation of a normal person. [18]

05 WORK

A body of ideas expressed in language or symbols, or in any other mode and thereby made communicable. In this sense, work = expressed ideas.[8]

06 DOCUMENT

Record of work on paper or other material, fit for physical handling, transport across space, and preservation through time. In this sense, document = Embodied subject. [9]

1 Universe of Discourse

This paper attempts to evaluate the Selective Dissemination of Information (=SDI) system. The system has been regarded here as one designed for document service for the current awareness of the specialists within an organisation. The implications of the Five Laws of Library Science have been used as the basis for this evaluation. The principal facets of the subject discussed here, are :

- 1 The quality of the service rendered by the system ;
- 2 The functional elements characterising the system ; and
- 3 The empirical facts of experience considered in designing the system.

2 Five Laws of Library Science

The five laws of library science were enunciated by S R Ranganathan in 1928. They were originally formulated in terms of the conventional book.[12] Afterwards, they have been re-stated replacing 'book' by 'document'. [10] According

to the "Equation of Document" [5, 10], a document is a trinity of "Subject", "Expression", and "Embodiment". The term "use" in Law 1, refers to the use of the subject expressed and embodied in a document. A library is a trinity of "document", "librarian", and "reader". A reader in a specialist library is a specialist. A document in which a specialist is interested for his research is primarily one embodying nascent micro subjects—that is, a micro document.

3 Quality of Service

31 IDEAL

The quality of the service given by a library should, as far as practicable, conform to an ideal quality of document service. This may be deduced from the Five Laws as follows :

- 1 Promoting the use of documents (Law 1), by providing
- 2 Pin-pointed (Law 2) ;
- 3 Exhaustive (Law 3) ; and
- 4 Expeditious (Law 4) document service with emphasis on specialist readers and on nascent micro documents ;
- 5 In spite of the continuous ever increasing cascade (Law 5) of such documents.[20]

A system designed to render such an ideal document-service—may, for convenience, be named by the initonym "SPREDS"—System for Pin-pointed, Exhaustive and Expeditious Dissemination of Subjects.

32 'SELECTIVE' IN SDI

The implications of the term 'Selective' in "Selective Dissemination of Information" becomes evident from the following statement in the original article on the subject : [2]

"Selective Dissemination of Information is that service within an organisation which concerns itself with the channeling of new items of information, from whatever sources to those points within the organisation where the probability of usefulness in connection with current work of interest is high. On the other hand, the service endeavours to withhold such information from where this probability is low. An attendant objective is to prevent the points from being swamped by indiscriminate distribution of new information and to avert the resulting danger of not communicating at all."

33 EVALUATION

It may be noted that the object of preventing "the point from being swamped by indiscriminate distribution of new information", amounts to pin-pointed service. And the object of channeling "new items of information, from whatever source" amounts to exhaustive service. The use of the electronic information processing machines for the system of service as envisaged in the original article is meant to secure expeditious service.[4]

A comparison of the results of this analysis with the quality of service as implied in the Five Laws would show that the quality of SDI is a good approximation to "SPREDS".

4 System for Promoting the Use of Documents

Documents are for use. According to its implications, the creator of document—that is, author—creates it for use ; and the consumer of document—that is, reader—

seeks it for use. A document flows from its author to its reader. This flow may be a direct or an indirect one. In one of the indirect flows of a document, the book trade (the publisher, printer, and the bookseller) figures. The book trade provides embodiment to documents for use. In another indirect flow of documents, the document-service-point (library, documentation centre, etc) figures. A library procures documents for use. In this last mentioned flow of documents, we get the author, the book trade, the library and the reader, each one of them a participant in the whole line of communication. An integrated view of this line would naturally lead to a system with the overall objective of promoting the use of documents.

41. ATTRIBUTES OF A SYSTEM

A system may consist of several components. Each of the component may have sub-components ; each sub-component its own sub-components ; and so on. Each component is designed to perform a specific function. The functions of the different components taken in relation to one another enable the system as a whole to progress towards the achievement of its goal. Any change of a component or one of its properties may produce changes in the other components and subsequently affect the functioning of the system as a whole—that is, there is a feedback from the developing front to the other components.

42. PRINCIPAL COMPONENTS

The principal components of the system for promoting the use of documents are ; the

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| 1 Author ; | 3 Library ; and |
| 2 Book trade ; | 4 Reader. |

All these components belong to a chain in the sequence mentioned above.

The distinctive and specific function of each of these components may also be deduced from the Five Laws of Library Science. The function of a library in relation to its document-service is the primary concern here.

421. FUNCTION OF THE LIBRARY

To promote the use of documents, a library is to

- 1 Know the readers in terms of their respective subject interest ;
- 2 Know the documents in terms of their respective subject contents ;
- 3 Match the specific subjects of interest sought by a reader with the specific subjects of documents ;
- 4 Connect the right reader with the right documents ; and
- 5 Keep its system of organisation and service open to receive the feedback from the other components of the system so as to adjust its future work of organisation and service.

5. Functional Elements of SDI

In a library, the function of the SDI system in relation to the documents procured externally consists essentially of

- 1 Maintaining a file of "profiles", which records the specific subject-interests (including the specific author interests) of each of the individuals it serves ;

- 2 Maintaining a file of entries for documents, which records the specific subjects of each of the documents received in the library ;
- 3 Matching the specific subject interests of the individuals with the specific subjects of the documents ;
- 4 Selecting the recipients of the service and of the documents to be notified, on the basis of appropriate matchings ;
- 5 Connecting the right recipient with the right documents ;
- 6 Entertaining the responses of the recipients as to their degree of interest about the document notified and also as to their decision on notifying others ;
- 7 Adjusting the profiles according to the reactions of the recipients ;
- 8 Responding to the specific document needs of the recipients ;
- 9 Notifying others according to the instructions of the recipients ; and
- 10 Keeping the file of profiles always representative of the living interests of the recipients. (3)

51 EVALUATION

A comparison of the functional elements of the SDI system (enumerated in Sec 5) with the deduced functional elements of a library—SPEEDS—would show the degree of conformity of the former to the latter. It is also on the basis of this degree of conformity, that it can be said that the SDI System is a good approximation to "SPEEDS". Evidently, the SDI system is a necessary implication of the Five Laws of Library Science. This facet of the subject has been discussed elaborately elsewhere.[1]

6 Basic Facts of Experience

The 'how' of the function deduced from the Five Laws is to be decided and adjusted on the basis of the empirical facts of experience. The basic empirical facts of experience on which the SDI system is based may be generalised from the details of the system-design. They are primarily as follows :

- 1 A specialist is distinguishable in terms of the specific subjects of his interest ;
- 2 The specific micro subject of interest to a specialist will change from time to time.
- 3 A document is distinguishable in terms of its specific subject contents ; and
- 4 The specific subject contents of a document will not change.

7 Specific Subject of Interest

To get an idea about the nature of the specific subject of interest of a specialist, let us consider a typical case. A specialist is working on the subject "Effect on the rice plant of manuring it with nitrogen fertilizer". The specific subject of his interest may be expressed as follows :

Rice plant, *effect of* Manuring by nitrogen fertilizer.

71 SUBJECT-COMPLEX

But, in fact, the specific subject of interest of a specialist is a subject complex. This subject complex may be partially enumerated as follows :

- 1 Effect on the rice plant of any one of the nitrogen fertilizers, such as ammonium nitrate, ammonium nitrate-lime stone mixtures, ammonium phosphate, calcium cyanamide calcium nitrate, sodium nitrate, urea, anhydrous ammonia, aqua ammonia, nitrogen solutions and so on ;

- 2 Effect of any one of the nitrogen fertilizers on any part of the rice plant;
- 3 Effect of any one of the nitrogen fertilizers on any plant ;
- 4 Effect of any one of the nitrogen fertilizers on any part of any plant ;
- 5 Effect of any one of the nitrogen fertilizers on the health, disease, development, breeding, morphology, physiology and so on, of any plant ;
- 6 Any new method of manuring ;
- 7 Any experimental technique with any fertilizer on any plant ;
- 8 Any subject mentioned above qualified by any environment ; and
- 9 Any subject mentioned above qualified by any time of manuring. These are not all ; there may be many more than these. However, it gives a picture of the range of the subject interests of the specialist.

72 INTEREST AT THE MOMENT

Besides the subject interest in general, there is the interest at the moment that is very important in the pursuance of a subject—that is, research. A specialist is continuously engaged in reading, experimenting, and/or observing. These factors bring in changes in his field of interest at the moment. This change may lead to an interest about a subject that may not figure in the record listing his subject-interest at a particular point of time.

73 PRECISION IN EXPRESSION

When the specialist's query concerns with the subject "Effect of manuring by nitrogen fertilizer on the rice plant", the subject "Effect of manuring by urea on the storage of paddy in the rainy season in the southern part of West Bengal" may be a specific one to meet his needs. When the latter subject is his specific need *at the moment*, he might have expressed his need in the more general form as it has been recorded for the former subject.

731 ROLE OF DIALOGUE

The specific subject of interest at the moment of a Specialist Reader (R) is "Effect of manuring by urea on the leaves of the rice plant". He may come to a librarian (L) and ask, "What documents are available on urea manuring ?" Then a dialogue may follow as given below :

L.—Is it everything about urea manuring that you are interested in ?

R.—No. Actually, I am interested in the urea manuring of the rice plant.

L.—That is, the time, method, quantity per acre, etc about urea manuring for rice cultivation—is that what you want ?

R.—No. It is the effect of manuring by urea on the rice plant.

L.—Is it the effect on the plant as a whole ?

R.—No. Urea has a special effect on green leaves. What I am looking for is a document on this particular problem—the effect of urea on leaves.

What is important here is that a query may start from an inadequately formulated one which may get specified through a dialogue of the above kind. It is to be noted that during the course of this dialogue L specifies a subject to R and R rejects it while he adds something to the specificity of his subject. The process continues till the desired specificity is reached. All the specifications of L together consti-

tute a pattern of presentation. Such a pattern of presentation helps R to progress towards the specificity and to accept or reject an individual specification. As many as 167 case studies of this kind will be found in the *Reference service*. [14]

8 Additional Facts of Experience

On the basis of the discussion in Sec 7 and its subdivisions, the following empirical facts of experience may be generalised :

- 1 The specific subject mentioned by a specialist may be more extensive than what may be suspected. It requires further dissection and denudation to get at the true specific subject.
- 2 The specific subject-interest of a specialist will not continue to be the same for any length of time. How it will change is unpredictable.
- 3 The specific subject-interest *at the moment* plays a very significant role in the pursuit of a subject.
- 4 The more specific the subject is, the less is the specialist able to express precisely.
- 5 The determination of the specificity of a subject of interest *at the moment* is very much dependent on a dialogue between the specialist and the librarian. A quick and effective direction of the dialogue is greatly facilitated by the librarian's mastery of the methods of facet analysis based on the Postulate of the Five Fundamental Categories and the other associated ones. The technique of facet analysis is as helpful in eliciting the precise needs of the reader as it is in determining the precise subject of a document. [11]

81 EVALUATION

A comparison of the empirical facts of experience on which the SDI system is based, as enumerated in Sec 6, with those enumerated in Sec 8, makes it clear that the SDI system in its design, has not taken the latter fully into consideration. Therefore, the document-service rendered by the SDI system is bound to fall short of the pin-pointedness and exhaustiveness demanded by "SPEEDS".

82 SYSTEM - ESSENTIAL FOR "SPEEDS"

Feature Headings play a vital role in "SPEEDS". Consideration of all the empirical facts of experience enumerated in Sec 6 and Sec 8, would lead to a system having a built-in capacity of helping the specialist in formulating his query with the desired precision and in correlating it with the specific subjects of documents. The dialogue between the specialist and the librarian will be greatly facilitated and quickened by a carefully organised system of feature headings in the classified part of the lists of documents. Such feature headings may even help some of the specialist-self-helpers in the precise formulation of the exact subject on which documents are sought. Without such feature headings self-help would become almost impossible and the dialogue between the specialist and the librarian prolonged. This is the reason for Ranganathan insisting on the construction of feature headings in profusion in accordance with his Chain Procedure. [10] Further work in respect of feature headings for micro subjects of great depth has also been done. [6] The integrated approach of SPEEDS to the design of document retrieval systems are discussed in detail by A Neelamegham in his paper "Integrated Approach of India to the Design and Development of Document Retrieval Systems".

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