

Undergraduate education and data: The entry level information specialist experience

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"The medieval historian M. T. Clanchy has illustrated the reluctant acceptance of written documentation in place of first-person witness over more than three centuries of early English history. 'Documents,' he tells us, 'did not immediately inspire trust.' People had to be persuaded that written documentation was a reliable reflection of concrete, observable events" (Zuboff 77). Although it is true today that at one level people will accept anything in writing as probably authoritative, and all statistics as incontrovertible, in most of our working environments a higher level of sophistication obtains. From time to time there may be an urgent desire to replicate surveys available in archival form, a survival from the 12th century where the spoken word, direct experience, had a

validity not available in documentary evidence.

The real problem, however, is more substantial, and deals with the nature of information, with those basic characteristics of information that make it what it is: transferability without diminution, growth each time it is used, its accumulation at meteoric rates, the increasing dependence of each new management decision on prior cases. In the federal government, for instance, according to Wilson Dizard, as early as 1979 there were 600+ database management systems installed (Dizard 81); by 1990, it will cost nearly \$10 billion to maintain the computers and \$2 billion for modernization. Of course, these levels of growth are reflected in the private sector.

The impact of information technology on society has been variously described in terms of lessening labor or improving final quality. Shoshana Zuboff, in her In the Age of the Smart Machine characterizes it as resulting in a comprehensive "textualization" of work, the creation of a new symbolic medium, an "electronic text" that increasingly mediates between workers and their work, between the body and the task. We are well aware of this phenomenon: the surrogate level, in the index, abstract and full data levels. In the information process, work becomes abstract, the manipulation of intangible symbols rather than concrete objects. Zuboff's concern is with process, not with the accumulated data it engenders, but I suggest that where work is increasingly done in a technological mode, no matter what attitudes people may have about information, it continues to increase and require management - a kind of management which cuts across present functional lines and which most futurists, such as Shoshana Zuboff and Harlan Cleveland in his The Knowledge Executive, assert to be destroying the hierarchical structure of organizations. Although I have not observed this phenomenon, except as it apparently engenders anxiety in certain groups when discussed, it is one of the justifications for the academic preparation of

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end-users of information (Atkins, *passim*; Debons, *passim*; Porat, *passim*). So too the permanent growth of data is justification for providing new kinds of information intermediaries (Duffy, *passim*; Schmidt, *passim*; Spivack, *passim*; Topics, 77).

What I would like to do this morning is to describe to you, for the purpose of discussion, the Information Studies Program now in the design stage at Baruch College, in the hope that a such discussion will provide material with which we can fine-tune our work, to make it more responsive to the workplace.

The Information Studies Program is based on three premises based on perceived need:

1. That information has value to society, to organizations and to individual professionals.
2. That personnel are needed who understand and are able to organize and utilize information effectively.
3. That to reach enough information users, programs in Information Studies are needed at the undergraduate level.

What is the Information Studies program? This inter-disciplinary program focuses on the use and users of information as well as the technologies involved. It provides students with the conceptual bases they need to work in an information environment and some professional training. When taken as a minor concentration it complements a major—business, one of the social sciences, or one of the natural sciences.

Baruch College, offering as it does fully accredited business, health care administration, education and liberal arts programs, is in a unique position to offer an Information Studies program which is responsive to the needs of a changing economy. One of the senior colleges of the City University of New York, it has an

enrollment of about 14,000 and houses the business programs of the university. There is a growing need for information specialists in business, science and education; the marketing of information products is one of a growing number of examples that dramatically illustrate the viability of the Baruch meld of information studies and business.

In 1981 Baruch College began to develop and offer courses in the discipline of Information Studies and at present has five advanced courses approved by the Board of Trustees, and four courses approved by the School. The design of these courses is based on our view of the nature of information studies.

In spite of the growth of programs for training information professionals, and for some, the concentration on that part of the spectrum of information science which can be styled information studies, the discipline is still in what can be described as a pre-paradigmatic stage in which the producers are characterized by training in other, usually related, disciplines. In common with the outer reaches of all disciplines, conflicting views are held and discussed among peers and with a general but educated, thinking audience (Kusack, *passim*). The product, the texts produced, are treatises characterized by full discussion of the whole subject in so far as it is known (for instance Summary Results...). The assumptions of the discipline are the assertions of the treatises. Information Studies also has characteristics common to the next phase of development.

The paradigmatic phase partakes of patterns common in academic departments in which research is carried out in response to specific questions posed by the discipline. Thomas Kuhn's paradigms—recognized scientific achievements that define acceptable problems and methods—provide a generally accepted conceptual context for further investigation. The audience contracts to one of peers only. Communication moves from the treatise, a

literary form, to brief articles, written in highly technical terminology for that specialized audience (Paulson, Chapter 2).

Information Studies in the United States exhibits many of the characteristics of the pre-paradigmatic stage, especially in the kind of publication it engenders—think pieces, forecasts, theoretical approaches, essentially all assertions. Have you counted the number of assertions I've made so far?

Let's move to the more practical, more descriptive kind of approach to the subject:

General objectives of the program are:

1. to contribute to the preparation of undergraduate students for critical and effective participation in the complex structure of today's information society;
2. to prepare undergraduate Information Studies students for employment as information specialists in a variety of agencies and institutions;
3. to orient undergraduate Information Studies students towards graduate education in Information Studies or related fields;
4. to contribute to the academic preparation of undergraduate students who will enter careers or graduate education in related fields;
5. to provide course offerings that might be utilized by other segments of the University to augment their curricula.

Specific objectives of the program are to prepare students who will, within the limits of a minor subject specialization:

1. understand the nature and role of information in society in general, and in a variety of organizational settings;

2. understand how to find, evaluate, and use recorded information;
3. understand how to organize and retrieve recorded information;
4. acquire applied skills in information processing technologies;
5. be able to analyze the information needs of individuals, organizations and other social entities;
6. be able to design and manage information systems which meet specific information needs;
7. be able to instruct others in the use of retrieval systems;
8. be able to evaluate the effectiveness of information systems;
9. understand behavioral aspects of information transfer including communications theory and communication skills.

What valorizes information studies? The valorization process, still in the earliest stages, stems from politics and from economics. Information poses problems both political, in the sense of well-ordered organizations becoming chaotic in the face of too much information, and economic in developing feasible ways of dealing with information. Thus, we have talked about the specific and practical ends of such training, with the assumption that such training will be part of the solution, not part of the problem.

The following are some of the courses we are teaching, or plan to teach in conjunction with such subject majors as international business, management, biology, education or business communication. The latter concentrations we might call the content courses; what follows are

the Information Studies Courses:

Online Information Retrieval. Juniors and seniors learn database searching using several databanks, and employ advanced strategies. They download, edit and format bibliographies and abstracts. A variety of software—gateways and frontends—is examined and used.

Advanced Information Retrieval. Students learn to prepare material for input into databases. An indexing component presents automated indexing using standard software packages for file, periodical, and back-of-the-book indexing. An abstracting component explores the writing of indicative and informative abstracts, as well as other forms of terse writing. Students prepare an index for the alumni magazine, a permanent responsibility of the class.

Information and Society. A discussion and reading course covering policy matters and a general range of information technology and effects on society. The impact of telecommunications, electronic media, transborder data flows, etc., are studied. Students also visit state-of-the-art workplaces.

Informational Writing and Editing in Computer Environments. Efficient use of computer-generated information depends on its presentation. Students learn to reprocess bibliographic, text, and numeric data in print and graphic forms usable in business, government and non-profit organizations.

Science Information Retrieval. This course teaches basic principles of information retrieval in science and technology to students in pre-medical, health sciences and natural science programs using various interactive systems. In addition to bibliographic databases, students gain experience using databases to search for patents, to track technological developments, and to identify chemical substances. The purpose is to develop, in a scientific environment, those diagnostic, prescriptive and evaluative skills

needed for information-searching at entry level in the modern science environment.

Information Technologies. An overview course designed to acquaint the student with several categories of information technology: computers, telecommunications and satellites, and video/print reproduction/graphics. Representative technologies are examined in terms of functions, roles and design, and are related to the management of information resources. Term projects explore in depth examples from each category. Field trips to technologically advanced worksites acquaint the student with the latest applications.

Management of Information Resources and Records. General principles of information organization: classification and filing, coding and indexing, routing and copying are examined, then applied to specific formats in print and computer environments. Working with a computer model of an information center for both internal and external data, students make information management decisions and test them for relevance to organizational needs.

Management of External Numeric Data Bases. Managerial principles and practice by which external numeric data bases such as economic time-series, surveys and polls are effectively handled in business, academic, and public organizations provide the substance of this course. Acquisition, organization, service, and dissemination are considered. Students gain familiarity with a variety of data sources available from government agencies, data archives, research institutions, private vendors and scholars. They use mainframe computers and microcomputers to work with actual data in a laboratory setting to gain expertise with secondary data files and the technical aspects of data storage and retrieval.

This then is the program: what have we omitted that should be added? What have we

included that could be deleted? It is an ambitious program. Does it respond to the needs of an information society?□

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