2002

Shera's social epistemology recast as psychological bibliology

Jonathan Furner, University of California, Los Angeles

Available at: https://works.bepress.com/furner/11/
Shera’s Social Epistemology Recast as Psychological Bibliology

Jonathan Furner
University of California, Los Angeles

This is a preprint of an article accepted for publication in
Social Epistemology
Copyright © 2002 by Taylor & Francis Group.

Submitted September 2001; referees’ reports received October 2001;
revised version submitted December 2001; accepted for publication December 2001.

Correspondence concerning this article should be addressed to
J. Furner, UCLA Department of Information Studies, 300 Young Drive North, Mailbox 951520,
Los Angeles, CA 90095-1520; email: jfurner@ucla.edu; voice: 310-825-5210; fax: 310-206-4460.

Biographical note

Jonathan Furner is an assistant professor in the Department of Information Studies at the
University of California, Los Angeles, CA 90095-1520, USA. His primary research
interest is in the theoretical foundations of the library and information sciences (LIS), and
he has published papers on aspects of information retrieval, knowledge organisation,
bibliometrics, and hypertext.

Abstract

Shera, the library scientist, is often credited with introducing the term and concept of
social epistemology; but his idea is most profitably viewed not as a contribution to
epistemology or even to the sociology of knowledge, but rather as the forerunner of a
document-focused strain of socio-cognitive psychology influential in the information
sciences from the 1970s onwards. In turn, the work of Shera and his colleague Egan is
itself reminiscent of the psychological bibliology defined by the documentalists Otlet and
Rubakin in the early twentieth century.
Introduction

In the philosophical literature, a social epistemology is typically conceived as one that provides a 'social' rather than an 'individualistic' account of the conditions that must be satisfied before a given belief may qualify as knowledge. Such an account will identify properties of society, culture, or community, rather than properties of the individual knower, as primary conditions (Schmitt 1994; Goldman 2001).

Perhaps uniquely for a term in common philosophical parlance, however, the expression 'social epistemology' seems to have been first used in the literature of library and information science (LIS). In their landmark Library Quarterly paper of 1952, Egan and Shera define social epistemology as 'the study of those processes by which society as a whole seeks to achieve a perceptive or understanding relation to the total environment—physical, psychological, and intellectual' (Egan & Shera 1952, p. 132; emphasis in the original). The 'focus of attention' of this new discipline should be 'the analysis of the production, distribution, and utilization of intellectual products' (pp. 133-134); the result of such analysis will be 'a framework for the effective investigation of the whole complex problem of the intellectual processes of society' (p. 132). Social epistemology is thus contrasted with traditional epistemology, through which (in Egan and Shera’s conception) philosophers seek to understand the intellectual processes by which the individual ‘achieves a perceptive or knowing relationship to his [personal] environment’ (p. 132).

Egan was the originator of both the term and this particular conception of social epistemology; after her death in 1959, it was left to Shera to revisit and refine his colleague’s ideas in a succession of papers before his own death in 1982. One of the most extended accounts of Shera’s conception of social epistemology is provided in his Sociological Foundations of Librarianship (SFL; Shera 1970), which records the five lectures given by Shera in 1967 as the Third Sarada Ranganathan Lectures in Library Science. It is this account on which I shall primarily draw in this paper.

Overview

My aim in this paper is to demonstrate that Shera’s social epistemology is more properly interpreted as a flavor of socio-cognitive psychology, rather than as a contribution to epistemology or even to the sociology of knowledge. More specifically, I am going to argue that it is more appropriate to understand Shera’s ideas as contributing to a particular field of inquiry that is uniquely concerned with the psychological effects of documents, and whose self-identification may be traced to the work of the documentalists Otlet and Rubakin in the early years of the twentieth century.

I wish to begin here by making a few remarks about the historical context in which Shera was writing. Although Shera refined his ideas on social epistemology over a thirty-year period, he was to make few significant alterations to his basic thesis. By contrast, over the same period, several major structural shifts were occurring in philosophy, psychology, and sociology: the successes of the linguistic epistemology practiced by Frege’s heirs were being overtaken by those of a ‘naturalised’ version that paid attention to the cognitive processes by which knowledge is generated (Goldman 1967; Quine 1969); the assumptions of behaviourist psychologists like Skinner were being replaced by those of cognitive psychologists following Chomsky (Wason & Johnson-Laird 1965; Newell & Simon 1972); and the sociologies of knowledge and science were beginning to take seriously the ideas of constructivists and relativists about the importance of social factors for explanations of cognitive states (Bloor 1976).

Shera would no doubt have been aware of the early products of these shifts. Of course, that such awareness is only dimly reflected in his writings on social epistemology should not be cause for criticism by those who enjoy the benefit of hindsight. Nevertheless, we may fairly point to several problems with Shera’s account of his conception of social epistemology. In the first place, his reading of Boulding is on several occasions ambiguous, and in any case Shera does not appear to supply any substantive augmentation of Boulding’s original conceptions of knowledge and cognition. Secondly, Shera’s
conception of the discipline of social epistemology leads him to contrast it confusingly with what he calls the sociology of knowledge. Thirdly, his continued reliance, into the 1970s, on structural-functionalist theories of social equilibrium that were prominent when he began writing in the 1950s gives a document like SFL an air of quaintness when placed alongside representatives of newer sociologies.

On the other, more positive, hand, Shera should be praised on several fronts. His treatment of Boulding prefigures the use made of the latter’s theory by LIS authors writing from the cognitive viewpoint in the 1970s and ’80s, and mirrors the cognitive turns being made at the same time in several other of the humanities and social sciences; his distinction between social epistemology and the sociology of knowledge may be salvaged; and, more generally and significantly, his is one of the more successful of efforts to define the theoretical foundations of library and information science, and to place the concerns of that discipline on a par with those of other fields in which the understanding of processes relating to human knowledge is the goal.

In the first four sections that follow, I wish to establish a foundation for the argument that is developed in the subsequent three. I shall start out by specifying the relationship Shera saw as existing between the theory of social epistemology and the practice of librarianship, going on respectively to describe Shera’s view of knowledge, in general, and social knowledge, in particular. I shall turn to Shera’s view of librarianship, emphasizing his passionately held view of the librarian’s social responsibilities, and exploring how this conviction translates into a prescription for the kinds of expertise that a librarian must have if she is to do her job well.

Then, in the final three sections, I shall present Shera’s own account of the subject matter of social epistemology, analyzing his interpretation of Egan’s original account and pointing out some sources of confusion. I shall review the possibilities that lie before us when we attempt to situate Shera’s social epistemology in the modern context; and I shall conclude by proposing a set of alternative lenses through which Shera’s contributions may be viewed.

Social epistemology and librarianship

It was Shera’s intention that the lectures recorded in SFL should point towards solutions of ‘certain problems ... fundamental to librarianship’ (pp. 27-28), one of the most pressing being that of identifying the intellectual foundations, the ‘core of fundamental theory’ (p. 29), to which the profession may look for guidance. Shera’s motivation for defining the boundaries of social epistemology lies in his perception that such a discipline could provide the source of ‘the theoretical foundations of the library profession’ (p. 89) and thus of library science. Previously, librarianship had developed merely ‘as a body of techniques evolved from certain ad hoc assumptions about how people use books ...’ (p. 29)---assumptions derived from individual experience rather than from principle. But Shera passionately believes that the librarian should be more than just a ‘link in a chain’ (p. 84), and correspondingly that librarianship should be more than just ‘a bundle of tricks, taught in a trade school’ (p. 88). ‘The question is really not, ‘Is librarianship a science’, but what kind of science librarianship is. ... I submit here ... that social epistemology can give librarianship its intellectual foundation ...’ (p. 108).

Since Shera’s clear intention is that the practice of librarianship should be based on the theory of social epistemology, we may view his project as essentially a normative one in which the primary task of social epistemology is to specify the strategies that we ought to take if we are to improve the effectiveness of library and information services. We shall return to this point when we examine what he has to say about the practice of librarianship; before we can do that, however, we need to clarify Shera’s conception of the knowledge whose communication is the object of such practice---a conception that is fairly typical within LIS, and that emphasises rather different aspects of candidates-for-knowledge than those commonly highlighted by epistemologists.
Shera’s view of knowledge

At the heart of the librarian’s activities lie what Shera calls ‘graphic records’, which contain ‘recorded knowledge’. A library scientist schooled in the European tradition of documentation (Rayward 1997) might use the term ‘document’ to mean the same thing as Shera does when he speaks of a ‘graphic record’; the sense (in terminology introduced by Buckland 1991) is of ‘information-as-thing’—i.e. a physical object, bearing meaning or ‘information-as-knowledge’. When Shera talks of recorded knowledge, the ‘knowledge’ to which he refers is the information contained in documents; his dual emphasis is on its recordability and communicability.

But Shera recognizes, of course, that knowledge is also something that is stored in the memories of those individuals to whom it is communicated. On occasion, he draws an explicit distinction between the contents of documents and the contents of people’s minds, using the label subjective knowledge to refer to the latter. For Shera, the subjective knowledge held by a person is equivalent to the ‘image of the world’ (SFL, p. 93; emphasis added) that the individual constructs through personal interpretation of perceived information; he credits Boulding (1956) as the first to use the term ‘image’ in this manner.

Shera’s usage of the term ‘knowledge’, here and elsewhere, to mean subjective knowledge or image in Boulding’s sense, is akin to the usage of ‘knowledge structure’ or ‘knowledge state’ in cognitive psychology, and in the related LIS literature on information-seeking behaviour (Belkin 1980). A more apt or less confusing term might be ‘cognitive state’, since it refers to the complete personal set of beliefs, about matters both of ‘fact’ and of ‘value’ (Boulding 1956, p. 11), held by an individual. The mental state of an individual comprises beliefs that may or may not be true and/or justified, as well as sundry thoughts, feelings, motivations, intentions, and emotions for which truth and justification are irrelevant evaluative criteria. For such entities to count as ‘knowledge’ on Boulding’s (and thus Shera’s) reading, we do not need to examine uniquely epistemic characteristics such as truth or justification; knowledge in this sense ‘has nothing to do really with truth or falsehood’ (SFL, p. 97). We may thus distinguish between an epistemological conception of (roughly speaking) knowledge-as-truth, and a psychological conception of knowledge-as-information. Boulding explicitly admits that, in his account of the field of ‘eiconics’ that he bases on his idea of the image, he endeavors ‘to steer clear of the great philosophical issue of epistemology, that is, of the theory of knowledge in philosophical terms’ (Boulding 1956, p. 164); and that ‘eiconics as an abstract discipline is consistent with a great many metaphysical or epistemological viewpoints’ (p. 172).

After Shera, Pratt (1977) was one of the first LIS authors to revisit Boulding’s conception of the image, in his account of information as ‘that-which-occurs-within-the-mind-upon-absorption-of-a-message’—an account of information-as-event that attracted further interest following its treatment by Belkin (1978) in his comprehensive review of conceptions of information. Shera’s reading of Boulding’s model is very similar to that underlying Brookes’ formulation of the ‘fundamental equation of information science’ (Brookes 1975; C. Cole 1994); and many LIS authors—some, like Belkin (1977) and T. D. Wilson (1984), making explicit reference to Boulding’s term ‘image’—have subsequently given accounts of information-seeking behaviour that rest on analogous conceptions of the process by which individuals effect change in their personal knowledge-states (T. D. Wilson 1994; Ingwersen 1996). Work of this kind in the information sciences is sometimes recognised as being a consequence of a paradigm shift, known as the ‘cognitive turn,’ toward the ‘cognitive viewpoint’ (De Mey 1982; Belkin 1990; Ellis 1992), and draws much of its inspiration from cognitive and social psychology. As Boulding puts it, ‘Social psychology has been eiconical almost from the start’ (Boulding 1956, p. 151).

Shera’s view of social knowledge

In SFL, Shera uses the phrase ‘social knowledge’ on only a very few occasions. Instead he distinguishes (pp. 83-84) between intrinsic knowledge of the kind that the individual has, and extrinsic knowledge of the kind that society has. For Shera, what it means to ‘know’ is different in each case; the
individual ‘has an emotional experience with ... knowledge’ (p. 83) and is thus capable of understanding in a way that society is not.

There seem to be at least three senses in which we may understand Shera when he talks of society possessing extrinsic knowledge. The difficulty that we encounter when choosing among interpretations is a consequence of the inconsistency of Shera’s multiple treatments of this part of his model.

Extrinsic knowledge as shared / public knowledge

The most obvious reading is that Shera is faithfully reproducing Boulding’s conception of a ‘social image’ (Boulding 1956, p. 61) as one that is shared by many members of society. If multiple individuals in a given society have private, personal, images of the world that are roughly identical, then we can talk of a shared image (Boulding 1956, p. 14) or public image (Boulding 1956, p. 64) consisting of public knowledge---i.e. those beliefs on which there is a fair degree of inter-subjective consensus. Boulding emphasises that such talk of a social image can be metaphorical only: ‘The image is always the property of the individual persons, not of the organization’ (Boulding 1956, p. 28). Although it is positioned in contrast to the subjective knowledge of individuals, public knowledge should not be called ‘objective’, since we do not need to refer to its degree of correspondence with reality, truth, or ‘the facts’. Boulding’s conception of public knowledge may be compared with those variously developed by Ziman (1967), Swanson (1986), and P. Wilson (1977), inter alia.

Shera does not make explicit reference to Boulding’s distinction between private and public knowledge. He does talk of societies (as well as individuals) as capable of having their own images of the world, created by filtering messages through the systems of values prevailing in those societies (p. 94), but he approvingly paraphrases Boulding’s definition of subjective knowledge as ‘the individual’s or society’s image of the world’ (p. 93; emphasis added), and refers to the basic process of image creation that Boulding describes as that of ‘social cognition’ (p. 94; emphasis added).

Extrinsic knowledge as recorded knowledge

Alternatively, we might be led to assume that Shera is using the terms ‘intrinsic’ and ‘extrinsic’ simply to reinforce the distinction already made between the contents of individuals’ knowledge states, i.e. subjective knowledge, on the one hand, and the contents of documents, i.e. recorded knowledge, on the other. This conception compares with the distinction White makes, from an LIS perspective, between ‘internal’ and ‘external’ memory (White, 1992).

Shera uses Boulding’s term ‘transcript’ when referring to ‘the graphic records of all that society knows about itself and the world in which the self lives’ (p. 109). For Boulding, however, the transcript is not strictly the totality of knowledge recorded in a society’s documents, but the (smaller) record of its public image. Moreover, Boulding makes it clear that the content of the transcript is both a result of, and an influence on, the content of the social image, but that the two should not be considered as one and the same. It is not obvious, however, that Shera consistently maintains a clear-cut distinction between society’s image and its transcript. On one occasion, for instance, he characterises society’s image as ‘the sum total of what is known, the whole body of truth, fact, information, principles or other objects of cognition, acquired by mankind and filtered through its value system’ (p. 94), moments after asserting unequivocally that it is the contents of books---specifically ‘the contents of all the encyclopaedias, the reference books, the proceedings of learned societies, et cetera, that have ever been published or have in any way been made available to it’---that should be viewed as ‘the sum total of human factual knowledge’ and as that which can be known ‘collectively’ by society (p. 83).

Extrinsic knowledge as objective knowledge

A third possibility---admittedly, a rather unlikely one---is that Shera is using ‘extrinsic’ in the same way as Popper (1968) uses ‘objective’. In the LIS literature (see, e.g., Brookes 1980; Neill 1987), much is often made of Popper’s assertion that the ‘most important inmates’ of his ‘third world’ of objective knowledge (later known as World 3, to contrast both with the physical World 1 and with the mental World 2) are ‘the contents of journals, books, and libraries’ (Popper 1968, p. 334). Some in LIS
find it useful to draw a rough distinction between a World 2 consisting of the internal memories (i.e. the images; the subjective, intrinsic knowledge) of all individuals, and a World 3 comprising the external memory of society---i.e. the knowledge recorded in documents. But, as far as Popper is concerned, the objective quality of the content of World 3 is not a function of its being recorded in documents, but rather of it being ‘independent of anybody’s claim to know ... It is knowledge without a knowing subject’ (Popper 1968, p. 336), and consists of problems, theories, arguments, conjectures, and refutations, both ‘actual’ (recorded) and ‘potential’ (currently unrecorded).

Boulding’s predilection for trichotomies was well-known (Rapoport 1997), and he would surely have appreciated Popper’s. But it should be emphasised that even the typical LIS readings of World 2 (as the union of all private images) and World 3 (as the totality of document content) are rather different from Boulding’s conceptions of the public image (an intersection of private images) and transcript (the physical record of that abstract intersection), respectively.

A precise understanding of Shera’s view of extrinsic knowledge is important if we are to make a positive identification of the extensions to Boulding’s theory for which Shera himself is responsible. Boulding was already well aware of the claims of the emerging discipline of the sociology of knowledge on inquiry into the nature of the relationship between social image and transcript (Boulding 1956, pp. 64-81); and, as we shall see, Shera is as keen to distance himself from that new field as he is to draw on the rest of Boulding’s ideas. For now, it is important to note the following: (a) Shera’s irregular conflation of shared image (as inter-subjective consensus) and external transcript (as public record); (b) his occasionally misleading use of ‘transcript’ in referring to the totality of recorded knowledge; and (c) his desire meanwhile to emphasise the social character of the processes by which recorded knowledge is produced and used. Each of these points becomes significant when interpreting his primary concern, as a library scientist, for the effects of, and influences on, our external memory. Perhaps the simplest way to proceed is to bear in mind that Shera is simultaneously aware of, and concerned for the implications of, two fundamental distinctions: on the one hand, between subjective knowledge (in minds) and recorded knowledge (in documents); and, on the other, between private knowledge (of an individual) and public knowledge (of a society).

【Insert table 1 about here】

Related distinctions are commonly made in several disciplinary contexts, and some of the terminology is summarised in table 1. As we have seen, subtle differences are often observed to exist between the relationship expressed by one pair of terms and that expressed by another pair, but the fundamental characteristic of knowledge of all the kinds listed in the right-hand column is that it is available to and directly accessible by people other than its creator.

Shera’s view of librarianship

We can now move from an examination of Shera’s conception of knowledge, to an outline of the way in which that conception underpins his analysis of the goals of the library profession. Shera’s view of the practical component of librarianship is that of ‘a service performed for the benefit of humanity’ (p. 29) by the librarian, who is ‘an effective mediator between man and his graphic records’ (p. 88). The role or function of the librarian, then, is to serve society by bringing together, on the one hand, people, and on the other, the knowledge recorded and stored in the contents of libraries, in such a way that the utility of the latter for the former (or, as the communication theorist might say, the effect of the message on the receptor) is maximised (p. 30; p. 74). Stated another way, the role of the librarian is ‘to make this communication [of knowledge] as complete [or as ‘useful’ (p. 77)] as possible’ (p. 76). In still different terms (Boulding’s), the librarian’s function is to support the development of the library user’s image of the world---i.e. ‘that which the user derives from his use of the library materials---the end-result of this long developmental process which is the end and goal of the librarian’s effort’ (p. 95).
For Shera, the ‘basic problem in librarianship’ (p. 36) thus consists in determining what we can do ‘to match two patterns---the pattern of human thought to the pattern of organisation of the Library’ (p. 36-37). The first pattern is the structure of the individual library user’s image of the world; the second is the structure imposed on the library’s contents by the classification schemes designed by librarians. The value of the latter structure depends on the extent to which it mirrors the former: ‘the degree to which these two patterns coincide will determine the effectiveness of the way in which the material is organised’ (p. 37). The librarian’s bibliographic systems should therefore be ‘structured to conform as closely as possible to man’s uses of recorded knowledge’ (p. 89).

Shera is well aware, of course, that different individuals organise their thoughts in different ways; and therefore that we should not hope that any given enumerative classification scheme could possibly simultaneously reflect the multiple cognitive structures of all its users. But he does seem to accept the possibility that librarians may successfully identify the structure, not of individuals’ images of the world, but of the image constructed by the society in which the library is situated. The effectiveness of the library’s bibliographic systems depends on their being ‘brought into coincidence with the uses to which society, as well as the individual, puts knowledge’ (p. 90). The relationship that needs to be cemented is that between ‘the structure of knowledge as it has developed in contemporary Western civilisation and the librarian’s tools for facilitating intellectual access to that knowledge’ (p. 84).

What kinds of professional expertise must the librarian have if he is to be capable of doing this job---matching the structure of external memory with that of internal memory---with success? Shera asserts that the librarian must have an expert’s understanding of the processes by which images, both personal and social, are constructed; and that such expertise will necessarily involve an understanding of the ways in which people use documents and the ways in which documents affect people. He identifies two problems as requiring solution if the librarian is to come to this kind of understanding.

(a) The first of these is stated as ‘the problem of cognition’ (p. 89; emphasis added), which we may interpret as that of understanding how an individual person effects a change in their personal knowledge-state---i.e. how a person contributes to the construction of their personal image of the world. One of the factors influencing this process is the use that the person makes of documents.

(b) The second problem is ‘the problem of social cognition’ (p. 89; emphasis added), whose solution would require us to understand ‘the ways in which society knows’ (p. 89)---i.e. how ‘society as a whole achieves a perceptive relation to its total environment; ... the means by which a society ... achieves an understanding of the totality of stimuli which act upon it’ (p. 86); in other words, how a consensual, shared image is constructed and maintained by a society. Again, one of the factors influencing this process is the use that is made of documents.

In the interests of clarification and synthesis, and building on what we know of Shera’s reading of Boulding (and Brookes’s reading of Popper), we might be tempted to construct a model that identifies the human activities, of which understanding is sought, as follows:

1. the construction of physical artifacts (including documents);
2. the construction of subjective knowledge---i.e. images, both (a) personal and (b) social, of the contents (i) of the physical world, (ii) of other people’s minds, and (iii) of documents;
3. the construction of recorded knowledge---i.e. ‘reflections’, or expressions of thought, contained in documents, considered both (a) individually and (b) collectively, and as representations of (i) the physical world, (ii) the mental world, and (iii) other documents.

Shera’s view of the task of the librarian may then be interpreted as a dual responsibility: (a) to produce, in the form of whatever classification scheme is used to organise the documents in a collection, an accurate reflection of his society’s (or library-user group’s) image of its recorded knowledge; and (b) to ensure, in the course of person-to-person ‘reference interviews’ (or person-to-machine query-formulation sessions)
in which library or retrieval-system users express their information needs, that those users are able to construct as accurate an image as possible of the structure previously imposed on the collection.

Shera’s view of social epistemology

The promise of the ‘new discipline’ (p. 84) of social epistemology is that it will solve the fundamental problems described above and equip the librarian with the expertise required to fulfil his unique responsibilities. With respect to ‘the problem of cognition’, for instance, Shera asks: ‘How does reading or communication affect the behaviour of the individual?’ (p. 39); and ‘[W]hat psychological problems are involved in this act of reading ... [?]’ (p. 45). Amongst library scientists interested in studying the effects of reading on human behaviour, he singles out Waples at Chicago, whose progress was cut short by the Second World War (p. 39). Shera admits that scholars are a long way from understanding this process, and says that all he can do is ‘suggest certain lines of enquiry’ (p. 32) that may lead to scientific knowledge. One primary recommendation is for library scientists to draw on the findings of other disciplines that engage in analysis of cognition, ‘in psychological, neurological, and organisational terms’ (p. 50).

With respect to the second problem, Shera argues that it will only be when we are successful in improving our understanding of the process of social cognition, that we may hope to devise the techniques, design the tools, or specify the principles (such as Ranganathan’s celebrated ‘Five Laws’ of library science) that librarians may use to effect pattern-matching of the kind described above. In constructing schemes or languages for classifying or indexing documents (p. 46), for example, librarians need to know about the internal classificatory structures or mental models that members of social groups use to organise their own knowledge. Similarly, in conducting reference work (pp. 46-47), librarians need to know about the ways in which members of social groups structure their own images of the world, and about the methods that may be used to elicit from those people accurate expressions of their images.

Shera remembers that the term ‘social epistemology’ was ‘originally devised’ by his ‘former associate Miss Margaret Egan’ (p. 85), and goes on to summarise her thinking (originally presented in Egan & Shera 1952).

‘As she [Egan] has pointed out, psychologists have studied behaviour with reference to the conduct of the individual; epistemologists have studied the origins, growth, and development of knowledge, but again with reference to the individual. The sociologists have studied the behaviour of people in groups, but never really with reference to the influence of knowledge upon that behaviour. In other words, epistemology has never been taken out of the realm of individual’s relation to knowledge and studied in relation to the sum total of social behaviour, social action’ (p. 85).

This account of Egan’s view seems to indicate that a distinction between disciplines and between their subject matters is being made along the lines summarised in table 2. The object of study may be human behaviour in general, or it may more specifically be the ‘influence of knowledge’ on behaviour, or it may be the ‘origins, growth, and development’ of knowledge. The agents—-the people whose behaviour or knowledge it is that is being studied—-may either be individuals, or ‘people in groups’.

[Insert table 2 about here]

In this model, the relation of social epistemology to epistemology is not quite the same as that of sociology to psychology, and hence the analogy is not quite as clear-cut as Shera would have us believe. Whereas both sociology and psychology are considered to have the same general object of study, the stated concerns of epistemology and Shera’s social epistemology appear to be sufficiently different for us to begin already to doubt that Egan’s social epistemology is really distinctively epistemological at all. If it is behaviour that is the ultimate explanandum of this ‘new’ discipline, whether the factors that are noted
as influencing this behaviour are ‘knowledge’-related or not, it would seem (on the face of it) that the
discipline has a closer affinity with psychology than with epistemology. Moreover, although Shera is
clearly aware of the distinction between epistemological and psychological conceptions of knowledge to
which we referred earlier (see, for example, p. 97 in SFL), he does not tease out its implication for Egan’s
original model---which is that the ‘knowledge’(-as-information) that is meant in the phrase ‘influence of
knowledge’ is different from the ‘knowledge’(-as-truth) that is denoted in ‘origins, growth, and
development of knowledge’.\(^\text{13}\)

Another source of confusion for the reader of Shera’s account of social epistemology lies in what
may be viewed as his ambiguous response to the sociology of knowledge. On the one hand, Shera
explicitly states that his new discipline should concern itself not just with the use of knowledge, but also
with its production. For instance: ‘The focus of [social epistemology] should be upon the production,
flow, integration, and consumption of all forms of communicated thought throughout the entire social
fabric’ (p. 86; emphasis added). Further on, he approves the concern of social epistemology with
questions about the systems ‘by means of which personal knowledge becomes social knowledge’ (p. 89).
These are questions about how social knowledge---whether construed as the knowledge-as-information
recorded in a given society’s documents and libraries, or as the shared content of the images of the
members of that society---is created, produced, or constructed. In short, when Shera defines social
epistemology generally, as ‘the study of knowledge in society’, with a view to understanding the nature of
‘the intellectual process in society’ (p. 86), it seems natural to assume that he would want to include under
this rubric study of the ways in which such knowledge is produced (as well as the ways in which it is
used).

Yet, elsewhere, Shera expressly protests that ‘social epistemology ... is almost the reverse of the
sociology of knowledge’ (p. 107; emphasis added). He says: ‘The sociology of knowledge deals with the
impact of the social fabric upon ideas. ... The conditioning of knowledge ... by society is the substance of
the sociology of knowledge. ... Social epistemology ... deals with the impact of knowledge upon society--
-not the influence of society upon knowledge ... We are talking about the other side of the coin entirely’
(pp. 107-108). Shera appears to want to retain a distinction between one mode of inquiry---his social
epistemology---that concerns itself with the influence of documents on people, and another---his
conception of the sociology of knowledge---that concerns itself with the influence of people on
documents.

It is difficult to see how social epistemologists may investigate one of the subjects apparently
specifically assigned to them by Shera---the way in which social knowledge is produced---without taking
‘the influence of society’ upon such knowledge into explicit account. Nevertheless, the distinction that
Shera draws between the sociology of knowledge and social epistemology is mirrored by a distinction
that may be drawn, in contemporary practice, between the former and a discipline that, for want of a
standardised term, we might call information use studies.\(^\text{14}\) The correspondence between information use
studies and Shera’s social epistemology is further examined in the following section.

A modern view of Shera’s social epistemology

To view the Egan--Shera model of disciplinary boundaries from a perspective informed by more-
recent exercises in scholarly self-definition, it is helpful to undertake a brief review of recent
developments in related fields, beginning with epistemology itself.

The impact on epistemology of the successive paradigm shifts that have come to be known as the
linguistic and cognitive turns is well documented. Kitcher (1992), for example, distinguishes between, on
the one hand, the post-Fregean epistemology pioneered by Russell, Wittgenstein, and the Vienna Circle of
logical positivists in the early part of the twentieth century, and on the other, the naturalised epistemology
emerging from the work in the 1950s and ’60s of Quine, Kuhn, and various respondents to Gettier’s
presentation of counterexamples to the common conception of knowledge as justified, true belief. Post-
Fregean epistemology may be characterised by its practitioners’ assumption that the only tools available
to them are logic and conceptual analysis; in contrast, naturalists argue for the acceptability (or, indeed,
the necessity) of the use of concepts (and, in some strong formulations, the empirical results) of psychology in solving epistemological problems. One outcome of the latter approach has been the development of reliabilist accounts of the ‘third condition’ of knowledge, in which beliefs are appraised by focusing on the processes by which they were generated, and assessing the relative frequency with which such processes allow us to achieve our epistemic goals (Goldman 1986).

Kitcher further distinguishes between two flavors of naturalised epistemology, one ‘traditional’, another ‘radical’. Kitcher roughly equates the latter with the sociology of knowledge, emphasizing its denial of the validity of the general normative project of epistemology, whose goal is typically taken to be the specification of generally effective strategies for the generation of knowledge. What is left for the sociologist of knowledge is a descriptive (i.e. explanatory) study of the ways in which people in various social groups actually choose among theories, and thus generate knowledge, in practice. Kitcher’s conception of social epistemology is of a naturalised epistemology that admits sociological as well as psychological explanation, and that may be considered ‘traditional’ or ‘radical’ depending on its normativity. These distinctions are summarised in table 3.

Kitcher does not differentiate between the sociology of knowledge practiced in the contemporary era by (for example) Bloor and Latour and the sociology of science exemplified by Merton, but many others (see, e.g., S. Cole 1992; Hess 1997) have provided compelling accounts of this distinction. On a typical reading, the sociology of knowledge, whose mainly European origins can be traced to the work of Fleck and Mannheim in the 1920s, is conceived as being primarily concerned with the ‘content’ of knowledge---whether the theories contained in scientific documents, or the beliefs expressed by the members of a social group---whereas the sociology of science, historically a largely American endeavor emerging as a specialised sub-section of the sociology of occupations, focuses to a greater extent on the institutional and disciplinary ‘contexts’ in which knowledge is produced.

The sociologist of science studies the social processes by which scholars, subjects, and documents are positioned within networks. She asks: How are scholars evaluated and rewarded, and how are they stratified by status? How do scholars choose amongst subjects to write about, and what are the consequent rates at which different fields of knowledge grow? How are disciplines, and the relationships among subjects, structured and organised? Although much of the work is descriptive, all of these questions have normative counterparts (How should scholars be evaluated?, etc.); policymakers often find the answers useful, whereas sociologists of knowledge and others opposed to the normative project are typically disdainful of the ideological bias that such answers are said necessarily to display. An entry for the sociology of science is added to table 3’s disciplinary matrix accordingly.

We would have good reason, given the common focus on knowledge (however conceptualised) of each of these fields---post-Fregean epistemology, naturalised epistemology, the sociology of knowledge, social epistemology, and the sociology of science---to consider the set as forming the core not only of a narrow ‘science studies’, in which knowledge produced in the name of science is privileged, but of a broader ‘information studies’ whose goal is to understand all aspects of the production, organisation, and use of knowledge-as-information, and that includes library and information science. A promising strategy for the modern reader of Shera’s SFL would appear to be to characterise his social epistemology as a conception of theoretical LIS---LIS-as-SE---in direct comparison with the other fields presented in table 3.

Clearly, the initial task in this strategy is to separate LIS-as-SE from the sociology of science: in table 3, the two fields are presented as having identical characteristics. One key may lie in the extent to which each field is concerned to establish norms or specifications of how things ought to be done. As we saw earlier, Shera viewed LIS-as-SE explicitly as a normative project that would infer, from observations of the ways in which people access and use documents in practice, recommendations of ways in which collections of documents should be structured and organised. So, whereas study of the factors influencing the structure of document networks is often seen as part of the sociology of science (just as study of the
factors influencing the structure of bibliographic classification schemes is sometimes seen as part of the sociology of knowledge, information use studies---and the guidelines for the design of document access (i.e. information retrieval) systems that are derived from the conclusions of such studies---are the core of LIS-as-SE.

A second and probably more crucial point of differentiation lies in the extent to which each field is interested in document use as opposed to document production, and it is here that we can resuscitate Shera’s argument for drawing a line between LIS-as-SE and (what he called) the ‘sociology of knowledge’. ‘Information use studies’ is commonly pressed into service as a convenient label for all kinds of studies of the needs and behaviour of information-seekers and the users of libraries, information services, and information systems: precisely the kinds of studies, in other words, that Shera saw as informing the practice of retrieval-system design and reference work. The sociology of science, on the other hand, insofar as it is concerned with recorded knowledge, is not typically motivated by the goal of understanding how scholars (let alone non-scholars) use documents, but rather how they generate them.

There are overlaps in the subject matters of cognitive psychology and information use studies, and the literature of the latter borrows heavily from that of the former. It will be plain from the most cursory reading of SFL that the problems of ‘cognition’ and ‘social cognition’ that Shera intended his LIS-as-SE to solve are closely related to those faced by cognitive psychologists. But cognitive psychologists are concerned with all aspects of the cognitive processes by which knowledge-as-information is manipulated by individuals; their primary interest is in the production of subjective knowledge, and in the use not of recorded knowledge but of data derived from sensory perception. Moreover, in its appreciation of the importance of contextual and situational factors, and of the membership of information seekers in discernible groups, information use studies often displays a distinctively sociological (rather than merely psychological) perspective.

Alternative conceptions of Shera’s social epistemology

In conclusion, given (a) Shera’s motivation to establish a new name for his (and Egan’s) ‘new’ theoretical discipline that was to underpin library science, (b) the lack of a distinctively epistemological aspect to his work, (c) the affinity of that work with the emerging cognitive sciences in general and cognitive psychology in particular, and (d) its obvious concern for social factors, I present five suggestions for disciplinary labels that may be used to distinguish Shera’s ‘social epistemology’ from the social epistemology that will be more familiar to readers of this journal, and from the sociology of knowledge.

‘Socio-cognitive psychology’ highlights the psychological aspects of the ‘new’ discipline; if, however, it were decided that the influence of social factors on document use are of paramount importance for the ‘new’ discipline (just as factors of that kind are treated, with respect to document production, by the sociologies of science and knowledge), the name ‘cognitive sociology’ might be considered more apposite. Disappointingly, perhaps, the opportunity to stake a claim to either label has long been lost, the latter to a flavor of ethnomethodology championed by Cicourel (1974).

Alternatively, it might reasonably be concluded that neither of those locutions give sufficient indication that the practitioners of the new discipline are concerned primarily with the cognitive effect of documents (as opposed to that of sense-data). Of course, we could determine to stick with a label such as ‘information use studies’ that happens conveniently and accurately to describe the extensive and valuable work on the usage of documents and libraries that has been carried out in LIS, with or (mostly) without citing Shera, over the last half-century.

A more intriguing possibility is suggested by an appreciation of Shera’s oversight when he fails to distinguish effectively between knowledge-as-information and knowledge-as-structure. (We might instead wish to contrast knowledge-as-data and knowledge-as-metadata.) Just as (it may be argued) the creation of a narrative text is not the same kind of act as the creation of a classification scheme, neither should the use of a conventional document be viewed in the same way as the use that is made of a classification scheme. Shera distinguishes between knowledge production and use, but does not consider
that knowledge organisation may properly be viewed as a third category, and that the study of social factors influencing the ways in which existing indexing languages and metadata schemes are used by people might be an area of inquiry—‘metadata studies’—with its own unique challenges.

Finally, mindful of our desire to emphasise both cognitive factors and documentary objects, we might otherwise be persuaded to turn to either of Rubakin’s neologisms, ‘bibliological psychology’ or its abbreviated form ‘bibliopsychology’ (Simsova 1969). Turin (1929, p. 81) summarises Rubakin’s conception of bibliopsychology as ‘a branch of contemporary behaviourist psychology, the object of which is the study of the behaviour of all those who are engaged in the business of books, which includes all the processes of the creation, circulation and utilisation of all values of the printed, written and spoken word’. Elements of this study include ‘1. The psychological types of persons engaged in the business of books. 2. Their labour and its psychological peculiarities. 3. The results of their labour ... 4. The social environment in which books are produced ...’, as well as ‘the ideas and aspirations which are the outcome of the processes of reading and listening, the creation of new forms of social and individual life as a result of the influence of reading and listening, the creation of a body of readers, and, finally, the transformation of readers into writers’ (Turin 1929, p. 79). Simsova (1969, p. 433) expressly identifies ‘bibliosociology’, the study of books in society, as a division of bibliopsychology.

I shall confess a personal preference for ‘psychological bibliology’, Otlet’s turnaround of Rubakin’s term, originally introduced in its French form by Otlet in 1919. Shera’s account of the need for a theory of social epistemology to act as a foundation for the practice of librarianship is reminiscent of Otlet’s promotion of the science of ‘bibliology’. ‘We need a general theory of the Book and the Document’, says Otlet.

The Science of the Book has followed the same historical process as all of the other sciences. In a first phase it was purely descriptive. Bibliography, properly speaking, appeared during this phase. A second phase must attempt to derive principles, laws and theories from the facts in order to create Bibliology. Finally, practical measures must be deduced from this as a substitute for earlier trial and error methods to give us Bibliotechnology. (Otlet 1920, trans. Rayward 1990; emphases in original)

Otlet continues: ‘The theory of all the processes and functions of the book ...’ will be part of the ‘discipline thus formed’. This theory ...

... must be based on observation and comparison of existing specimens after the fashion of natural history which describes and classifies species. It must stimulate the invention of new kinds of intellectual tools, just as industrial technology encourages the creation of new machines for transforming matter. In making clear the ultimate goals of the Book and its individual and social functions, this theory must also provide support and justification for a general organisation. (Otlet 1920, trans. Rayward 1990)

Otlet identifies four ‘chapters’ of bibliology, one of which he defines as follows:

Psychological Bibliology. The process of creation, circulation, use and influence of the Book and of the Newspaper. Research into the relationships created by means of printed matter between authors and readers. Research on the correspondence between the mental patterns of those who write and those who read; optimal conditions for individual reading; the appropriate role for text and pictures. (Otlet 1920, trans. Rayward 1990)

Otlet’s new terms never caught on in mainstream LIS. Yet both of the ideas mentioned here—(a) his identification of bibliology as the science of documents, i.e. as the general theory underlying the practice of bibliography, librarianship, documentation, and information retrieval, and (b) his division of this science into specific sub-fields on the basis of the extent to which they intersect with certain cognate
disciplines---bear revisiting in the light of current trends in the information sciences. If Otlet’s work had been disseminated more widely, perhaps we would now enjoy the precision not only of psychological bibliology rather than user studies, but also of linguistic bibliology instead of knowledge organisation, computational bibliology instead of information retrieval, and so on.\textsuperscript{18}

This parlor game of terminological ‘what-if?’ may reasonably be interpreted as pointless whimsy. In the present context, the more important point is this: If we understand Shera’s conception of social epistemology in any of the five ways described above, we point ourselves in directions taken neither by contemporary social epistemologists nor by sociologists of knowledge. We need to recognise both (a) that Shera’s work does successfully indicate where a theory of librarianship may be found, and (b) that much progress toward this goal has already been made—thanks to the ‘cognitive turn’ in LIS that is typically dated to the work of such authors as Brookes, Belkin, and T. D. Wilson, but that was heralded by Egan and Shera, and by Otlet and Rubakin before them.

Acknowledgments

I would like to thank Marcia Bates, Natalie Cole, Don Fallis, and the anonymous referees for their helpful comments on an earlier draft of this paper. My work in this area is funded in part by a grant from the Academic Senate’s Council on Research, University of California, Los Angeles.

References


Turin, L., 1929. Dr. N. Roubakine on biblio-psychology. Psyche, 19, 74-93.

Footnotes
1 Margaret Elizabeth Egan (1905-59) was an Assistant Professor in the Graduate Library School at the University of Chicago from 1946 to 1955, and (on Shera’s invitation) an Associate Professor in the School of Library Science at Western Reserve University (WRU; Cleveland, OH) from 1955 until her death.
2 Jesse Hauk Shera (1904-82) was Professor in the Graduate Library School at the University of Chicago from 1947 to 1952, before becoming Dean of the School of Library Science at Western Reserve University, holding that post until his retirement in 1970. In 1955, with James W. Perry and Allen Kent, Shera established the Center for Documentation and Communication Research at WRU, and oversaw rapid advances in the development of automated systems for document retrieval.
3 In an entry for Egan that he contributed to a biographical encyclopedia, Shera (1978) quotes from a letter received from Ralph Shaw---‘Hers was one of the truly great minds of American librarianship’ (p. 159)---and admits that ‘even today, on those rare occasions of contemplating what I have published, I am amazed to find how much of it is her speaking through my own halting prose. “Social epistemology”, both the term and the concept, were hers, but because I have given it wide currency, despite frequent disclaimers, it has generally been attributed to me’ (p. 159).
4 This lecture series, inaugurated in 1965, was funded by the Sarada Ranganathan Endowment in Library Science, itself established in 1961. Sarada Ranganathan was the wife of Shiyali Ramamrita Ranganathan (1892-1972), the celebrated Indian librarian. Shera’s lectures were supposed to have been given in person in Bangalore, the home of the Documentation Research and Training Centre at which S. R. Ranganathan was Honorary Professor; but Shera’s failing eyesight (he was 64) and wife’s poor health prevented him from making the trip. Instead, he recorded his lectures onto tape which he then delivered to India. The transcripts were published in 1970.
5 All subsequent page references are to SFL unless otherwise indicated.
6 With Henri La Fontaine, a fellow Belgian lawyer, Paul Otlet (1868-1944) founded in 1895 the Institut International de Bibliographie (IIB; forerunner of the modern FID---Fédération Internationale d’Information et de Documentation), which produced the first complete edition of the Classification Décimale Universelle (in English, the UDC; Rayward 1997). Otlet published his Traité de Documentation in 1934 (Otlet 1934); the influence of this seminal work on the subsequent development of library and information science has been constrained only by its currently remaining in untranslated form.
7 Otlet’s friend, Nicolas A. Rubakin (or Roubakine; 1862-1946), a Russian librarian who lived for many years in Switzerland, founded an Institute of Bibliopsychology in Lausanne in 1916, and published a two-volume Introduction à la Psychologie Bibliologique in 1922 (Rubakin 1922; Simsova 1977).
8 Kenneth Ewart Boulding (1910-93), the economist, co-founded the International Society for General Systems Research (now the International Society of System Sciences) with Bertalanffy, Gerard, and Rapoport (Rapoport 1997), and was a central figure in the development of general systems theory in the 1950s and ’60s and evolutionary
economics and ecodynamics in the ’70s. The hierarchical model of the structure of reality that he outlined in *The Image* (Boulding 1956), in which successive levels are characterised by increasing complexity, was later presented in its definitive version in one of general systems theory’s most important documents (Boulding 1957). Boulding may be considered a structuralist on account of his appreciation of the impact of underlying social structure on human behaviour (Solo 1997); a functionalist on the basis of his attribution of the goal of equilibrium-maintenance to the elements of social systems; and a naturalist in virtue of his belief that, since they exhibit similar kinds of structure, the social sciences and the natural sciences may be studied using similar methods. In a memoir, Keyfitz (1996) remarks how ‘in reading through Boulding’s work one is astonished at how far he anticipated ideas that were reinvented years later and that many social scientists have not yet tumbled to’. Indeed, the conception that Boulding presented in *The Image*, of human cognition as a system, at first received scant attention; but the book has since been recognised as a ‘citation classic’ (Anonymous 1988) in which the foundations are laid of ‘a universal theory of learning, knowledge, organization, and behavior’ (Solo 1997).

9 ‘A public image almost invariably produces a “transcript”; that is, a record in more of less permanent form which can be handed down from generation to generation.’ (Boulding 1956, p. 64)

10 ‘An effective transcript has a great effect in creating a public image, that is, in ensuring that the images of the various individuals who have access to the transcript are identical or nearly so.’ (Boulding 1956, p. 65)

11 Shera uses the masculine pronoun throughout his work to refer to the member of society, to the library user, and to the librarian alike. It is only in order to maintain consistency between quotation and commentary that we continue this usage here.

12 More recently, and equally intriguingly, Wiegand (1997) has argued for a renewed focus on ‘reading studies’ in the curricula of LIS schools.

13 In any case, Egan may have been more precise if she had referred to the subject matter of epistemology as (say) the criteria and grounds for knowledge.

14 This is the label used, for instance, by Fishenden (1965). By the early 1980s, the casually accepted term for inquiry into the information needs and information-related behaviour of retrieval system users had become the less-specific ‘user studies’ (see, for example, T. D. Wilson 1981).

15 Social informatics, archival studies, the book arts, and some sub-areas of linguistics and computer science, would also be candidates for inclusion under the rubric of information studies. Whatever the extent to which LIS-as-SE is viewed as being inclusive of the sociology of knowledge—or, indeed, of cognitive psychology or traditional epistemology—it is clear that Shera saw the study of all as valuable for the librarian. Precisely because social epistemology deals with ‘the whole spectrum of ... social intellectual activity’ (p. 87), it should be ‘truly interdisciplinary’ (p. 87), drawing on sociology, anthropology, linguistics, economics, psychology, physiology, mathematics, and information theory, to an extent that library scientists have previously only promised. ‘[The] neglect of other disciplines has been one of the greatest faults of librarianship in the past.’ (p. 43)

16 This term was first used publicly by Otlet in an address on ‘L’Organisation des travaux scientifiques’ that he gave in Paris on February 25, 1919, long portions of which were repeated in a publication of the following year (Otlet 1920). All quotations of Otlet given here are from Rayward’s translation of this latter work (Rayward 1990).

17 The French term ‘bibliologie’ dates from the late nineteenth century. Robert Southey (1774-1843)—poet, historian, and bibliophile—was the first to use its English counterpart, but the twentieth-century popularity of the term in the francophone world as a formal equivalent to ‘book studies’ (including bibliography, librarianship, publishing, and reading) has never been mirrored in English-speaking countries.

18 Similarly, the various but related practices of librarianship and IR system construction might be rendered as bibliological translation, bibliological management, and bibliological engineering, etc.
### Tables

**Table 1**
Two kinds of knowledge-as-information

<table>
<thead>
<tr>
<th>Type I</th>
<th>Type II</th>
</tr>
</thead>
<tbody>
<tr>
<td>Private knowledge</td>
<td>Public knowledge</td>
</tr>
<tr>
<td>Personal knowledge</td>
<td>Social knowledge</td>
</tr>
<tr>
<td>Intrinsic knowledge</td>
<td>Extrinsic knowledge</td>
</tr>
<tr>
<td>Internal memory</td>
<td>External memory</td>
</tr>
<tr>
<td>Subjective knowledge</td>
<td>Objective knowledge</td>
</tr>
<tr>
<td>World 2</td>
<td>World 3</td>
</tr>
<tr>
<td>Image</td>
<td>Transcript</td>
</tr>
<tr>
<td>Tacit knowledge</td>
<td>Recorded knowledge</td>
</tr>
<tr>
<td>Minds</td>
<td>Documents, libraries</td>
</tr>
<tr>
<td>Mental</td>
<td>Physical</td>
</tr>
</tbody>
</table>

**Table 2**
Shera's account of Egan's view of social epistemology and related disciplines

<table>
<thead>
<tr>
<th>Aspect studied</th>
<th>Agents studied</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>People as individuals</td>
</tr>
<tr>
<td></td>
<td>Behavior</td>
</tr>
<tr>
<td>Impact of knowledge on behaviour</td>
<td>[Social epistemology?]</td>
</tr>
<tr>
<td>Origins, growth, development of knowledge</td>
<td>Epistemology</td>
</tr>
</tbody>
</table>
Table 3
A modern view of social epistemology and related disciplines

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Post-Fregean epistemology</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Traditional naturalised epistemology</td>
<td>Yes</td>
<td>Yes</td>
<td>Maybe</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Social epistemology</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Radical naturalised epistemology</td>
<td>Yes</td>
<td>No</td>
<td>Maybe</td>
<td>Yes</td>
<td>Maybe</td>
<td>No</td>
</tr>
<tr>
<td>Sociology of knowledge</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Maybe</td>
<td>No</td>
</tr>
<tr>
<td>LIS-as-SE</td>
<td>Yes</td>
<td>Maybe</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>

A. **Naturalisation.** May the proposed solutions to knowledge-related problems admit concepts or results from the empirical sciences?

B. **Normativity.** Is the recommendation and justification of strategies for improving knowledge-production processes a primary objective?

C. **Socialisation.** Are social (as well as psychological) factors treated as a primary source of variance in knowledge-production processes?

D. **Content vs. Context.** Is the propositional content of belief treated as a variable for which explanation is to be found?

E. **Knowledge-as-truth vs. Knowledge-as-information.** Is truth considered as a primary criterion in assessments of the status of beliefs?

F. **Subjective vs. Recorded Knowledge.** Is the primary focus on the production, organisation, and use of recorded expressions of belief?