EDUCATION FOR INFORMATION SCIENCE: AN APOLOGIA AND AN INTRODUCTION (L'EDUCATION POUR LES SCIENCES DE L'INFORMATION APOLOGIA ET UNE INTRODUCTION)

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ABSTRACT

Education for information science must at the same time cater for present needs and plan for future developments. It is necessary to examine the constituent elements of the discipline, and to build up a clear view of its scope and direction. There are several aspects to consider: the context of demand; the content; methods of education; applications. There are several categories of problems to consider also: first job knowledge versus long range flexibility; what is the core and what is the fringe; how far to mix theoretical and practical instruction and experience. (L'éducation pour les sciences de l'information doit répondre à la même fois aux besoins d'aujourdhui et aux espoirs de l'avenir. Il nous faut examiner les éléments qui constituent les sciences, et établir une répresentation exacte de leur champ d'action et de leur direction. Il nous faut considérer plusieurs aspects; le contexte du besoin; le contenu; les modes de l'instruction; les applications. Il y'a aussi plusieurs types de problèmes à considérer; les connaissances nécessaires au premier emploi versus les connaisances nécessaires pour la vie professionnelle; quels éléments constituent le centre des sciences de l'information et quels sont à la périphérie; comment équilibrer l'instruction théorique et l'expérience practique.)

Education in any field is liable to present a paradoxical image. It offers an outline and exemplar of the current state of the art, reflecting accepted content and direction, and the strengths and weaknesses of past knowledge and practice, but at the same time, associating itself with research and the development of new ideas in the field, it tries to become a model for the future so that the professionals it educates may function properly in a world to come. It may thus become at worst a plaything of professional prejudice, at best a focus for intelligent planning. Information science is new enough still to be torn by discussion and even faction over the scope and definition of the field itself, and not only the educationalists have argued over the constituent elements of what they profess.

The papers presented in this session are representative of several aspects of the education problem: the context of demand; the content of the discipline; the method and direction of education; and

the applications of what we learn. I should like to offer by way of introduction, some general thoughts about information science and its constituent elements as they affect education.

Much of the argument about exactly what constitutes information science is philosophical; we should do better as professionals to adopt the inductive reasoning that we use in so many of our techniques, and build up a definition (if indeed we need or want one) from observation of what practices and principles are sine qua non in our work. I offer no such analysis or synthesis but I feel it necessary to refer to some of the factors and arguments for what they may tell us.

Various schools of thought in the debate to define information science swing now to sociology, now to communication theory, now to computer science, now to administration - but all have a common (and hilariously suspect) factor in defining it explicitly away from library science. It is true that the librarian is traditionally concerned with libraries as storehouses of knowledge, offering documentary services to patrons: the loan of books; reference services based on books (often by directing the enquirer to the appropriate book) and collection building for the future. In this orientation to the physical aspects of information, although the problem-solving situation is still a common element, the librarian has attempted to maintain a passive role, and to promote only a helpful context in which the user may exploit the store of knowledge. But the growth of the quantity and complexity of knowledge makes it impossible now for any user in any community to be able adequately to comprehend or exploit even his own field of knowledge, even less the relevant ideas or methodologies in fields beyond his own. A dynamic role has now been defined, and is what concerns the information scientist.

But the attempts to draw these lines of demarcation may prove to have been a waste of time and energy; a study of the essential practices and the professional knowledge of information scientist and librarian reveals differences largely in the level and complexity of information handled, in the formality or informality of the mode of publication or presentation of the material handled, and in the degree of dynamic interaction with the patron. Structurally the nature of the transaction is fundamentally similar; a knowledge of information sources, of information coding and handling techniques, and of course, of the management of the information system, from its basic routines to its physical context and raison d'être. Certainly there are differences in orientation - but they constitute differences of degree rather than of kind, and of a degree rarely so great as to amount to a difference of kind.

A more fundamental difference distinguishes the scientific information worker who must have a knowledge of the substance as well

as the structure. How, and to what level, that knowledge must be achieved is difficult to say - but it should encompass the fundamental principles of the discipline, its concepts, terminology, and techniques. It may not be necessary for this information worker to have been in scientific research, but he must know enough to be a fully understanding, able and equal colleague. But at least no less should he have an authoritative expertise in information science.

In the face of a rapidly changing society and its technology we cannot expect to predict in concrete terms the context, tools and operations of information workers even twenty years from now - but some at least of our students now in universities can expect a working life of forty years after graduation. It follows that we should concentrate on problem-solving, decision-making abilities, together with the objectives of information work, so that the individual will be able to respond to any context or problem. At the same time we must realise that these same graduates are needed now and in the next few years in positions that exist now and for which they must receive some appropriate training as a foundation for experience and promotion.

The first dimension concerns objectives. What balance of first job skills and long range education should a program contain? Neither the student nor the initial employer will be happy with a neglect of practical expertise that will enable the professional to succeed and achieve responsibility and power; but the profession as a whole will suffer if he is crippled when he gets there by a neglect of fundamental principle. The solution may be in the discussion of the remaining dimensions. The second dimension concerns content: is there a core, what does it compose, and how much of it, and how much of fringe, supportive subjects should be included. There is a growing acceptance of an identifiable core: the resources, transfer mechanisms, management and context of information. But there is an increasing feeling that we cannot exclude disciplines that form part of these techniques: computer science, operations research, communications and the media. There is also the apprehension that information science has no substance in the conventional sense, and that somehow some elements must be sought to introduce it. But we may as easily say that information science has no substance in the conventional sense; it is a discipline that deals with structure - indeed, structure is its substance.

The third dimension concerns the educational process; how should we balance theoretical and practical studies? Ours is a complex discipline, and needs a theoretical framework within which all aspects may be comprehended easily. At the same time it is a profession of practitioners. Somehow the educational process must acknowledge this duality; can we imagine many other professions turning their new practitioners loose on the world without a period of rigorous practical training under strict and authoritative supervision?

We cannot expect to find answers to all these questions immediately, but hopefully we may begin to define the questions more clearly and sensibly, and a well defined question, as any information worker knows, is a long way towards the answer.