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THE EPISTEMOLOGICAL DIMENSION OF INFORMATION SCIENCE AND ITS IMPACT ON LIBRARY AND ARCHIVAL EDUCATION[i]

Tom Wilson
Professor Emeritus
University of Sheffield
England

ABSTRACT

Epistemology is the study of the possibility and nature of human knowledge and, as agencies that are concerned with the records of that knowledge; now in both electronic and paper media it seems reasonable to explore the epistemology of library and information work and education for the information occupations. It is clear that, whatever our understanding of the way in which knowledge is created among humans, the records of that knowledge have some 'real' existence - knowledge, that is, what is in the intellectual apparatus of the individual (or 'between two ears' as Drucker puts it) may be socially constructed, but what can be recorded of that knowledge, that is, what we otherwise call 'information', takes a 'real' form. The 'real' form may be difficult to see, as in the case of the symbols cut by a laser on a CD-ROM, or the bits recorded on a hard disc, but they are there. This paper will consider the consequences of a realist epistemology for library and archival science and for education in these fields.

Keywords: Epistemological Concepts; Information Science; Library Education; Archival Education.

The reciprocal relationship of epistemology and science is of noteworthy kind. They are dependent upon each other. Epistemology without contact with science becomes an empty scheme. Science without epistemology is - insofar as it is thinkable at all - primitive and muddled. However, no sooner has the epistemologist, who is seeking a clear system, fought his way through to such a system, than he is inclined to interpret the thought-content of science in the sense of his system and to reject whatever does not fit into his system. The scientist, however, cannot afford to carry his striving for epistemological systematic that far. He accepts gratefully the epistemological conceptual analysis; but the external conditions, which are set for him by the facts of experience, do not permit him to let himself be too much restricted in the construction of his conceptual world by the adherence to an epistemological system. He therefore must appear to the systematic epistemologist as a type of unscrupulous opportunist: he appears as realist insofar as he seeks to describe a world independent of the acts of perception; as idealist insofar as he looks upon the concepts and theories as the free inventions of the human spirit (not logically derivable from what is empirically given); as positivist insofar as he considers his concepts and theories justified only to the extent to which they furnish a logical representation of relations among sensory experiences. He may even appear as Platonist or Pythagorean insofar as he considers the viewpoint of logical simplicity as an indispensable and effective tool of his research.

Albert Einstein, in Schlipp (1949)

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INTRODUCTION

At least the dictionaries are more or less in agreement as to what 'epistemology' and its derivatives mean:

- The theory or science of the method or grounds of knowledge (OXFORD ENGLISH DICTIONARY ONLINE).
- The philosophical theory of knowledge. Chambers 21st Century Dictionary.
- The branch of philosophy that studies the nature of knowledge, in particular its foundations, scope, and validity (ENCARTA DICTIONARY ONLINE).
- Epistemology, from the Greek words episteme (knowledge) and logos (word/speech) is the branch of philosophy that deals with the nature, origin and scope of knowledge (WIKIPEDIA ONLINE).

and if you put 'define: epistemology' into Google, you will get many more.

Now, you will note that there is a certain conflict in these definitions: three of them define epistemology as a philosophical enterprise, while the OED uses the terms 'theory' and 'science' – could it be that there is conflict about the nature of the enterprise? The OED definition clearly presents the idea that knowledge is discoverable through some kind of scientific process, through the application of theory. The philosophical definitions are less clear and it is worth noting that the original Greek appears to mean nothing more than 'talking about knowledge' – or perhaps, 'debating the nature of knowledge'. One school appears to propose that the nature of 'knowledge' is scientifically discoverable, whereas the other proposes that the nature of 'knowledge' is uncertain and consequently, debateable.

In fact, the situation is even a little more complicated. Wikipedia (in an article that seems to be reasonably authoritative), propose three schools of thought: empiricism, rationalism and constructivism. 'Empiricism' takes the position that, in general, 'knowledge' is based on our experience of the world and, especially, the experience gained through planned experiment and other scientific modes of seeking understanding of the world. In research we commonly refer to our having 'empirical' data, for example.

'Rationalism' takes the view that knowledge is gained through theoretical mental processes: according to Kant, for example, these processes were part of our mental structures. It differs from empiricism in that the criteria we use to determine

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the truth of a knowledge statement are intellectual and deductive, according to those mental processes, whereas the empiricist believes the evidence of his (or her) senses.

'Constructivism' is derived from the sociological notion of the 'social construction' of what we know: i.e., that we come to believe things through our interaction with others and through the mechanisms for the transfer of knowledge (schools, universities, etc.) established by a society.

In fact, the Wikipedia article is not really complete (given the rate at which new positions on the concept of 'knowledge' arise, it is difficult to keep pace!) We can add: 'pragmatism', the idea that knowledge is determined by what use it is: the truth of something depends upon the consequences being useful to us over a period of time.

Hjørland, a Danish LIS educator who has written much on the epistemological dimension of library and information science, identifies four main schools of epistemological thought: empiricism, rationalism, pragmatism – which we have seen before – and historicism (HJØRLAND, 2005). In his paper which explores these schools, at least to some extent, (HJØRLAND, 2002) he presents a table which sets out.

Empiricism	Rationalism	Historicism	Pragmatism
Relevant: Observations, sense-data. Induction from collections of observational data. Intersubjectively controlled data.	Relevant: Pure thinking, logic, mathematical models, computer modelling, systems of axioms, definitions, and theorems.	Relevant: Background knowledge about preunderstanding, theories, conceptions, contexts, historical developments, and evolutionary perspectives.	Relevant: Information about goals and values and consequences both involving the researcher and the object of research (subject and object).
Nonrelevant: Speculations, knowledge transmitted from authorities. "Book knowledge" ("reading nature, not books"). Data about the observers' assumptions and preunderstanding.	Low priority is given to empirical data because such data must be organized in accordance with principles that cannot come from experience.	Low priority is given to decontextualized data of which the meanings cannot be interpreted. Intersubjectively controlled data are often seen as trivia.	Low priority (or outright suspicion) is given to claimed value free or neutral information. For example, feminist epistemology is suspicious about the neutrality of information produced in a male dominated society.

Figure 1: Relevance Criteria for Four Epistemological Schools.
Source: Hjørland – 2002.

Given that one of the definitions of 'epistemology' is that it consists of debates about the nature of knowledge, you will not be surprised to learn that the five schools we have now arrived at do not completely exhaust the possibilities! Other writers propose other classifications of epistemologies and, to a degree, use different terms for very similar sets of ideas; thus, one finds, idealism, realism, conventionalism (or post-modern relativism), Marxist realism, and more. However, let us be satisfied with what we have and conclude that 'epistemology' is not a simple concept: how know what is true, how we arrive at 'knowledge' of our world and ourselves, is really the fundamental problem of philosophy and the philosophy of science, and it is not surprising that there are many views. Proponents of any one view will vigorously defend that view and point to the shortcomings of the rest.

2 THE RELEVANCE OF EPISTEMOLOGY TO INFORMATION PRACTICE

In the world of information practice (by which I mean information service delivery of any kind, whether face to face or through the design of Web portals), the relevance of epistemology is not immediately obvious. It is clear, however, that knowledge of the epistemological basis of the information to be organized could be a critical issue and Hjørland's book (1997) on *Information seeking and subject representation* makes a strong case for those who catalogue, index and otherwise organize materials for use being aware of epistemological differences. These differences, in Hjørland's view, create different domains within a subject area: thus, a Marxist epistemological position in, say, sociology, will result in a very different examination of the concept of social class, to that presented by a proponent of social constructionism. As a result, bodies of literature form around, not only the discipline and the problems of that discipline, but also around the epistemological positions of the scholars involved.

Hjørland (2002) illustrates the notion of domains by reference to difference schools in the field of psychology, identifying the cognitive, behavioural,

psychoanalytic and neuroscientific schools and linking them to fundamental epistemological differences. What is the relevance of this for the information worker? Hjørland shows that the different schools have varied in significance over time, with a decline in the behavioural school and an increase in the cognitive, and that the schools have their own core journals. He cites Robins et al. (1999):

Core Behaviouristic Journals ▪ Journal of the Experimental Analysis of Behaviour 1958–. ▪ Behaviour Research and Therapy 1963–. ▪ Journal of Applied Behaviour Analysis 1968–. ▪ Behaviour Therapy 1970–.
Core Cognitivistic Journals ▪ Cognitive Psychology 1970–. ▪ Cognition 1972–. ▪ Memory & Cognition 1973–. ▪ Journal of Experimental Psychology: Learning, Memory, and Cognition 1975–.
Core Neuroscientific Journals ▪ Journal of Neurophysiology 1938–. ▪ Annual Review of Neuroscience 1978–. ▪ Trends in Neurosciences 1978–. ▪ Journal of Neuroscience 1981–.
Core Psychoanalytic Journals ▪ International journal of psychoanalysis, 1920–.Psychoanalytic Quarterly, 1932–. ▪ Journal of the American Psychoanalytic Association, 1953–. ▪ Contemporary Psychoanalysis, 1964–.

Figure 2: Core Journals in Different Schools of Psychology.
Source: Hjørland – 2002.

Clearly, anyone providing an information service to psychological researchers needs to have this kind of knowledge in order to provide effective service.

What of the practitioner's own epistemological position? Is it important to have one's own view of reality in order to deliver effective information service? To answer this, I go back to a small pamphlet produced by a noted British librarian, D.J. Foskett. It was entitled, *The creed of a librarian: no politics, no religion, no morals* (1962) and the sub-title tells us what Foskett believed the creed of the librarian ought to be. The task of the practitioner is to mediate between the information seeker and the universe of information resources and, according to Foskett, this should be done

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without regard to one's own political, religious or moral standpoints. It is not that we should be devoid of political, religious or moral convictions but that we have no right to thrust our *own* view of the world upon others. Foskett argued that the librarian does need a philosophical position, but it is a position of an ethical character rather than an epistemological character: indeed, we might argue that, although a knowledge of epistemological viewpoints may be useful in helping us to organize resources effectively for use, as well as no politics, no religion and no morals, we should have no epistemology, in the same sense: whatever our view of reality, we have no right to force that view upon others, least of all the information user who is engaged on his or her own search for understanding of some aspect of the world or social relations within the world.

We can turn to another, earlier author, Jesse Shera (1952) for an epistemological examination of librarianship, although, in fact, Furner (2004) has pointed out that Shera's co-author, Margaret Egan, may have had more responsibility for the development of the concept and Shera himself gave ownership of the idea to her. Whatever the origins, however, 'social epistemology' was proposed as the appropriate epistemological position for librarianship–or at least, in terms of the title of the paper–bibliography.

Egan and Shera saw social epistemology as, 'the the production, distribution, and utilization of intellectual products' and Shera later contrasted social epistemology as concerned with knowledge in society, rather than knowledge in the individual. An entry in Wikipedia notes:

> Furner (2004) lists the following contributions made in "Foundations of a Theory of Bibliography":
> - Establishing "informed social action" as the goal of library service.
> - Establishing the extent to which librarianship contributes to attaining this goal as "the primary criterion by which [bibliographic services] may be evaluated".
> - Providing "a theoretical framework […] for the study of information-seeking behaviour, knowledge organization, and bibliometrics", which is then treated as "a theoretical foundation for library and information science".
> - Using the term "social epistemology" in this context for the first time.

Egan and Shera, therefore, propose that social epistemology is the study of the formation and organization of knowledge in society and that the role of the librarian is to support and assist this formation and organization, and, in particular to play a major role in the latter.

We can see that the concept of 'social epistemology' does not require the information worker to adopt a specific epistemological view of the nature of knowledge, or the criteria whereby the truth may be determined: the information worker is simply required to *act* to support the development of knowledge in society. To do so, it is evident that the librarian must possess his or her own knowledge of how to evaluate sources of information, to guide the user to sources that are most useful and most appropriate for their own epistemological viewpoint, but the concern is not with the *truth* of the information, but with whether or not appropriate quality standards have been applied in its production and dissemination.

Today, we can see the need for this in filtering the vast amount of Web-based information to extract that which is authoritative: entire books now exist that deal with this topic (e.g., Alexander and Tate, 1999) and McInery and Bird (2005) have produced a tool that can be used to assess Website quality. In assessing 'authority', for example, they suggest that the following should be addressed:

> **Authority**
> - Is the author clearly identified with background, resume, CV, or biography?
> - Is contact information, including postal address, phone, and e-mail available?
> - Is e-mail address linked for easy communication?
> - What is the domain type of the sponsor?
> - Is the sponsor trying to sell something or advocate a cause? (Selling and advocating are not necessarily negative characteristics, but either activity should be clearly stated).

Here, we see some of the dimensions of *social* epistemology at work: the domain type of the sponsor tells us something about the independence of the work; for example, information from an educational domain (.edu or .ac.uk) is likely to be more authoritative that, say, from a non-academic's home page. Again, selling and advocacy are social phenomena that may affect the authority of the source, and the

information worker needs to be aware of and knowledgeable him/herself about the potential sources of bias.

3 THE RELEVANCE OF EPISTEMOLOGY TO INFORMATION RESEARCH AND EDUCATION

Once we understand the relevance of epistemology in relation to information practice, its relevance to research and education in the field is fairly obvious.

The information researcher needs to have a particular epistemological viewpoint – a framework in which to set his or her research, an indicator to the kind of research community s/he will feel comfortable in, a point of reference that will enable that researcher and others to identify the nature of the research and potentially relevant research carried out by others. Research without an epistemological position is unthinkable: a researcher may not have consciously worked out what that position should be, but, as a result of the way the research is carried out, the epistemological position will be evident to others.

Thus, a researcher who employs surveys to collect data for statistical analysis, or a bibliometrician who collects citation or use data, is working under an *empiricist* epistemology, since s/he clearly believes that the data are in some sense a quantitative reflection of a 'real' world, outside of themselves.

On the other hand, such a position would be anathema to a social constructivist, carrying out work by using extended unstructured or sem-structured interviews and seeking to record how the interviewees perceive the phenomena under investigation and what meaning they attach to the constituents of those phenomena. That is a *constructivist* epistemology.

Does it matter, in terms of the results obtained, *which* epistemology position is adopted? Well, the different parties are likely to argue perpetually about whose understanding of 'reality' is correct. The constructivist will argue that events, activities, etc., *are* socially constructed, while the empiricist will respond that, even if such events are socially constructed, their occurrence and regularity, their composition and their effects can be *measured*. There is rarely a meeting of minds on this subject and the notion that the world and its contents can be, at the same

time, both 'real' and measurable, seems to be beyond the imagination of many. Artificial barriers between different ways of knowing are constructed–and, of course, they are socially constructed.

Let us conclude, therefore, that an epistemological position in research is not only necessary, but inevitable. And I do not think that it matters very much *which* epistemological position you adopt, as long as you know you have one, and are happy with the 'rules of the game' that go along with that position. Given the distribution of the epistemologies, you will always find like-minded researchers.

If we move, then, from research to teaching, the question is: How shall we approach the issue of epistemology in preparing students for the world of information work? There are two answers to this: one relates to those students whose intention are to be practitioners; the other to those who intend to follow a research career after the PhD.

The former group clearly needs to be aware of the issue of epistemology: it has relevance first for their studies of research methods, which all students should undertake, and secondly for their practice in libraries and information services. It has relevance for the study of research methods since it will enable them to understand how different epistemological positions determine the choice of problems and the presentation of research results. And this has relevance for their practice since it will enable them to review information research critically in assessing what is useful for practice. The epistemological 'landscape' is also relevant to practice in that, although the practitioner should not be biased towards a particular epistemological position (as noted earlier), s/he should be aware of the differences so as to be able to identify a) the location of the information seeker in the landscape and b) what information resources may be appropriate for the epistemological position of the information user and what resources approach the problem from a perspective that is antithetical to the user.

For the PhD student intending a teaching and research career, the situation is a development of the first argument: at the PhD level, studies in epistemology serve the purpose of sensitising the student to the range of possibilities and help

him/her to assess research materials, but, also, it will enable the student to find his or her own epistemological position.

From here we need to understand the role of the academic in developing the research potential of the student. Here, I would argue that the teacher needs to be as 'epistemologically blind' as the practitioner and for similar reasons: any researcher must find his or her own way to an epistemological position. Inevitably, of course, PhD students are going to be influenced by the work going on around them and, in relation to research methods, by the predispositions of their research methods teachers and supervisors. However, I hold strongly to the view that PhD students need to be competent in a range of research methods and that implies a willingness to engage with different epistemological positions. I do not believe that it is right to train students only within an epistemology that dominates within a department: *all* students need to understand the different epistemological fundamentals of research methods, they need to be competent in statistical techniques up to the level of multi-variate analysis, and competent in such interpretative methods as content analysis and 'grounded theory' approaches to the analysis of interview data. They need to be as able to use SPSS as well as Atlas/Ti or other qualitative analysis software.

It is also evident that epistemology is significant for either the testing of theory or the development of theory: if we are developing hypotheses about cause and effect relations among variables then, inevitably, we are adopting an empiricist position.

Clearly, this puts particular demands upon the information science department in a university: the department may not have people who are either competent or comfortable with one or another research method. They may be happier with statistical analysis than with qualitative – or vice versa. In such a situation, external help will be required and, for example, it may be that students will need to take a statistics course in a psychology department that specialises in experimental psychology; or a course in qualitative analysis in a department of education, where constructivist approaches to research are common.

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CONCLUSION

'Epistemology' is a philosophical topic having to do with our understanding of how 'knowledge' is developed in people and how what we believe to be 'true' about the world. No scholar can function as such without an epistemological ground upon which to build their research structures. It seems reasonable, therefore, to address a question which, I imagine, you wish to ask: "Well, Professor Wilson, what is *your* epistemology?" Fair question!

But not an easy one to answer. However, I shall attempt it. Fundamentally, I think that I am an *empiricist*: in other words I believe that there are objective phenomena in the physical world – this microphone, this lectern, this laptop and that projector, your chairs, the lights in the room are without question (at least to me), objective phenomena. I can count them, I can analyse them and in some cases take them apart and put them together again. In the world outside there are other real objects, birds, animals, plants and other human beings (like those in this audience): I can count them too and monitor their habits and behaviour, measure their height and weight and show that the average Body Mass Index of people in this room is 23.8 (or whatever).

Certainly, many of these things – the laptop, the chairs, the lectern, the lights – have been constructed through some social organization: the factory, the workshop, the atelier, in which people have come together to design and construct the objects. The *design* is socially constructed, but the thing itself has a reality outside the design, and many things are used for purposes for which they were never designed – think of the lion tamer with his whip and chair!

Also, the names of things are social constructions, sometimes formal, as when plant taxonomists gather to determine the names of new species; sometimes informal, as must have been the case when common names were adopted for the same plants. By taxonomic agreement we have the genus *impatiens*, but this plant variety is known as Busy Lizzie, Touch-me-not, Jewel-weed, belenes, chinos, gachupina and alegria da casa, Maria-sem-vergonha in different parts of the world.

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Thus, the world is *defined* socially, but those social definitions do not mean that the things themselves lack reality outside of the defining culture.

It is clear, also, that social relations are socially constructed: the family, the peer group, the school cohort, the football team, and the relationships among their members are all social constructions which mean different things to different people. However, we can study these social constructions empirically: if we know the varieties of behaviour in a group or in the same kinds of groups in different places, we can explore the regularities and irregularities of that behaviour. Children read: they read something of what they are told to read by their teachers, they exchange ideas on what to read among themselves, they discover books by themselves when they explore a library – reading is a socially constructed activity; but that does not prevent us from collecting information from, say, a thousand children on what they are reading at the moment, how they came to select that particular book, what they enjoy about it, and so on. We can have an empirical investigation which will reveal for one point in time what is popular among children, how they obtain their books and what gives them pleasure in a story. If we can retain our sample and re-visit them year by year, we shall have a longitudinal study that will reveal how reading habits change over time, what themes give lasting pleasure, what fades into the past of childhood as teenage appears.

In other words, I believe that, if we know enough about what we want to know, we can explore phenomena empirically but, at the same time, I would also define myself as a *phenomenologist* and phenomenology is at the root of social constructivism. I define myself in this way because I also believe that, if we are to acquire a deep understanding of social phenomena and of social actors we must seek to understand how *meaning* is made in social settings and by individuals reflecting on the world. To do this, we need to engage with people in extended interviewing, trying to uncover how they perceive events and phenomena, what importance they attach to them, what are the sources of problems and what of solutions.

I adopt these two, apparently contradictory viewpoints because, in order to undertake empiricist research, we need a sound understanding of the phenomena to be investigated and the interpretative approaches give us that understanding.

The difficult thing for students to understand, of course, is that there is no one *correct* epistemological position for all things, no single absolutely certain way to truth. Even the propositions of physical science are simply conclusions reached *for the time being.* No theory can be taken as absolutely true for all time, it only exists as a working set of ideas awaiting *disproof.* Some theories persist for centuries before being over-turned as a result of new discoveries, some are very transient and are dominant for a year or two and then disappear.

If this is the case for the physical sciences, where we can probe the structure of things to sub-atomic level, how much more likely is it to be in the social sciences, where we have our home, where the phenomena under investigation are constantly changing as a result of changes in underlying human behaviour, in the politics of the situation, the economics and the technology aids?

On a lighter note and to conclude let's look contrasting epistemological views of the same phenomenon:

> An engineer, an experimental physicist, a theoretical physicist, and a philosopher were hiking through the hills of Scotland. Cresting the top of one hill, they see, on top of the next, a black sheep. The engineer says: "What do you know, the sheep in Scotland are black". "Well, *some* of the sheep in Scotland are black," replies the experimental physicist. The theoretical physicist considers this for a moment and says "Well, at least one of the sheep in Scotland is black". "Well", the philosopher responds, "on one side, anyway".

and finally a reflection on the dangers of epistemology:

> *Descartes is sitting in a bar, having a drink. The bartender asks him if he would like another. "I think not," he says and vanishes in a puff of logic.*

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Thomas Daniel Wilson
Professor Emeritus
University of Sheffield
England
e-mail: t.d.wilson@shef.ac.uk
URL: http://informationr.net/tdw/

[i] Note: Conference opening of VII Encuentro Asociación de Educadores e Investigadores de Bibliotecología, Archivología, Ciencias de la Información y Documentación de Iberoamérica y el Caribe – VII EDIBCIC, November 22, 2006, in Marília city, São Paulo state, Brazil.