Salton Award Lecture

USERS LOST:
Reflections on the Past, Future, and Limits of Information Science*

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Summary

The address follows in the footsteps of the addresses given on the occasion of acceptance of the SIGIR Award (now named in honor of its first recipient, Gerard Salton) by Karen Sparck Jones (1988), Cyril Cleverdon (1991), and William Cooper (1994). The recipients provided a personal reflection and assessment related to the areas of their work and interest. I do too. This is a personal reflection on my own work and interests over the span of three and a half decades, on my discipline, information science, and on the limits that this discipline, or any other enterprise that has the ambition to deal with human information, faces. The address is divided into a preamble, and three parts.

To provide a context, in the preamble I try to clarify the perennial question: "But what is information science to start with?" A growing number of disciplines employ or incorporate in some way or another the term 'information science.' The discipline of information science that I am concerned with, as are my colleagues in this group and at other related organizations, such as the American Society for Information Science (ASIS), is characterized by addressing the problems of dealing with the content-bearing world of records of human knowledge in whatever form and media, and the very practical aim of delivering content, or objects that have a potential of conveying information, to inquirers, users, on request. Information retrieval (IR) is an integral and vital part of that discipline. Intense concern with informational content and its retrieval is the hallmark of 'our' information science. In contrast, some other disciplines which also incorporate information science in their name are primarily concerned with symbol manipulation relatively neutral to content - they form an infrastructure to information science in our sense.

In the first part I recount my work and interest over time, spanning three and a half decades, as I was engaged in professional practice, research, education, and service in information science. At the start of my career I belonged to the generation right after the pioneers of information science with their many new, even revolutionary ideas on how to deal with problems of 'information explosion,' coupled with great enthusiasm and intense rivalry. At the time, IR just started emerging out of infancy into the real word of practice. Running the search component of a real IR system that had paying customers as users, I became very much aware of the human component in the process, i.e. the human variables and decisions that affect more than anything else everything that is going on. This led my interests toward the problem of relevance, then later the problems of searching of and interacting with information systems, and the latest, the problems of the value users derive from information services. Systems (or technology)-human interaction played and still plays the major role in my interests, but with the emphasis on the human side of the equation.

In the second, and major part, I deal with the 'big picture' of information science as a discipline, its nature as it evolved over time, and its manifestations, as it is evident from the structure of areas of work. Every discipline has a number of sub-disciplines, with some or other degree of cohesion and integration. Two major branches, sub-disciplines or oeuvres, evolved in information science. They are very much in evidence at present and are continuing, it seems, on their courses in the future. Roughly, the first branch deals with problems of retrieval, with a number of sub-branches, of course. The second branch, also with sub-branches, deals with studying problems of the broader domain - structure and properties of the

literatures - bibliometrics; characterization and behavior of information seekers and users; manifestations and descriptions of use of IR systems and information in general; communication between persons when surrogates, such as literature and texts, are involved, and topics related to cognitive aspects of phenomena and behavior underlying IR. These two branches, retrieval and domain (a better descriptive term eludes me), work in relative isolation of each other. Sometimes these branches are misnamed as system- and user-oriented. A major problem of information science, even if not THE major problem, in the past and evidently progressing in the future, is that there are no integrative forces, no integrative research and authors, between the two branches, while at the same time there is strong evidence for the need and desirability for such integration. This gap, the empty middle, is a major impediment for future success of information science. Incremental progress can, is and will be achieved in both branches, but a significant breakthrough toward major progress in information science is dependent on a convergence between both branches - on bridging the gap and filling the empty middle. Unfortunately users are lost in this gap. The domain branch talks endlessly about users, but does not do anything about or for them. The retrieval branch rarely, if ever talks about users, it just assumes them as a black box. They are there - period. According to this major point of the address maybe a more appropriate would be "Middle Lost."

In the third part of the address I deal with limits of information science in two senses. In the first sense, I address the issue and problem of the limited (or even very limited) success information science has in influencing other areas that deal with content-bearing aspects of a variety of knowledge records. An ever growing number of fields, research and application areas, and even commercial activities have zeroed in on knowledge records, toward dealing with contents and provision of access and retrieval to that content. For a variety of reasons this is "in." They are impinging on our turf. There is nothing wrong with that. However, in more cases than we can comfortably recount, such research and applications do not take into account or incorporate advances made in information science. The experiences of over 50 years of information science research, application, and professional services are treated as if nothing happened, as if nothing was learned. As a result, the wheel is being repeatedly re-invented, often under a different terminology, and many of the results are amateurishly inadequate. The impact of information science on other areas is limited. The issue for the future is how to increase that impact.

The second sense of limit is much more fundamental, faced by any and all activities that attempt to deal with problems of human information and related content-bearing records. Humans are a vastly diverse group in many aspects. Human minds, which we try to influence, are the most diverse of all. There is a very real limit to what can be done in relation to those many diverse minds that have a problem of either being over- or under-informed. Universal solutions to information never can and never will fit all minds, all situations in which humans find themselves *vis-a-vis* information. So there is a limit on what we can do imposed by the very humans, the users, for whom we ostensibly work. No matter what we do. Every science has natural limits. Ours are the users.

* The complete text of this paper will be published in the Fall 1997 issue of *SIGIR Forum*.

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