Chapter 6   Descriptions of conceptions of information literacy

This chapter describes information literacy as it is conceived amongst the higher educators who participated in my study. The descriptions are outcomes of the data-gathering and analysis strategies reported in chapter five. Taken together they represent the phenomenon of information literacy as it has been uncovered in this investigation. Marton (1994, p.92) identifies a phenomenon as the appearance of a 'thing', rather than the 'thing itself'. Also following Marton (1995), we can say these outcomes form a description of the 'anatomy of awareness' of information literacy amongst the group. This means that the categories describe information literacy as it is conceived (seen, experienced or understood) by people.

Altogether seven conceptions of information literacy were identified:

- The information technology conception - information literacy is seen as using information technology for information retrieval and communication. (Category one)
- The information sources conception - information literacy is seen as finding information. (Category two)
- The information process conception - information literacy is seen as executing a process. (Category three)
- The information control conception - information literacy is seen as controlling information. (Category four)
- The knowledge construction conception - information literacy is seen as building up a personal knowledge base in a new area of interest. (Category five)

- The knowledge extension conception - information literacy is seen as working with knowledge and personal perspectives adopted in such a way that novel insights are gained. (Category six)

- The wisdom conception - information literacy is seen as using information wisely for the benefit of others. (Category seven)

The names given to the conceptions serve as labels for the categories of description. They have been created to communicate quickly, but perhaps also superficially, the meanings attributed to information literacy by the participants in the study.

In the previous chapter I pointed out that any phenomenon can be described as a set of qualitatively different subject-object relations. In the case of an abstract phenomenon like information literacy, the nature of the object in the relation needs to be discovered through the analysis procedure. Here, the analysis has revealed that the 'object' part of the subject-object relation is *information*. Thus, the phenomenon of information literacy may be described as a series of varying relations between people and information. These relations are the conceptions of information literacy.

Each conception is described in one category. Within each category, the conceptions are described in terms of their structural and referential components. Structure and reference are of course intertwined. The referential component is the global meaning associated with the conception. I have described this primarily through the category labels, eg. *Knowledge construction conception* and the statements describing how information literacy is seen, eg. *information literacy is seen as.......* The structural components illuminate the meaning further by showing how that meaning is constituted through a particular arrangement of parts of the conception. They are captured in the structure of awareness, the meaning structure and the distinctive feature associated with each category. The most distinctive feature in each case is also the focal element of the structure of awareness.

The outcomes of my analysis are presented in two parts:

- the outcome space, describing the phenomenon of information literacy amongst higher educators; and
- the categories of description, describing the individual conceptions of information literacy which together are structurally related to form the outcome space.

The outcome space

The outcome space presents a graphical depiction of the structural relationships amongst the various conceptions of information literacy uncovered in the analysis. It will be seen in what follows that the outcome space of the phenomenon of information literacy needs to be described in three parts:

- the varying meaning structures;
- the varying structures of awareness; and
- the varying ways in which information is perceived.

These parts were used to reveal the structural relationships amongst all the categories. Describing the varying ways in which information is perceived in the different categories is not essential to demonstrating the structural relationships between the conceptions. However, I have chosen to do so because the views of information confirm the place of each category in the structure. Also as information s the 'object' in the subject-object relation, the way in which that object appears is sufficiently important to be included in the analysis of the outcome space!

The variations to be analysed in the outcome space, therefore, are each part of the internal relations between the person and information which constitute information literacy in each category. To put it another way, they are about the character of working with information which is experienced as information literacy. All three are integral to the understanding of each category, and of the structural relationships which bring the categories together in the form of an outcome space. The place of each category in the outcome space remains fixed irrespective of which aspect is being examined.

The varying meaning structures

The first graphical depiction of the relationships among the categories is based on their *meaning structures* (see Figure 6.1). Each category has a meaning structure. Describing the meaning structures was one approach to describing the internal relations between the subject and the object components of the conceptions. These meaning structures establish the essential parts of the meaning being attributed to information literacy in each category. They also

specify how these parts are combined to form a whole. Details of the meaning structure are explained in the second part of this chapter. Here I will focus only on those parts which show the relationships between the categories.

```
ENHANCED KB & INSIGHT= >                    ENHANCED KB & VALUES = >
    NEW IDEAS                                       WISE USE
    (Category Six)                                      (Category Seven)




                    INFO SEEKING &CRITICAL ANALYSIS= >
                    PERSONAL KNOWLEDGE BASE(KB)

                              (Category Five)




INFO RECOGNITION& CONTROL= >                 KNOWLEDGE GAP & PROCESS= >
    FUTURE RETRIEVAL                                 ACTION, SOLUTION etc
    (Category Three)                                    (Category Four)




            KNOWING WHAT&KNOWING SOURCES= >
                    SUCCESSFUL RETRIEVAL

                          (Category Two)




                    INFORMATION TECHNOLOGY= >
                    INFORMATION AWARENESS
                          (Category One)


Key: KB=knowledge base; =>=enables
```
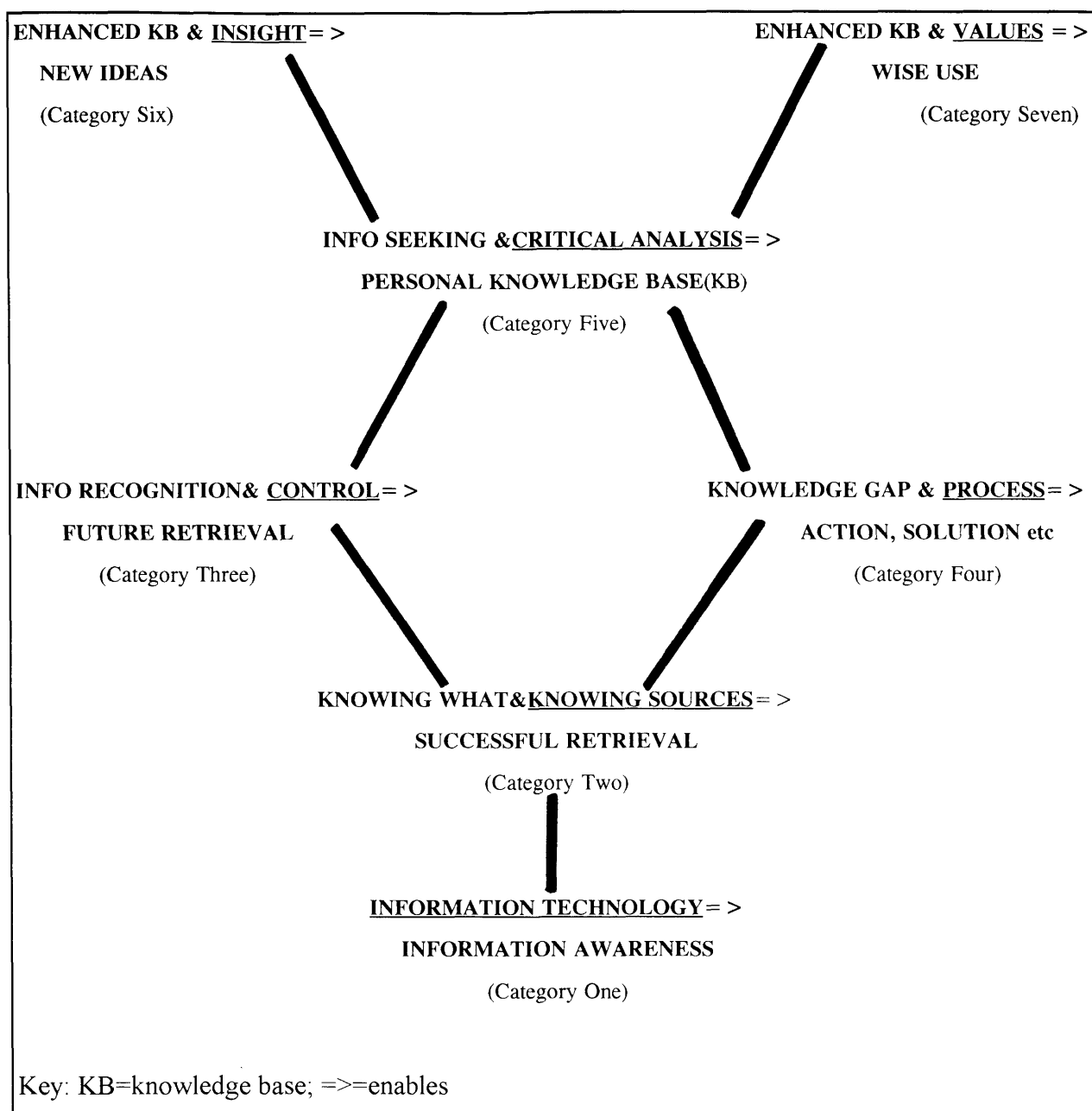
Figure 6.1   Outcome space depicting meaning structures

The elements of the meaning structures show the relations between categories five, six and seven. These categories are hierarchically related. An important, shared element of the meaning structures for these categories is the idea of a 'knowledge base'. The relative places of categories five, six and seven are based on the varying attributes of this knowledge base. In category five,

the knowledge construction conception, a personal knowledge base is considered to be the outcome of the experience of information literacy. This knowledge base is an individual's construction of existing knowledge in the field of interest. The knowledge bases in categories six and seven differ from that in category five. They are *enhanced* knowledge bases, including considerable personal experience as well as a mastery of the field(s) of interest. For this reason categories six and seven appear 'higher' in the hierarchy than category five. Categories six and seven appear on the same level because they are mutually exclusive in that 'wisdom' is not a concern in category six; similarly 'insight' is not a concern in category seven.

The places of categories one, two, three and four cannot be explained in relation to their meaning structures. Their places in this structure are based on the variations in the structures of awareness. My analysis of the relationships between these categories based on their awareness structures will show that they are easily related. On the other hand categories five, six and seven share the same awareness structure. I have treated them as separate categories however, because the precise nature of the focal element in each is different, and the meaning structures, as I have already shown, reveal important variation. The focal elements of each category link these meaning structures to the awareness structures They appear <u>underlined</u> in Figure 6.1.

The varying structures of awareness

The structures of awareness developed for each category are simplified to portray the critical differences between the conceptions. Thus, each structure includes three major elements which the analysis showed to be key parts of the experience of information literacy. These three elements include *information use* and *information technology* in all cases, and one other element which is idiosyncratic to the conception concerned. The varying structures of awareness are portrayed together in Figure 6.2.

A cursory inspection of these structures will show that it was possible to arrange them to depict the progressive changes in the place of *information use* and *information technology* across the categories. In category one, the information technology conception, information technology is focal; that is it is central to awareness. *Information use* however, is marginal, it is at the outer edge of awareness. In the latter categories the respective places of these two elements are completely reversed *Information use* becomes the focus of attention and *information technology* appears in the margins of the experience of information literacy. Categories two, three and four show the third element in awareness as being focal with
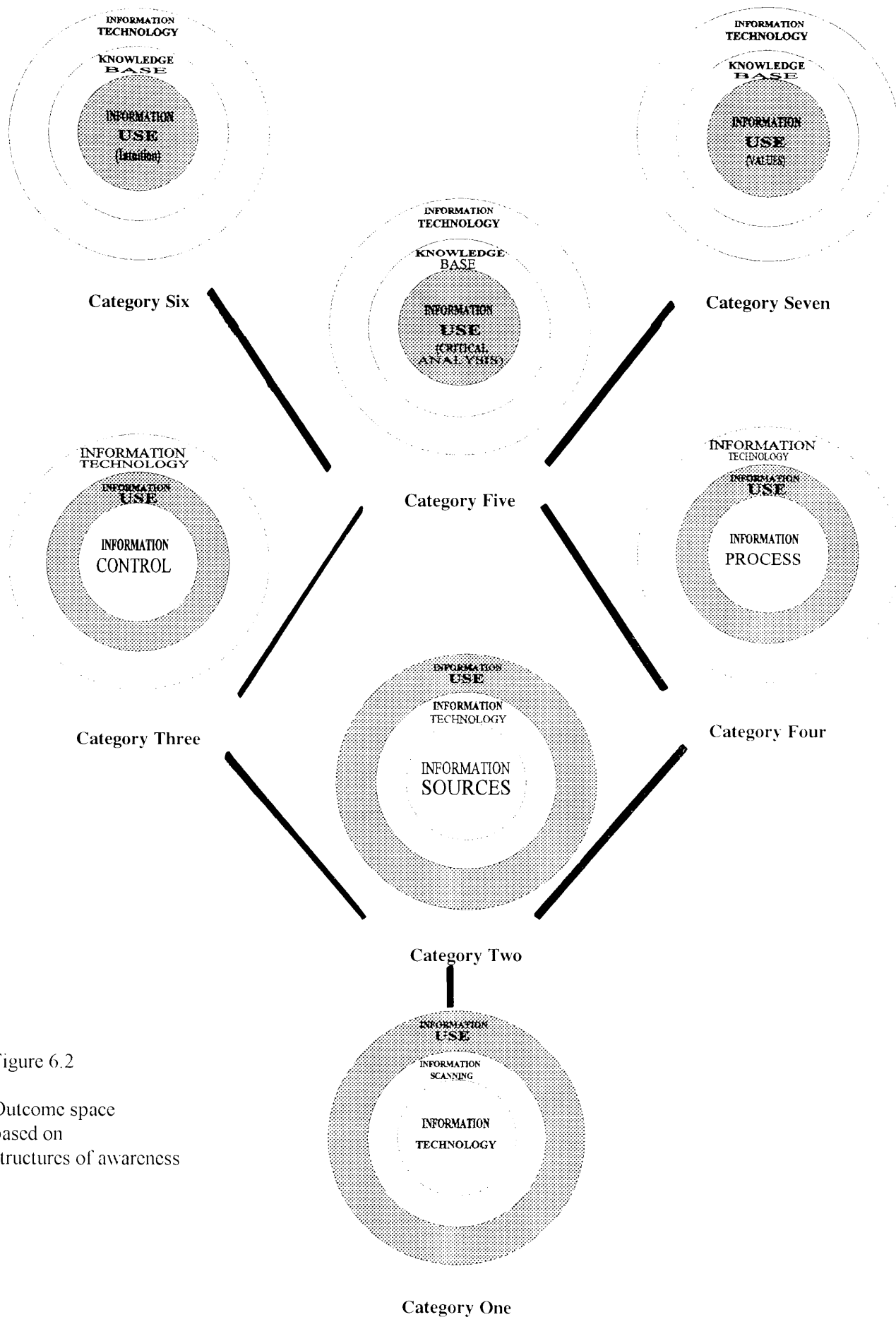
Figure 6.2

Outcome space
based on
structures of awareness

information use and *information technology* taking varying places depending upon the particular conception in question.

To summarise the differences in the awareness structures, *information use* moves from being marginal to focal across categories one to seven, and *information technology* moves from being focal to marginal across the same categories. The most distinctive element in each category is the focal element in the awareness structure.

Categories five, six and seven, which, at first glance appear to have similar awareness structures, differ, as I have already shown, in relation to the meanings attributed to both information use and the nature of the knowledge base which forms part of the experience. I have included, from the meaning structures, the distinctive element of information use which distinguishes these three categories n the graphics portraying them. These elements (critical analysis, intuition and values) reflect the structural linkages seen in the meaning structures.

The varying ways in which information is perceived.

Previous sections have described variation in the structures of awareness and in the meaning structures across the set of categories. There is also variation across categories one to seven in relation to how information appears, or is perceived. This variation is summarised in Table 6.1.

Table 6.1 The varying ways in which information appears

Category	Appearance of Information
Categories one and two	objective part of the external environment knowledge is required to access it
Categories three and four	objective -contextualised part of the external environment knowledge is required to access it
Category five	subjective an object of reflection internal to the individual
Categories six and seven	transformational in character able to be transformed able to transform

In categories one and two information is viewed objectively. Information is considered to be part of the external environment, and particular kinds of knowledge are required in order to access it. In category one this is knowledge of information technology, and in category two it is knowledge of information sources.

In categories three and four information is also viewed objectively and as part of the external environment. In these categories, however, information is seen within the context of particular purposes for which it will be used. Personal strategies in the form of information processes or information control mechanisms are implemented to bring useful information within the user's sphere of influence. In these categories information is not subject to any change as a consequence of having being manipulated by the user.

In category five information appears subjectively. It is regarded as an object of reflection and, as a consequence, a particular way of interpreting that information becomes a part of the information user's knowledge base. Information is no longer seen as part of the external environment, rather it is seen as internal to the individual. This is a significant change in how information is viewed when compared with categories one to four.

In categories six and seven information is viewed as having a transformational character. In these categories information is no longer seen as an object of reflection, rather the knowledge base is a personal resource which is drawn upon in the process of reflection. Information is transformed, in the sense that new insights are gained, and knowledge extended, in category six, the knowledge extension conception. In category seven, information, when used wisely, has the power to transform people.

Summary

To summarise, the outcome space which depicts information literacy as conceived amongst higher educators in this study is comprised of seven categories of description. These categories are related to each other by way of their respective awareness structures, meaning structures and views of information. Each category describes a particular way of interacting with information. The descriptions capture the experiences of information literacy or the conceptions, which, taken together, comprise the phenomenon, that is information literacy as conceived in this community. The individual categories are described in detail in the remainder of this chapter.

The categories of description

The categories of description desc ibe the critical features which make each conception distinguishable from the others. The conceptions described by these categories can be identified in the discourse from members of all participating groups. In all the categories the subject component is the information user and the object co nponent is information. For each category the subject-object relation which constitutes the conceptio 1 is described in terms of a referential (or meaning element), and a structural element. The former ide itifies *what* information literacy is conceived as, and the latter identifies *how* it is conceived. For example, in the first category we see that information literacy is seen as using information technology for information retrieval and communication. This is the referential element, or the meaning of i iformation literacy, when conceived this way. The focus on information technology is the most basic unit of the structural element. Both structural and referential elements are integral parts of the whole. The structural elements of the categories are then further analysed in terms of their awareness structures, meaning structures and the views of information associated with them. In this framewor < information technology is that part of the experience which is focal for the participants when they are conceiving of information literacy this way. It is the distinguishing feature of the category, central to both the awareness and meaning structures. A detailed explication of the category follows, supported by evidence from the data in the form of quotations.

All quotations are accompanied by a s atement, in brackets, indicating the section of the data from which they are extracted; for example: (Int. 4, p.6, Staff Developer, Female). This means that the extract is from interview number four, on page six, and that the interviewee was a female staff developer.

Category one: the information technology conception

Information literacy is seen as using information technology for information retrieval and communication.

At the heart of this category lies the importance of information technology for information access and personal networking. Information technology is the focus of attention and information is viewed objectively, as something outside the individual. One of the major roles of technology is to make that information accessible, or to bring it into awareness. Technology also plays a vital role in allowing the information user to stay nformed and to manipulate information that has been located.

In this sense the relation between people and information may be described in terms of depending upon technology to enhance access to information. For some people this is achieved; for others information technology forms a barrier to information access. Accessing information in this category is seen as random scanning of the information environment- a 'just-in-case', rather than a need-driven approach.

Within this category varying orientations to information technology give rise to two subcategories:

• Information literacy is seen as using information technology effectively: an achievable goal (Subcategory A).

• Information literacy is seen as using information technology effectively: an unachievable goal (Subcategory B).

The structure of awareness

The importance of information technology is the *distinguishing feature* of the conception. This is because the lack of use of information technology signifies ineffectiveness or information illiteracy. Therefore, both the focal element in the structure of awareness and the meaning structure are centred on information technology. People's ability to retrieve information and communicate using technology are key benefits; these are therefore represented in the next level of awareness under the label of 'information scanning'. Information use is in the periphery of awareness because the way in which information is used is not a primary concern, rather it is the potential of technology for enhancing information access and communication which is seen as important. These elements will be analysed in more detail in the descriptions of the two subcategories.
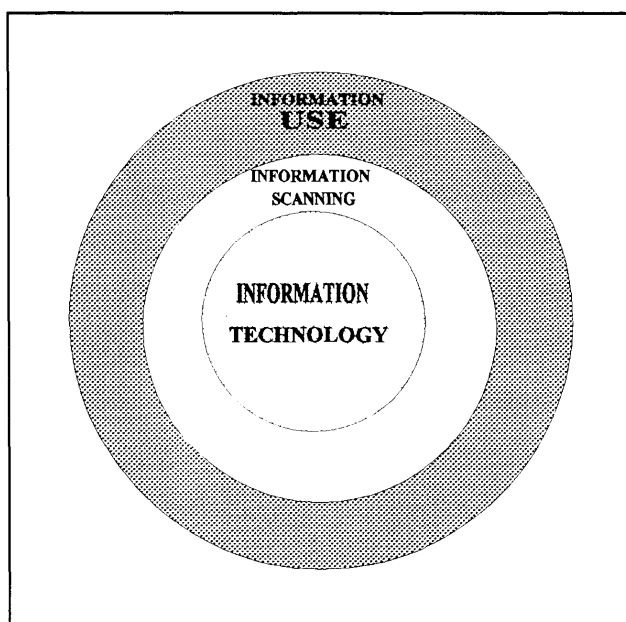

Figure 6.3   The structure of awareness as experienced in the information technology conception

Although none of the participants explicitly discuss their view of information, the emphasis on information scanning in this category reveals the objective, external view of information itself.

The meaning structure

The various elements of the category described so far form part of the meaning structure. The meaning structure is a way of capturing, in linguistic form, the essential meaning of the conception. In this category it is:

Using information technology is essential for information awareness.

Information awareness is the outcome of the experience. This meaning structure is also central to both the subcategories. In each one, however, there are additions to the meaning component which lend distinctiveness. The meaning structure of the first subcategory is:

Using information technology is essential for information awareness: this is achievable within a community of users.

The meaning structure of the second subcategory is:

Keeping up with information technology is essential to information literacy; this is the responsibility of individuals, therefore information literacy is an impossible goal.

Information literacy is seen as using information technology effectively: an achievable goal. (Subcategory A)

Information literacy in this subcategory means being comfortable with technology and being able to keep up with new developments rather than be distressed by them. Successfully using information technology, however, is seen as a socially shared responsibility, dispersed within a community of users, rather than the responsibility of any one individual. This way of conceiving of information literacy is described by participants as part of their own experience or someone else's. In the following extract the interviewee is describing her ideal information literate person, a view which differs substantially from her own experience. The importance of being comfortable with using information technology, and the desire to randomly seek information, are both

highlighted. It is important to note in this extract that it is not communication which is considered to be the core of information literacy, but rather information technology which forms a particular medium for communication:

> Researcher: Describe your picture of a competent information user.
> Interviewee: Well, it's anyone but me. It would be someone who could come in and switch on to the world over there (*waving at the PC in the room*) and really engage in wonderful trans-Atlantic conversations... It would be someone who thought they'd go down for half an hour to the library bottom floor and just play around with the indexes (*CD-ROMs*), see what they could find. It would be someone who used all kinds of modem things... (Int. 4, p.6, Staff Developer, Female)

Another interviewee describes her view of information literacy also in terms of using computer technology. Needless to say this is only one of her views of information literacy. Her statements are powerful because she has been trying to explore her own views of what constitutes information literacy. She has just been describing someone who is heavily involved in research in the humanities and social sciences, but who does not use computers:

> ...in terms of information literacy he is hopeless. He is not very comfortable with electronic means of communication....I tend to see an information literate person as someone who has competency in computers and networking and those sorts of skills... (Int. 10, pp.6-7, Librarian, Female)

A third description of an information literate person, in this case also of someone known to the interviewee, focuses on the importance of using electronic tools and constantly seeking new information; a description which also reflects the view of information as objective and external. The information scanning in this case is conducted using world wide web browsers such as MOSAIC or NETSCAPE. It is not the information sources, but the commitment to scanning which is the emphasis of this comment:

> She is a person who is keeping up to date with her field academically, and is actively using information sources. She is a person who is actively out there spending time above and beyond the call of duty...seeking interesting new sources of information. (Int. 14, p.9, Librarian, Male)

The fundamental importance of information technology is bluntly described by one leader of a research team:

> These days there is a standard set of electronic tools (within the technical university sector anyway) that everyone (all competent people) uses to a greater or lesser extent. (Email 1, Researcher, Male)

He also describes, as part of his own experience, browsing or scanning for information 'just-in case'. His description illustrates the difference between searching for specific resources and what I am here labelling as *random scanning*:

> Periodically I run CD-ROM searches of a few relevant databases. But mostly these are looking for something specific. At these times I generally throw in a few general searches anyway just to see. Sometimes I just browse the Internet using the package MOSAIC which can now browse and search WWW and gopher sites and then retrieve files using FTP. Often I come across interesting information and can keep up with the developments. (Email 1, Researcher, Male)

This same researcher provides a clue to how it is that effective use of information technology is possible. It seems that thinking about information literacy as using information technology, and being able to do so successfully, means recognising that this is not a solitary experience. Keeping up with information technology involves being part of a community, each member of which assists others with the use of technology:

> It is hard in isolation. You need people to help. Then everyone becomes expert in slightly different aspects and is available to help and teach the others.(Email 1, Researcher, Male)

For those who focus on information technology, the world is seen as very different, and that difference is mainly noticed in terms of electronic communication. The ability to communicate with and receive information from colleagues all over the world results in being part of a global network:

> I've moved into a very different world, a world of networks and all of that information. (Int 8, p.7. Librarian, Female)

Information literacy is seen as using information technology: an unachievable goal. (Subcategory B)

In this sub-category information literacy is seen as something which is not achievable, it is described by participants as being constantly beyond their grasp. As they see it, they are constantly working at keeping up with the changes in information technology which are required for effective access to information Information technology remains the focal element of the conception, but it is seen as a barrier to achieving information literacy. This conception is

represented by statements, such as the following, which attend to the elusiveness of the phenomenon:

> I'm assuming that information literacy is out there.... information literacy is out there, you can't really touch it because the minute you think you have it, it's developed again and it's escaping your grasp at every turn. (Int. 2, p.1, Learning Adviser, Male)

This interviewee has been talking about helping overseas students attain information literacy. The evidence for a particular view of technology being responsible for this view of information literacy comes from his comments about students' ability to use computers immediately prior:

> ...the most that they've ever done (with computers) is some very basic word processing and they consider themselves to be quite information literate. (Int. 2, p.1, Learning Adviser, Male)

Another interviewee likens information literacy to 'infinity'. He also attributes this characteristic to constant change in information technology, that is the 'mode of delivery'. Interestingly, for him, this movement also results from change in the subject or information user:

> So information literacy for me, is a process. It's not something you achieve; it's like infinity. You're approaching it but you never quite get there. You can never say, I am now information literate...because information is always changing, its modes of delivery are always changing. You as an individual are always changing, so you must always be moving. (Int. 14, p.3, Librarian, Male)

The idea of change is a recurring one in this view, appearing in many of the fragments of conversation which illustrate it, for example:

> ...the nature of information literacy is that it is developmental. It is constantly changing. (Int. 2, p.1, Learning Adviser, Male)

This particular subcategory is probably the least formed in the data. Although it emerged in more than one interview it was difficult to probe. In the case of the interviewee who returned to it often, questions asking for further explanation led to an immediate slip into a different kind conception, expressing a different kind of experience.

The fragmentary nature of data is not uncommon, however, in phenomenographic research. Marton, Dall'Alba and Beaty (1993, p.285) comment that their data contain 'expressions which reflect only fragments of the complete conception'.

In this case it may be possible to enha ice our understanding of this subcategory by comparing it with its partner. Both have the same essential meaning structure, and both have information technology as the focal point of awarer ess. It is likely that information use, not mentioned at all in the few conversations illustrating th s conception, is in the background of awareness. We can also infer, as there is no evidence to the contrary, that the perceived difficulties in keeping up with technology arise from a perceived n ed to independently master it. This would be the logical opposite of the notion that information technology is useable when its mastery is seen as a social, rather than an individual, responsibil ty.

Summary

To summarise, category one identifies a way of experiencing information literacy that is dependent upon the availability and useability of information technology. Information literate people, when viewed this way are those who scan the information environment to attain a high level of information awareness. It is possible to experience information literacy, according to this view if one is a member of a community which supports the use of technology (Subcategory A). Where the ability to use information technology rests with individuals, information literacy becomes an unachievable goal (Subcategory B). In the next category, the attention of the information user shifts from information technology t) information sources.

Category two: the information sources conception

Information literacy is seen as findir g information located in information sources.

In this category information sources are the focus of attention. As in the previous category, information is viewed as something outside the individual, contained within the sources. It is knowledge of information sources which makes it possible to retrieve the information which is contained within them. The sources may be in a variety of media, including electronic. In this category different orientations to the problem of information retrieval give rise to three subcategories. The relation between the information user and information can be described in terms of knowledge of information sources (Subcategory A), independent use of sources (Subcategory B), or the willingness to use an intermediary to access sources (Subcategory C). The three subcategories are:

- knowing information sources and their structure (Subcategory A);
- knowing information sources and using them independently (Subcategory B);
- knowing information sources and using them flexibly, either independently or via an intermediary (Subcategory C).
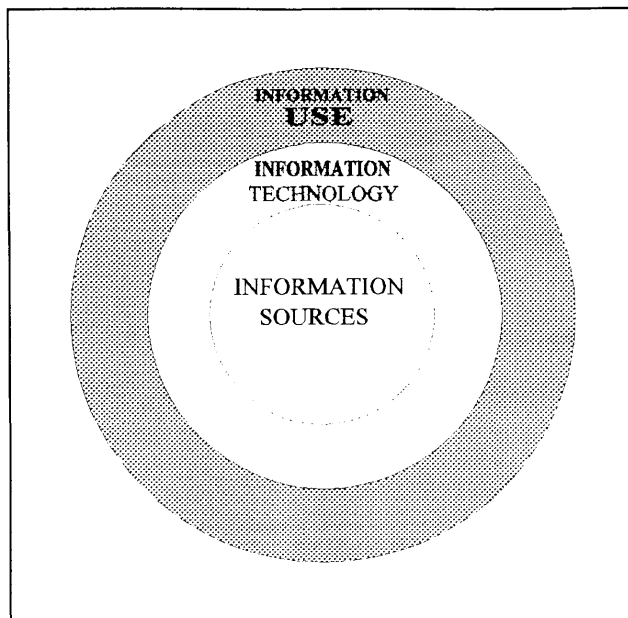

Figure 6.4   The structure of awareness as experienced in the information sources conception

The structure of awareness

The importance of information sources is the *distinguishing feature* of the conception. This leads to information finding being focal in the awareness structure, and an important element of the meaning structure. Information technology has varied emphases in the conception depending upon the particular subcategory being examined. Although *what* information is required is important, the way in which the information will be used is of little interest. *Information use* is therefore in the outer edge of awareness. This awareness structure is shared by each subcategory.

The meaning structure

The key elements of the conceptions described so far form part of the meaning structure of this category:

> *Knowing 'what' is required + knowledge of information sources = successful information retrieval.*

The emphasis on knowing *what* is required is a distinctive part of the character of this experience. It is revealed through the use of phrases such as 'knowing what you want' or 'knowing what they want'. This need to know what is required is very different from the information scanning, 'just-in-case' approach which is part of the character of the information technology conception.

The meaning structure of the first subcategory is:

> Knowing 'what' is required + knowledge of information sources = successful information retrieval.

The meaning structure of the second subcategory is:

> Knowing 'what' is required + knowledge of information sources + independent use = successful information retrieval.

The meaning structure of the third subcategory is:

> knowing 'what' is required + knowledge of information sources + locating independently or via an intermediary = successful information retrieval.

Information literacy is seen as the ability to find information due to knowing information sources and their structure. (Subcategory A)

In this subcategory, knowledge of information sources is seen as characterising the experience of information literacy. Personal knowledge of sources, their content and structure are emphasised, with such knowledge making it possible to retrieve specific information required. Information literacy requires a knowledge of available resources; these may or may not include electronic sources, but usually do include library resources. The sources may also be people, that is human sources.

This kind of experience of information literacy is described by an academic who is reflecting on the importance of being able to find information when preparing for lectures:

> What can I recall that I might have seen which might be interesting?...you get to know the materials that are available and the sources and the journals in which that material will be. (Int. 6, p.1, Lecturer, Male)

His emphasis on knowledge of sources was confirmed when, shortly after making the above comments, I asked him what was involved in being an effective user:

Well, it was identifying the sources of information of course, and mostly the sources of information I use are not electronic sources...its simply getting to know the resources, getting to know the library that you've got at hand...so that you can go instantly to the library and in many cases, without ever having to go to the catalogue you can identify what you need. (Int. 6, p.2, Lecturer, Male)

Knowing what sources may be found where, includes being familiar with the holdings of libraries in other institutions. Various catalogues are searched based on knowing what kind of materials would be held in the collections:

I do searches of (electronic library catalogues) simply because I know that a particular institution has certain specialities or special interests,... for example I might go to Monash University library for ethnic music. (Int. 6, p.2, Lecturer, Male)

This experience of information literacy was also described by librarians in the group. The need to know, or become familiar with, what is available is seen as important for both librarians and academic staff in being effective information users:

When you come into a new library, you really don't know what's there, and you have to spend a bit of time to become familiar with it. (Int. 7, p.2, Librarian, Female)

Strategies are implemented for enhancing this type of knowledge, for example the compilation of lists of subject resources for circulation amongst clients and for raising the awareness of library staff.

The point that information technology has varying status in this conception is brought home by this interviewee's comment that it is knowledge of sources, rather than ownership of a personal computer that makes for information literacy:

...everyone thinks that the answer to being information literate is to have a computer on your desk, and then you'll all of a sudden become it. I would rather see them looking at what we already have here (in the library).. .(Int 7, p.2, Librarian, Female)

Knowledge of sources includes an understanding of types of sources, for example journal articles, books, conference papers. Such knowledge enables the information user to interpret bibliographic citations in order to successfully retrieve information:

...some of them don't even know how to interpret a reading list...in order to do that they have to recognise a journal article or a book or whatever it is...(Int. 7, p.2, Librarian, Female)

Knowledge of sources may be important for personal use, as in the case of the academic earlier, or in order to assist clients:

I really do have a lot of knowledge that allows me to access information I need and the information others need. (Written Transcript 32, Librarian, Female)

Another librarian describing her experience of using information this way, stresses the importance of maintaining her knowledge of sources in order to be able to refer patrons to them:

I'm conscious all the time of trying to keep up, just so that I'm not caught letting a student down. (Int 10, p.3, Librarian, Female)

The inclusion of knowledge of human sources of information in this category is justified by participants who include these sources in their discussions. These sources were noted as important by both librarians and academics. In he following quotation a librarian points to the importance of the human network of sources. She has just been asked to describe her picture of an information literate person:

...someone who knows what they want... it's the identification and the knowing who could put them in touch with things that is a mark of competence. (Int. 10, p.5, Librarian, Female)

Another participant's description of using what he calls 'the colleague system' is also a clear example of a focus on knowing human sources of information. For this lecturer, asking colleagues for information is a substitute to accessing print information sources. Knowing the human source is thus a direct parallel of knowing the print or electronic source. What is critical is knowing whom to ask:

If I can think quickly of a colleague who's done that or who knows someone else, that's the way I think engineers work. (Int. 13, p. 5, Academic, Male)

This interviewee's focus on knowledge of human sources is illustrated when he requests that we play a game during the interview. I was asked to name a technical topic to demonstrate that he could nominate the appropriate information source:

We'll just play a little game for a sec; if you tell me a technical topic, I'll tell you who I would ring up. (Int. 13, p. 5, Academic, Male)

Information literacy is seen as the ability to find information <u>due to knowing information sources and using them independently.</u>(Subcategory B)

This view of information literacy is similar to the one described in the previous subcategory, except that the information user must be able to independently use the relevant sources. Again, these sources may be print, electronic, human or may appear in some other media. Information technology is relevant to this subcategory only in that some sources maybe electronic. To put it another way, information technology is not the focus of the conception, it just happens to be the package through which some information must be accessed. The importance of being able to use the information source to access information, however, is pointed out as a critical element of information literacy by a number of participants. In the following examples the ability to use the source is specifically stated in addition to describing knowledge of sources:

...being an information literate person is not only knowing the sources of information but also being able to access the information sources. (Written transcript C8)

...Knowing what sources are available to find information when needed. How to use the sources. Recognising when more information is needed and what type of information. Being able to locate various sources of information (independently). (Written transcript C2)

From a librarian's perspective...it is someone who is able to identify what they want and is able to locate and use it. (Written transcript B18, Librarian, Female)

As though to emphasise independently accessing information, one respondent writes:

Effective information user- probably one that library staff have had little interaction with. (Written transcript B18, Librarian, Female)

There is also experiential evidence in the transcripts to support respondents' reflective statements about information literacy. For example, one female describes her approach to dealing with an offer from a stockbroker to purchase her shares:

...to make an informed decision I realised I needed information. I identified the sources concerned...checked how many people had been selling ... and for how much etc. (Written transcript B17, Librarian, Female)

Support for describing information literacy in terms of knowing how to use sources also comes from participants who describe themselves as not being 'fully literate' on the basis of not knowing:

> I'm not fully literate because the e are some areas which are too huge (Internet) to know how to access fully. (Written transcript E2, Librarian, Female)
>
> I was not information literate recently when I realised I did not know much about using the Internet. I did not know the process of getting the information or how to use it once I had it. (Written transcript C10, Librarian, Female)

One of the benefits of being able to access information independently is that it speeds retrieval. It is worth noting here, that the view that independent access speeds retrieval is parallelled in the third subcategory by the view that using an intermediary for access speeds retrieval. In the following quote the interviewee describes information literacy as being able to 'get hold of' information rapidly:

> ...somebody to me who is information literate, would be much more at home in libraries and with the electronic technology, ...(it) probably takes me twice as long to get hold of (information) because I wonder who can help me. (Int. 16, p.6, Staff Developer, Female)

Another interviewee describes his view of an information literate person. He supports his description with an explanation of his own need to attend regular workshops to maintain his own skills in information location:

> An effective information user...(is) an effective information finder...up to date with where to find information in the first place and able to go and find it. (Int. 11, p. 5, Learning Adviser, Male)

In this view the need to be able to use information sources independently is also naturally a feature of learning to be an information literate person. Students are described as having to know about useful sources and needing to be able to search them:

> ...the process has been understanding their topic,...being able to know where the resources are that they need,... and its not much use saying to them this database is full of wonderful stuff if they don't know how to search. (Int. 10, p 4, Librarian, Female)

Independence in using information retrieval tools, from this perspective, is also considered a characteristic of an information literate library clientele. One librarian describes the characteristics she would like to see in her clients:

> I would like them to be able to use a catalogue efficiently... I'd be delighted if they could just not come to the desk and ask us to look it up in the catalogue. (Int. 7, p.9, Librarian, Female)

This interviewee has expressed the same view earlier in her interview, when describing her picture of an information literate person:

> ...someone who is prepared to try themselves to find information rather than always come and ask you to do it for them. (Int. 7, p.6, Librarian, Female)

One result of information literacy from this perspective, is a reduced need to ask for help:

> ...a lot of information literate people don't need to go to the reference desk and ask, because they know where to go themselves, and I guess that is the ultimate aim.(Int. 7, p.5, Librarian, Female)

Information literacy is seen as the ability to find information due to knowing information sources and using them flexibly, either independently or via an intermediary.(Subcategory C)

In this subcategory it is the adoption of a flexible approach to information retrieval, either doing so independently or asking for help, that differentiates it from the other two. Knowing what is required is still an important component of the experience, and so is knowledge of potential sources, but the information may be obtained either by the person requiring it, or by a third party. The information user who obtains information via a third party is considered information literate. This is in contrast with the character of the second subcategory in which it is only independence which indicates effectiveness. In this subcategory, however, the willingness to use a third party is considered an essential feature of information literacy.

One lecturer, discussing the importance of being able to access information for the preparation of new units and research, stresses the need to use other people for assistance. Although she sees the effective information user as needing to identify what information is required, she does not see that person as needing to be capable of independently locating the information. The effective information user can obtain support from appropriate personnel:

I don't think that people have time to sit down and learn every new package that comes out, and I think that you should be able to use the personnel that have that experience. (For example) I got quite a lot of help from our librarian in terms of looking for new books in the field...when you try to do that yourself you could probably spend a day trying to do that yourself for instance. (Int.1, p. 5, Academic, Female)

Shortly after she made this response I asked this interviewee what it meant to use information effectively. She restates the importance of being able to use the expertise of others:

It meant...getting people to help you in terms of finding where the resources were, and there were quite a lot of library personnel involved in that. (Int. 1, p.6, Academic, Female)

Another interviewee expresses the need to have help available when using library resources:

I've always asked one of the librarians to start me off and then work my way through it. That was in the days when I had more time to do that sort of thing. (Int. 4, p.11, Staff Developer, Female)

The combination of elements in this subcategory, *knowing what is required* and *being willing to use others in the retrieval process*, is illustrated by an academic describing the experience of writing an entry for a *Dictionary of Biography*. He offers the illustration in response to a request to relate an anecdote about a time when he used information effectively:

I hired a student to do some searches for me... I sent him off with some very specific resources to track down, to do some very specific kinds of searches...the important thing was having a kind of native intelligence in knowing what you're going to need and where it's likely to be, and what you're going to have to look for. (Int. 6, p, 5, Academic, Male)

The element of being able to rely on others is also expressed by librarians:

An effective information user .. knows what they want if not how to get it, and is not afraid to ask to find an answer- will ask people who do know. (Written transcript B3, Librarian, Female)

I see a competent information user as someone who knows what they want, can identify what they want, knows where to get it,...then they either have the skills to get it themselves or they've got someone on hand who can get it for them. (Int. 10, p. 9, Librarian, Female)

Independence in accessing information is clearly not a necessary component of this subcategory:

> Being information literate is to know when the need for information exists, and to be able to do something about it- whether it be approaching someone else about where to find information or locating it yourself. (Written transcript C10)

Summary

To summarise, in category two information literacy is experienced in terms of knowledge of sources of information and an ability to access these independently or via an intermediary. The sources may be human sources. It is different orientations to the problem of information retrieval which produce the subcategories. In the third category information processes become the focus of attention.

Category three: the information process conception

Information literacy is seen as executing a process.

In this category information processes are the focus of attention. Information continues to be viewed objectively, as something outside the individual. Its usefulness, however, is shaped by the information problem that contextualises it. The subject-object relation is constituted in terms of the information process through which the user solves the problem. The information process, when executed, makes information accessible to the user.

The structure of awareness

The importance of information processes is the *distinguishing feature* of this conception. For this reason, both the focal element in the structure of awareness for the conception and the meaning structure for the conception are centred on information processes. Information processes are those strategies implemented by information users confronting a novel situation in which they experience a lack of knowledge (or information). As the way in which the information is to be used is very

much a consideration in this experience, information use forms the next level of awareness. Information use is not the primary consideration because the required information must be obtained before it can be used; however the acquisition of information is part of the overall process of problem-solving or decision-making experienced. Information technology is not an important feature of participants' descriptions of this experience. It is therefore located in the outer field of awareness (See Figure 6.5).
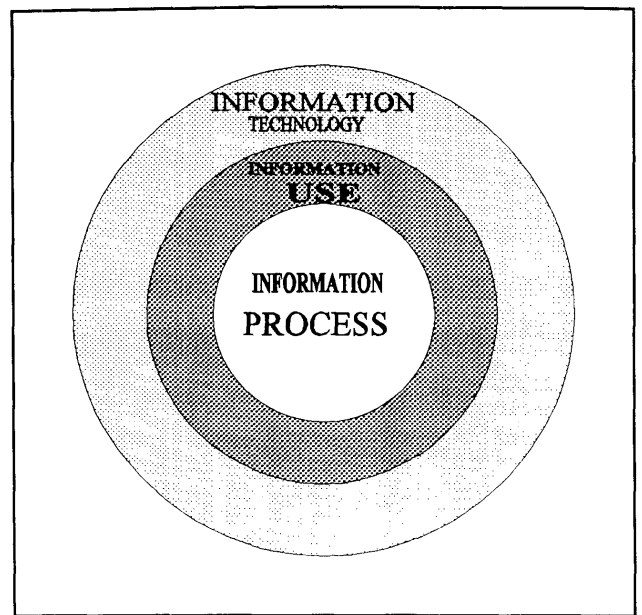

Figure 6.5   The structure of awareness as experienced in the information process conception

The meaning structure

This way of conceiving of information literacy can be expressed in more detail as follows: information literacy is seen as the ability to confront novel situations, and to deal with those situations on the basis of being equipped with knowledge of a process for finding and using the necessary information. The precise nature of the process, however, varies from person to person. In this category, therefore, the meaning structure is:

Knowledge gap or novel situation - implement process- action, solution or decision.

Effective action, problem-solving or decision-making is the outcome of the experience. The three elements of the process: the knowledge gap, implementing the process, and the outcome of the experience are examined in detail below.

The knowledge gap

The following description of an effective information user illustrates this way of conceiving of information literacy. Early in the description we are presented with the notion of a *novel problem* being encountered, and an associated *knowledge gap*:

...I think that most staff would be effective information users in that any of us would be able to tackle a new problem which we've had no past knowledge of, and be able to chase it up and follow it through. For example, a colleague was asked to provide some advice about (an engineering structure). He'd never looked at that type of structure before in his life but he was able to chase it up and find out the structural implications of what was going on and discuss it with the rest of us. (Int. 5, p. 6, Academic, Male)

The element of *no past knowledge*, which here means no, or limited, personal knowledge of the problem at hand, is the starting point of the experience. The information user experiences a problem which is recognised as an information problem. Various processes are then implemented to achieve the desired result.

Implementing the process

The nature of the process may include knowledge of information sources as described in category two; this is however a relatively minor part of the experience. Different people describe the process differently, but typically it includes several elements, representing a series of steps or stages in the procedure. Here the process is likened to problem solving techniques:

The first thing has to be to define what the problem area is...so an effective information user will be able to narrow down the problem. Having narrowed down the problem that would lead to, or would provide an indication that there needs to be more information gathered in certain areas around that problem; so the effective information user would be able to identify where the additional information is needed or where the gaps are. I guess a small but vital part of it is to be able to gather that information from whatever sources are available and to analyse it; and then based on that make a decision or solve the problem or whatever...It's almost like basic problem solving techniques. (Int. 5, p. 10, Academic, Male)

A similar process is described by a lecturer who has recently completed a literature review for her doctoral thesis. She summarises the process as involving:

1) location of data, 2) interpretation of data, 3) acting on the data, in this case by allowing it to produce an alternative conceptual viewpoint. (Written transcript A2, Lecturer, Female)

The problem to which the process applies may come from personal as well as academic life. One respondent who details a similar process provides the following example for clarification:

I wonder what it would cost to put an awning over the window? Information needed:

1) who supplies awnings?

2) what is their phone number?

3) how much does an awning x X y cost?

4) it costs $z-; an evaluation is now made to decide

5) OK lets buy it -or no, this is too expensive. (Written transcript B2, Librarian, Female)

For one respondent at least the process is not as straightforward as it appears in the descriptions. Having outlined the process of location, analysis and action, he goes on to describe it as a 'creative art' (Int. 5, p.10). The process is implemented differently by different individuals in different contexts.

In this way of experiencing information literacy, the 'problem to be solved' may itself be the identification of appropriate information resources. This sounds similar to the previous category (the Information Finding conception). In that category, however, information finding relies upon knowledge of sources, whereas in this category the identification of sources relies upon knowledge of process.

A reference librarian who describes her experience of finding information based on the execution of a process, rather than on knowing specific sources, provides an illustration. This respondent has just described an occasion on which she located an international treaty using the Internet for a client, because that treaty was not available in the library. She is able to do so, even though she is not familiar with legal resources or the discipline of law, because of her ability to execute certain processes:

> Even though I was not familiar w th the subject or content of the request I was able to use processes associated with the location of this type of resource. This is something that happens quite often. I am not using my knowledge of cortent but my knowledge of process to find information. (Written transcript B16, Librarian, Female)

This respondent provides a typical example of the need to look beyond words used to the meaning expressed, by taking into account previous and subsequent statements made. In an earlier sentence she used the phrase:'I used my knowledge of information sources to look up the treaty'. A superficial treatment of the data would have led to this statement being included in the previous category dealing with information finding and knowledge of sources. The passage as a whole indicates that her phrase 'knowledge of sources' should be interpreted as 'knowledge of process'.

This is confirmed by the respondent when she disclaims knowledge of law and legal resources. She further generalises: 'if you can apply a process of finding information it is very effective for use in any discipline'.

The outcome of the experience

The descriptions of the 'processes' above all include elements of being able to resolve an initial problem. There is a strong implication, for example, that the academic asked to provide advice about an engineering structure was able to do so. Similarly the female academic writing a literature review was able to develop an alternative conceptual viewpoint, the purchaser of awnings was able to decide whether to buy the product or not, and the reference librarian was able to meet her client's information need. These 'endpoints' of being able to do something practical in consequence of the process appear to be fundamental parts of the character of the conception.

Summary

To summarise, in category three information literacy is experienced in terms of the ability to implement information processes. Information literate people are seen as those who can recognise a need for 'information', and who can use the information they access to meet the original need. This need is usually stated in terms of problem-solving or decision-making. Although there are no subcategories here, there is variation amongst individuals in terms of how the process is experienced. The next category is the last of the group of four which share an objective view of information. Like the third category it is neither information technology, nor information use which is focal in awareness, but an element idiosyncratic to the category, that is information control.

Category four: the information control conception

Information literacy is seen as controlling information.

In this category information control is the focus of attention. Information itself continues to be viewed objectively, as something outside the individual. The information to be brought within the information user's controlling influence may appear in any form: journal article, electronic mail message, etc. The subject-object relation is constituted in terms of specific strategies for establishing control. There are three specific tools which are seen as useful for controlling information, leading to three distinct subcategories:

- Information literacy is seen as controlling information using filing cabinets (Subcategory A).

- Information literacy is seen as controlling information using the human brain (Subcategory B).

- Information literacy is seen as controlling information using electronic databases (Subcategory C).

In each subcategory the character of the relation varies as follows:

- Subcategory A: control of information is established using filing cabinets.

- Subcategory B: control of information is established using the brain or memory via various forms of links and associations.

- Subcategory C: control of information is established using computers to allow storage and retrieval.

The structure of awareness

The importance of information control is the *distinguishing feature* of this conception. For this reason, both the focal element in the structure of awareness, and the meaning structure for the conception are centred on
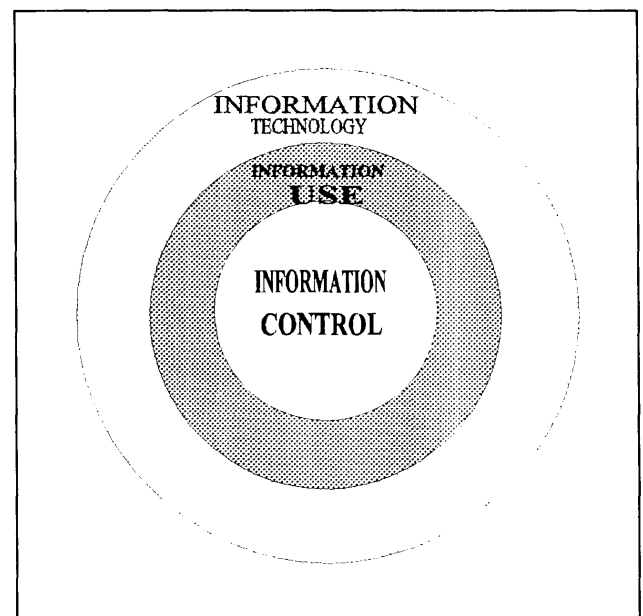
Figure 6.6   The structure of awareness as experienced in the information control conception

information organisation. Information organisation, in this context, is about storing information, usually documents, in a fashion which ensures easy retrieval. All the information is selected on the basis of its likely value for future use in research or teaching, for example. In this sense information is again seen as objective, but is selected within a particular context. Use of information, however, is not the primary concern of this conception, the concern is rather bringing it under the controlling influence of the user. Information use, therefore, forms the second level of awareness. As with category three, information technology is not a critical feature of participants' descriptions of this experience. Although used by many of the participants, it is not an essential part of the character of the experience; technology is therefore located in the outer field of awareness.

The meaning structure

In this category the meaning structure is:

Recognising/obtaining useful information - storing/organising the information - being able to retrieve and use the information when required.

Because each element of the meaning structure is significant in this category, the full character of the experience comes from the presence of all three elements. The organising element is the one which makes descriptions belonging to this category easily recognisable. The meaning structure of the various subcategories include some details about the medium used for organisation. This is because the interviewees focus on the various media as contrasting elements. In Subcategory A the meaning structure is:

Recognising useful information - storing/organising the information using filing cabinets - being able to retrieve and use the information when required.

In Subcategory B it is:

Recognising useful information - storing/organising the information using the brain - being able to retrieve and use the information when required.

In the Subcategory C it is:

Recognising useful information - storing/organising the information using electronic databases- being able to retrieve and use the information when required.

Information literacy is seen as controlling information using filing cabinets. (Subcategory A)

In this conception the trusty filing cabinet is seen as a tool for storing and controlling information for retrieval. Control, as in the other subcategories, is imposed by the information user. The specific ways in which information is organised in this subcategory may be related to the structure of research interests. Projects being undertaken influence the structure of organisation. In this way links are created between items of information and particular aspects of the project. This is illustrated by an interviewee's description of how she decides where to store a document:

> ...it relates to x or something so I stick it in the file and it's there if I need it. (Int. 4, p.5, Staff Developer, Female)

The same interviewee describes her own experience of information literacy by focussing on the need to manage vast quantities of information related to daily work routines and research projects. She makes these comments in response to a request to describe a time when she was an effective information user:

> I daresay it would be in the X-project when we had massive amounts of stuff to process and I consider we did that very effectively...I thought: 'we need to get a piece of information from (organisation).' I rang them up and I said please send me that report which they did. I read it...put it in the right file, then when the chapter was being written, I took it out of the file and used it.(Int. 4, p.6, Staff Developer, Female)

This respondent's decision to extract and use information from the report in question was closely related to the structuring of her own report. It was imperative that her material be organised to reflect that structure.

Another interviewee describes the same kind of experience of effective information use in relation to collecting, storing and retrieving journal articles. The feature of recognising what is relevant

is present as well as deciding to store it, then being able to retrieve it. As with the previous interviewee, there is no perceived need to recall the information from memory, it simply gets stored in an appropriate place:

> I scan the journals every week...if I see an article that looks like it will be of interest to me, I'll...read the abstract. If it's still of interest I'll photocopy it.... having photocopied it, I don't feel any obligation to read it through. I tend to bring it back and file it in my system (of filing cabinets) here. (Int. 12, p.2 Staff Developer, Male)

Importantly, the interviewee is able to retrieve the material he has gathered when it is required:

> ...when there's someone who comes in and wants something on a particular topic...I've got a file there with articles relevant to it.(Int. 12, p.2 Staff Developer, Male)

One reason for using filing cabinets is that the interviewee does not wish to use his or her brain in this way: 'there's only so much the brain can absorb'. (Int. 4, p.6, Staff Developer, Female).

Information literacy is seen as controlling information *using the human brain.(Subcategory B)*

At the heart of this conception lies the human brain as a vital tool for storing and controlling information for retrieval. This particular way of conceiving of information literacy tends to be described by participants as part of the experience of colleagues, rather than part of their own experience. One respondent who described her own experience in terms of storing information in filing cabinets, describes a colleague as using his brain where she would depend on the structure of her files. She makes this reply after a request to describe someone she sees as information literate:

> What makes him competent is what he's got in his ruddy head. He knows. He's seen something there, 1968 somebody said that, and he knows, and he knows where to go and get it. (Int. 4, p.9, Staff Developer, Female)

After describing an episode in which such competence is demonstrated, this interviewee goes on to develop the importance of being able to organise and retrieve information using the brain as a tool. In doing so she contrasts this strategy with her own approach of using filing cabinets:

> Well,…somehow he has the sort of brain that he can use as a filing cabinet which I can't do. I use my filing cabinet as my brain. His things are filed in his brain and he knows exactly where to get them…it's a reverse process. (Int 4, p.9-10, Staff Developer, Female)

This subcategory differs from the first, because its focus is different. The focus is on using the brain, or memory, rather than the filing cabinet for organising and storing information. It is also seen, by respondents, as a qualitatively different experience:

> I can manage (my pieces of paper) and access them in a fashion; I can't actually pull them out of here! (pointing to her head)…that's something I just cannot do. (Int. 4, p.10, Staff Developer, Female)

Another interviewee describes a colleague as an effective information user because of that person's ability to remember, that is store, information about people:

> …one of the reasons she is an effective information user is that…. she seems to be able to remember people, to remember what they are doing, to have a life story attached to each person she ever meets. (Int. 9, p.4, Staff Developer, Female)

She goes on to describe the ability to retrieve information from the memory as being made possible though a series of mental associations or links. It is important to remember here that these links are part of the conception of the interviewee, they represent the interviewee's way of conceiving of information literacy, rot the view of the colleague she is describing:

> …it's because she's linking the information to a person, and that helps somehow to access the information. So that when a topic comes up, she not only has in a sense one reference point, she has two, and they are linked, so that she is able to retrieve that information. (Int. 9, p.4, Staff Developer, Female)

She then provides an example of a situation in which the information is retrieved. This example is intended to provide some evidence for the linking of 'life-stories' to individuals described previously:

> …a number of times when things come up she'll say 'so and so would be a good source of information on that', or' you could go and ask so and so because that person did such and such'. (Int. 9, p.4, Staff Developer, Female)

This element of creating links was also evident in the 'filing cabinet' subcategory. Although the interviewees describing the database subcategory do not explicitly mention it, databases are usually constructed with the deliberate intention of linking records through shared elements such as authors, titles and subject headings.

Information literacy is seen as controlling information using electronic databases.
(Subcategory C)

In this subcategory the tool for storing and controlling information for retrieval is neither the filing cabinet, nor the brain, but database software. Filing cabinets and memory are both considered inappropriate strategies for information control by participants who conceive of information literacy this way. 'Filing cabinet' style organisation is described as 'dead hole-ish' (Int. 14, p.1, Librarian, Male); and another participant confesses to not knowing what information he has access to, even on his own shelves (Int. 13, p.1, Academic, Male). Evidently this academic does not see himself as using his brain as a medium for information control!

One illustration of this experience comes from an academic who describes his need to select and control information belonging to a particular area of professional interest:

> When I was a lecturer I had the need to collate material (about x) from time to time... I found the best way to get all the material together was to prepare this database... we inputted all the magazines and conference proceedings up to a certain point in time, and then we kept it up to date since then. (Int. 13, pp.6-7, Academic, Male)

This database, apart from being distributed all over the world, is also of value to its creator, making it possible for him to retrieve material when required:

> I've had people ring me from all over Australia wanting information on something... I use it privately for preparation of lectures. (Int. 13, p.7, Academic, Male)

Conceiving of information as establishing control electronically is expressed by another respondent. The interviewee, a librarian, describes his view of information literacy by drawing on his own experience and that of his students. Like one of the other interviewees, he depends on abstracts rather than reading whole documents:

...what I'm getting in many cases is the abstract of the information. I'm not finding the time to chase up the ...full article...the abstract is fine. That gives me the information I need to know... (Int. 14, p. 1, Librarian, Male)

In relation to students, they are described as using technology to store relevant information. Information is 'controlled' in the sense that available software allows students to search the data entered based on selected keywords. This allows the students to retrieve information they did not know they had:

They wouldn't be queuing up for the photocopier. They would be able to scan relevant parts of it (the document) straight into their computer. They would analyse it with their software, and they would be able to keyword search. Now where was that reference about such and such? It's in these three articles. Well, I didn't know it was in that article! (Int. 14, p.11, Librarian, Male)

In relation to himself, the interviewee describes his dependence on the databases created by others for maintaining control, rather that producing his own. This quote also contains an explicit reference to the 'external' nature of information noted in this category:

...I'm not the proud owner of ENDNOTE or PROCITE or some nice little package that I can put all this information into and then readily retrieve it myself. In a sense I don't need to do that because I perceive that the information is still out there and I can always retrieve it, and I try to promote the same notion to students and staff when they're using a database.(Int. 14, p. 11, Librarian, Male)

Summary of Category Four

To summarise, in category four information literacy is experienced as controlling information. Information literate people are seen as those who can use various media to bring information within their sphere of influence, so that they can retrieve and manipulate it when necessary. Information continues to be regarded as external to the user although it may be brought within organisational boundaries for use within specific projects. The next category to be described, category five, the knowledge construction conception, is the first of a triad of categories that are somewhat different from the first four. Information is no longer viewed objectively in these categories. Emphasis is placed on the nature and role of personal knowledge bases in information literacy, and information use becomes focal in the structure of awareness.

Category five: the knowledge construction conception

Information literacy is seen as building up a personal knowledge base in a new area of interest.

In this and subsequent categories, information use becomes the focus of attention. In previous categories, information has been seen as external to the individual, and apparently as having a 'constant' or 'objective' character. Information, in this category, becomes an object of reflection and it appears to each individual user in a unique way. Information takes on a 'fluid' or 'subjective' character. As an outcome of the experience, 'information' is internalised, it becomes a part of the user; it is no longer external. We can say that the relation between the user and information is constituted in terms of meaning construction and interpretation. Such meaning construction requires active participation on the part of both elements of the subject-object relation. The information user is involved in evaluation and analysis, whilst the information presents itself uniquely to the user.

Information, therefore, is used in this category for knowledge construction or developing a knowledge base. The idea of a knowledge base in this category goes beyond that of a store of information; it involves the adoption of personal perspectives. This is achieved through critical analysis of what is read. Most importantly, the knowledge base of the discipline is not changed or added to in any way.
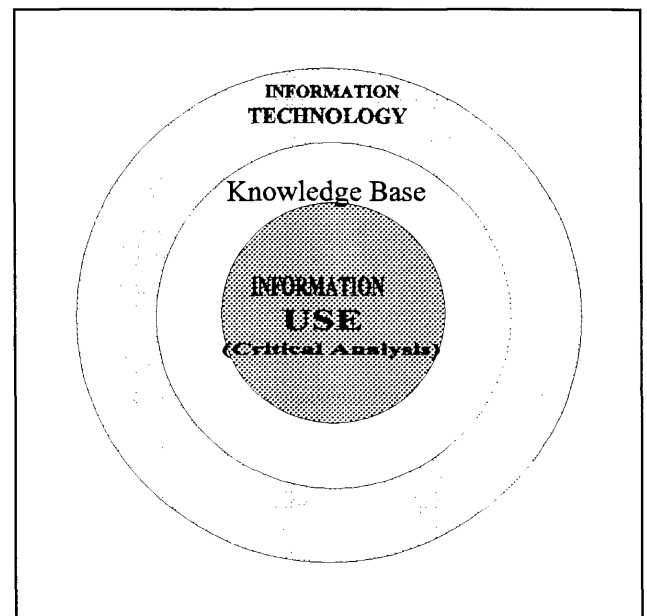

Figure 6.7:   The structure of awareness as experienced in the knowledge construction conception

The structure of awareness

Critical information use, for the purpose of constructing a personal knowledge base is the distinguishing feature of this conception. *Knowledge base* is a term used by respondents to describe the intent of their information seeking, for example: "...building up a knowledge base in the field" (Int. 4, p.2, Staff Developer, Female). Critical analysis, as an important feature in the process of knowledge construction, is an essential part of the character of this conception. The

ability to weigh and analyse the relative worth of information is described repeatedly by participants. Information technology is in the margin of this experience, because for these respondents technology is not essential; it is used by some, while for others it can be a barrier.

The meaning structure

Although the structure of awareness is similar for this and the remaining categories, their meaning structures are very different. This is why they have been described as separate categories. In this category the meaning structure brings together information seeking and critical analysis, with meaning construction or the building up of a knowledge base as the outcome:

Information seeking + critical analysis = personal knowledge base.

Information seeking, in this category, does not refer to conventional information retrieval methods, certainly 'knowledge of sources', such as appear in the information finding category is not important. The approach described by respondents, as will be seen further on, is serendipitous. The knowledge base, which is the outcome of this category, becomes a prerequisite for categories six and seven.

Those respondents who conceive of, or experience, information literacy in this way, describe the experience in detail. It will be seen from what follows that they are concerned with adopting a *particular orientation* towards what they are learning about. Another feature common to these experiences is that the individuals are highly selective about the information with which they choose to work. Although the respondents describe different sources of information, precisely where the information comes from is irrelevant. What is important is that the information comes from an appropriate source (a feature consistent with the emphasis on evaluation in the category). Information may come from internet discussion groups, reading documents, listening to the radio, talking to people in a public place, or using electronic databases. Three critical elements of the conception: building the knowledge base, critical analysis and challenges presented by information technology are analysed below.

Building the knowledge base

The most detailed description of building the knowledge base comes from a respondent talking about the use of printed material. She describes her experience as a 'selection process'. It is an experience with which many scholars are familiar, that of starting with known items of interest and tracing further sources of interest through references:

> ...well I read a book because I'm interested in the topic and the book might have a very useful quote from another author. I then turn to the back of the book and find the reference and then I go to the library catalogue and look it up, order it, get it off the shelf, read it, in turn, that will refer me on to yet another bibliography at the back of another book and so on and so on. (Int. 4, p.2, Staff Developer, Female)

Secondary, or tertiary sources of information, such as indexes and abstracts are only used towards the end of the process if the respondent considers it necessary:

> ...at the end of that process, if I find I still have holes in the information that I've gathered and that I need to go further, then is when I would consult the indexes that would tell me all the other things that are available and which might be of interest, and I'd access which ones of those I thought would be of use. (Int. 4, p.2, Staff Developer, Female)

This process described is anything but mechanical. It depends upon the ability to analyse critically material read. This leads to the adoption of personal perspectives which influence further development of the work being undertaken:

> ...What's happening in the process is that I'm able to say, 'oh, well he says that about it because of the way he's approaching the subject or because of his previous experience or his expertise in that particular area of the field. She's approaching it from here. Where do I stand in relation to those two? I prefer that way of looking at it'. O.K. So I'll follow some of that person's references rather than, I know the sort of vibes or prejudice or whatever this person is going to bring to it, and I'm not really interested in that, so I will build up......It's a fairly selective way of doing it but at the same time you remain aware of both prongs of the fork if you like... (Int.4, p. 2, Staff Developer, Female)

This need to take a position in relation to what others are saying is also pointed out by other interviewees. The following interviewee has been using the 'information stream' metaphor to describe becoming conversant with an area of interest:

...I see effectiveness as being able to get in and out of the stream and getting in is the most important issue, but when you're in, being able to get back out, if only to adopt a, not a disinterested perspective, but in fact to be able to take a position... (Int. 12, p.3, Staff Developer, Male)

Interacting with people is another significant way of building a knowledge base. Interacting with people also requires the person gathering information to be very clear about his or her purpose, and to have the ability to select according to those purposes. The ability to see the relevance of information may be a consequence of a link being made by other people. For this to happen the information user must communicate his or her professional interests or research projects. Making this communication is a conscious act on the part of the effective information user:

...when I do (tell people about what I'm doing), then I find that other people try to relate what I'm doing to what they're doing; and this helps me see a relationship I might not have seen before. (Int. 9, p. 1, Staff Developer, Female)

Just as when working with printed material some interaction is required between the reader and the content of the documents, so interaction is required between individuals:

It really is an interaction...if you don't give information you won't get any! (Int. 9, p. 1, Staff Developer, Female)

The importance of developing personal perspectives arises later in the interview:

...the potential is there for giving my view and then learning from other people what their views are; and, you know, that enables me to revise mine and maybe move in a different direction. (Int. 9, p. 7, Staff Developer, Female)

Interaction with people may also occur via electronic networks. A respondent needing to write a conference paper on how people use the Internet discovered that the most appropriate way to obtain the information required was to send out a query via mailing lists. She was able to use the replies, and continues to build her knowledge of the area by maintaining contact with the people with whom she established communication:

... these people now, contact me to say 'how's it going?'and, you know, we write to each other. (Int. 8, p.2, Librarian, Female)

Actual strategies for gathering information from which the knowledge base is constructed are dependent upon the user's approach to the task, or information style. The descriptions provided above indicate that individuals have different approaches to gathering information. One respondent explicitly reflects on this. In doing so he contrasts what he calls the 'classical approach' to information gathering with his own. The classical approach he labels the 'salami technique'. His own is referred to as the 'cast the net approach':

> :..here's your topic, salami technique, you know, slice it up into little bits, do each little bit so that it's not overwhelming...all that sort of stuff...but my own personal style would be over reading, over gathering, but I'm not an instrumental task-oriented person, I'm a more intuitive, reflective type person. Maybe that information style suits me. ...I want to...flip around a bit...the ' cast-the-net-and see-what's-out-there' approach.. (Int. 14, p.5, Librarian, Male)

Critical Analysis

The second distinctive feature of this category is the emphasis on a critical, analytical approach to information. This critical stance is qualitatively different from being able to identify information relevant to particular interests. The whole process of developing a knowledge base is dependent upon critical analysis and this is recognised by the interviewees:

> ... an information literate person must always be a critical information literate person...without that element of critical evaluation I don't think it's worth very much at all. (Int.4, p.12, Staff Developer, Female)

> ...to be an effective information user you have to be able to analyse the information... (Int. 5, p. 2, Academic, Male)

> ...I think it all boils down to the ability to look at that information critically and sift the wheat from the chaff. (Int. 5, p. 8, Academic, Male)

Several examples are provided by respondents which explain what they mean by critical analysis. One of the engineering academics explains critical analysis as *involving identifying gaps in knowledge, recognising conflicting schools of thought and assessing the reliability of research.* He provides the following response when asked what is meant by critical analysis, and later relates

this to his own research activity as well as that of research students:

> ... I think there are a couple of areas that are important. .... to identify gaps in the current knowledge and searching through the information to find out where there is conflict between various groups of researchers or schools of thought or whatever it might be; and also searching through to see where there's just been a simple blunder which may appear through preparing results from different people. So I guess those three things are important there. It's not good enough just to read and say, yes, Smith and Jones said this, and Brown and Jackson said that and whatever. You have to be able to look at them and say, 'why did they say it, what's the basis on which they've made their observation and perhaps why is that different from what Smith and Jones have said?' (Int. 5, p. 3, Academic, Male)

An outcome of critical analysis identified by participants is the adoption of personal perspectives on the area of interest. Descriptions of the process leading to the adoption of personal perspectives shed further light on the meanings attributed to critical analysis. For example, participants describe it as a 'process of clarification' (Int. 2, p.8, Learning Adviser, Male) and 'researching your own thoughts' (Int. 9, p. 10, Staff Developer, Female).

Critical analysis is also described as evaluating the usefulness of information and presenting 'a cohesive discussion on which aspects are stronger than others'. This includes developing 'supporting arguments...rather than reproducing what they (students) consider to be the ultimate truth'. Specific strategies for critical analysis include flow charting, concept mapping and developing matrices (Int. 2, p.4, 6-7, Learning Adviser, Male).

Fourthly, respondents describe experiences of critical analysis when they discuss the importance of being able to assess the scholarly value of documents. This is discussed both in relation to conventional documents and electronic sources:

> ...I just needed the key works that would tell me what it was all about.. (Int. 4, p.4, Staff Developer, Female)

> ...one of the problems that people are finding with dealing with the network is: just how scholarly are those opinions...? (Int. 8, p. 3, Librarian, Female)

Challenges presented by information technology

When information literacy is conceived of, or experienced in this way, information technology can pose some significant challenges. These challenges are likely to be in:

- the development of the knowledge base, or
- in determining the quality of information accessed.

The development of the knowledge base   Information technology poses problems in gathering information for those people who approach the development of their knowledge base using a 'selection process'. This process was described earlier in this category under the heading of building the knowledge base. The same respondent who described her use of print resources for arriving at an understanding of a new field also describes the impossibility of using this selection process with electronic sources. She considers that the volume of information, the quality of information, and the medium itself pose problems (Int. 4, p.4, Staff Developer, Female).

The medium is problematic because the 'blue striped paper' used for computer print outs 'hurts the eyes' (Int. 4, p.4, Staff Developer, Female). The volume of information generated is a problem because the 'acres of information' accessed make a *discard process* necessary rather than a *selection process*. This is a completely different way of approaching knowledge acquisition as well as being more time consuming: 'it takes more time to do the discard process than the selection process' (Int. 4, p.4, Staff Developer, Female). Finally, the quality of information in bibliographic databases is perceived as wanting. Decisions must be based on:

> ...the tiniest bit of information, maybe a paragraph on the printout, whereas if you're looking at it as a physical book, you can actually browse and see and think, 'oh well, chapter five might be O.K., but that's about it in that book.' This little bit of information won't tell me that chapter five is O.K. So I'm missing stuff. That's very traditional, conservative, old hat way of approaching information literacy. ... And if they ever closed the library stacks down, like they have in many places, I would be sunk. (Int. 4, p.4, Staff Developer, Female)

Determining the quality of information accessed   Using networked information makes it difficult for those without sufficient expertise to ascertain the quality of information accessed. Problems also arise in terms of needing to understand precisely what has been accessed and how to treat it

within the arena of scholarly discourse:

> ...I mean a published article you can cite and you can refer back to, and ... because it's been refereed or whatever...; but if somebody just says, well this is what I think, and they're Joe Blow from downtown Kansas. I mean it's a very very difficult area to pin down. (Int. 8, p.4, Librarian, Female)

At present, individuals need to find strategies for dealing with these problems whilst the conventions develop. The same respondent makes the following comments when asked how she deals with the difficulties:

> ...At the moment, probably by not pretending that it's a scholarly article and just by basically being as honest with citing it, and as correct with citing it as I can, and I think there are now resources around that say the correct way to cite an electronic news group, or whatever, and basically if I'm giving a paper or writing something and I'm using somebody's opinion then I say that that's what I'm doing. (Int. 8, p.4, Librarian, Female)

Summary

To summarise, in category five information literacy is experienced as the ability to develop a personal knowledge base in a previously unfamiliar area of interest. The information literate person can use strategies which, when accompanied by critical analysis or reflection, allow personal perspectives to be adopted. In this category information is seen as subjective; it is an object of reflection. In subsequent categories describing information literacy information becomes 'transformational'. This is first evident in the sixth category, the knowledge extension conception.

Category six: the knowledge extension conception

Information literacy is seen as working with knowledge and personal perspectives adopted in such a way that novel insights are gained

As foreshadowed in category five, information use remains the focus of attention here. Information use, however, is no longer aimed at knowledge construction, but rather at knowledge extension. A capacity for intuition is seen as necessary for allowing information to be used in this

way. The knowledge base differs from that in the previous category in that it includes knowledge gained through personal experience.

In this category the view of information differs from those noted previously. Information in earlier categories was seen as objective and external to the individual, as well as subjective and able to be internalised. Here information is seen as being part of the person and as being changed (transformed) by the person. Information itself is not an object of reflection. Instead it is drawn on in the process of reflection; it becomes part of a pattern of reflection linked to the nature of creative insight. The relation between the information user and information can be described as constituted in terms of creative insight and subsequent knowledge extension. Although the need for such creative insight is recognised by the interviewees, they do not understand how it works.

The structure of awareness

Information use, involving a capacity for intuition, or creative insight, is the distinguishing feature of this conception. Such intuition or insight usually results in the development of novel ideas or creative solutions to problems. The knowledge base is recognised by participants as being an essential part of this way of conceiving of, or experiencing, information literacy. As has been previously mentioned, the character of the knowledge base differs in this category; this will be explained further in what follows.
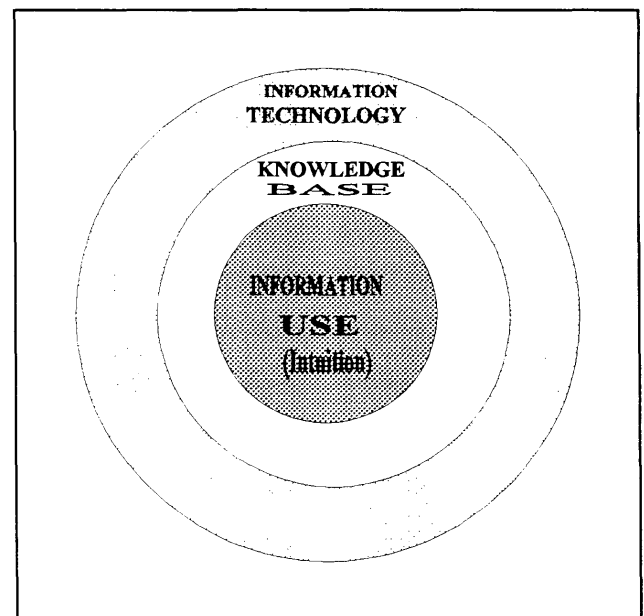

Figure 6.8   The structure of awareness as experienced in the knowledge extension conception

Information technology is again in the margin of this experience. It will be seen that participants do not see information technology as essential to information literacy when it is conceived of in terms of knowledge extension. Information technology may speed the process but has little else to contribute.

The meaning structure

The meaning structure of this conception begins with an enhanced knowledge base. It is enhanced in that it is derived from both scholarship and personal experience. Also included are the elements of creative insight, or intuition, and knowledge extension. All these elements may be combined to express the meaning of the experience as follows:

Enhanced knowledge base + creative insight => novel ideas or solutions.

Novel ideas or solutions, that is know edge extension, are the outcomes of the experience. These elements of the meaning structure differ from those in the previous category although, on the surface, the structure of awareness is similar.

Interviewees who conceive of information literacy in this way provide examples illustrating their view from their own experience and their observation of others. Overall the experience seems to be closely related to the process of research and writing. Although elements of the other categories may be present, the qualitatively different element of creativity is the foundation of the conception. Each of the main parts of the category, the enhanced knowledge base, intuition or creative insight and the role of technology are described below.

The enhanced knowledge base

The knowledge base in this category is the foundation which allows creative insight to occur. It is acquired through scholarly reflection and personal experience. The element of scholarly reflection is described in terms of 'wide and deep' reading and the opportunity for reflection and analysis. This suggests that this element of the knowledge base is equivalent to that described as the outcome of the previous category. Specific comments illustrating this character of the knowledge base include:

> It's the level of scholarship isn't it...and mental ability. He has such a background of wide and deep reading. (Int.4, p. 9, Staff Developer, Female)

> It's an activity that is affected by how much prolonged time you get to be quiet to concentrate on something for a while, which allows you to reflect, analyse and so on. (Int.14, p. 9, Librarian, Male)

The importance of personal experience in developing a knowledge base is described by an interviewee who uses his son as an example of a neophyte who has no experience to draw on:

> ... information (is) gathered almost subconsciously over a lengthy period of time and I'm conscious of this because (my son)'s got his learner's permit and I'm having difficulty because, things that I would just do naturally, he doesn't do because he hasn't built up that knowledge base of what to do... (Int. 5, p.1, Academic, Male)

The role of subconsciously gathering information through experience is returned to later in the interview when he describes problem-solving in a professional context. Having a knowledge base to draw on in this context is described as requiring experience:

> I guess it goes back to the driving a car thing again, you gather these things almost subconsciously as you go along, extracting that information... (Int. 5, p. 7, Academic, Male)

The importance of the knowledge base to creative insight is explicitly noted by this respondent:

> The inspiration is probably a subconscious reaction to a broad knowledge base that you've got stacked away anyway (pointing to head)...I wouldn't have the inspiration if I didn't have the information. (Int. 5, p.9, Academic, Male)

Intuition or creative insight and knowledge extension

Creativity, or intuition, is about *how* novel insights are gained. Although most participants describe this as a mysterious process which they cannot explain, some describe it as an activity of the mind. The way in which it is explained by participants probably depends upon their own world views. What is more important is that 'new knowledge or information' is recognised as the outcome, and intuition is recognised as the contributing factor to effective information use. This part of the category is clearly linked to the view of information in this conception.

The following is an example of information literacy which illustrates the emphasis on generating new information and the creativity which makes it possible. This interviewee is describing someone she considers to be information literate:

He has an idea, so the creative thought... he does lots of literature surveys, has a look to see what the literature surveys suggest and then he would try and research to try and find out how close the literature source is to the experience in business and then he would put a paper out on that, so it's a new creative thought. So he uses information to create more information. (Int. 3, p. 6, Learning Adviser, Female)

This emphasis on generating new information has already been evident in the same interview. Here the interviewee is replying to a question about what is involved in being an effective user of information. She replies in relation to her own experience of using information in the research context:

I think it actually involves new information. Actually being able to bring a new perspective, something that has never been done before. to either extend an argument beyond where anybody has ever extended it, see something in a totally different light, be able to perhaps put in research that would support it and actually add to the information list. (Int. 3, p. 3, Learning Adviser, Female)

Another interviewee describes a colleague as information literate on the basis that she is able to use information to 'create her own thing':

...she incorporate the stuff she's found in a very forward thinking way...it's not looking back at what she's read she's actually creating her own thing. (Int.8, p.12, Librarian, Female)

The whole emphasis on new information is summarised by an interviewee who comments that 'there is a sense of changing that information' (Int. 12, p. 8, Staff Developer, Female).

The creative element of the experience is elaborated by other respondents as a mysterious, intuitive process:

:...it's a subconscious thing that's built up from experience over time. You get this sort of funny feeling... (Int. 5, p.8, Academic, Male)

...Now, things have come to me as a flash. ...after peering in the screen for some hours you get very...,' blow this, I'm going to go and lie down.' So I did. And then suddenly I jump up with this great inspiration and rush down and pound the keyboard. You don't........no idea (how). Subconscious sort of says 'do these things'. (Int. 5, p. 8, Academic, Male)

At first the respondent is uncertain whether intuition is part of effective information use, then concedes:

> I guess if it's not.......I think it has to be. I think it has to. (lengthy pause) One never knows what happens if you don't have the inspiration. There's no way of looking at the alternative path. Maybe I haven't had enough flashes of inspiration either. So we don't know. That's difficult, isn't it.....
> (Int. 5, p. 9, Academic, Male)

Another lecturer, also describes the process of creating new information in terms of creativity and intuition. In this case the lecturer is concerned with making connections between previously unconnected pieces of information:

> I think there's a creative relationship really....You can stuff yourself full of information and only be capable of regurgitating it, but actually to synthesise and relate it to other things...I find that just happens spontaneously, you make connections...I still find it a rather mysterious process, you start to see the connections, the relationships. (Int. 6, p. 3, Academic, Male)

The peripheral role of technology

The role of information technology is to release time and energy to the mental activity required for creative insight/intuition:

> If the computer is really liberating us in terms of time, then what it is liberating us from are the bodily aspects of information gathering, no longer do I have to flip pages, no longer do I have to write lots and lots of information, I can point click and download. Much more time has been liberated for the mind-oriented thing. (Int. 14, p.10, Librarian, Male)

Another one of the respondents who focussed heavily on the role of intuition in his experience points out that he does not see information technology literacy as important to information literacy. He replies to a question asking whether technological literacy is necessary to being an effective information user:

> I don't think it's essential. It sure makes it easier. I don't think you need to be technologically literate provided you have other sources of gathering that information which may be using people who are technologically literate. Yes. I don't think it's an essential ingredient for the individual but it sure

makes it easier...I'm sure there must be plenty of people who are quite computer illiterate who are good information users. (Int. 5, p.11, Academic, Male)

This respondent also points out that the primary role of technology is to release individuals from expending time and physical energy:

> I mean, it surely enables one to be able to do it much more quickly than without it. If you're relying on not being able to use modern computer techniques, I think you can do it, but it'll take a long, long time, much, much longer. You might have to rely on other people with those computer skills. ...And I guess more and more information is becoming readily available... we can now dial it up from here. We don't even have to physically walk to the library which saves, you know, ten minutes a trip and you always run into somebody and talk. (Int. 5, p.11, Academic, Male)

The role of technology in this conception differs from that in the previous category; in the knowledge construction category information technology was seen as a potential barrier, requiring very different approaches to the process of knowledge construction. Although here information technology is seen as contributing to the possibility of knowledge extension, its role is not as important as it is in the information technology category.

Summary

To summarise information literacy is experienced as knowledge extension. The information literate person relies heavily on personal knowledge, experience and insight in order to use information creatively. The element of intuition is an important distinguishing feature. As information is used creatively it is 'transformed' or new knowledge is produced. In the seventh, and final category, information literacy is seen as the wise use of information.

Category seven: the wisdom conception

Information literacy is seen as using information wisely for the benefit of others.

Information use, the focal point of the knowledge construction and extension conceptions, remains the focus of this category. The view of information in this category is similar to the view in

category six in that information is seen as being a part of the person (the information user). Here, however, information transforms people (when used wisely), rather that being itself transformed. Information is, in this category also, subject to a process of reflection which is part of the experience of effective information use. The subject - object relation in this category is constituted in terms of wise use of information.

Information use, therefore, is understood in terms of making use of information wisely. A consciousness of personal values and ethics is needed to enable information to be used in this way. Wisdom is a personal quality brought to the use of information. The knowledge base underpinning information use is the same as in the previous category.

The structure of awareness

Wise use of information, involving the adoption of personal values in relation to information use, is the distinguishing feature of this conception. Wisdom is related to ideas such as social responsibility. The knowledge base is also an important part of this experience or view of information literacy. Participants recognise the need to draw upon their scholarship and experience in dealing with the academic and professional contexts in which information is used.
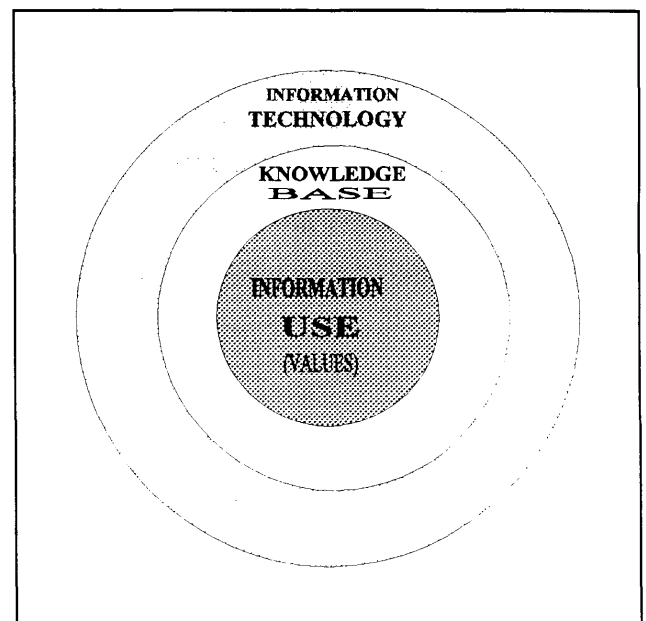

Figure 6.9   The structure of awareness as experienced in the wisdom conception

The knowledge base is therefore the second level of awareness. Information technology is again in the margin of this experience. For some respondents information technology was considered to be a negative influence on the experience of information literacy.

The meaning structure

In this category the first element of the meaning structure is the enhanced knowledge base; that is the knowledge base built up through processes of scholarship and personal experience. This is the same element that is present in the knowledge extension category. Further elements of 'personal values' and 'wise use of information' complete the meaning structure:

Enhanced knowledge base + values = > wise use of information.

Personal values are critical and wise use of information is the outcome of the experience, thus providing the category with a distinctive meaning structure despite the apparent similarity in the structure of awareness with categories five and six.

This view of information literacy is summarised by one of the respondents in the latter half of his interview. He points to the relative insignificance of information access (and consequently information technology), the importance of wisdom and personal values in making use of information:

> Accessing information doesn't really come into it... I would like to think the information is not simply utilitarian...there's some kind of wisdom in the way its used...people have values and those values are brought to the using of information. (Int. 15, p. 10, Learning Adviser, Male)

Each of the three areas, values, wise use of information and information technology are examined in turn below.

The knowledge base supplemented by values, attitudes and beliefs

In this category the knowledge base as described in the previous category continues to be important. When information literacy is described as the capacity to use information wisely, however, that knowledge base is supplemented by an awareness of values, attitudes and beliefs which influences the use of information. One interviewee points to the important elements of an effective information user as follows:

...and that's to actually appreciate your own role as a user...A good information processor, I think, has a strong sense of their own beliefs and values and attitudes and how those beliefs and attitudes frame what they are doing. (Int. 12, p. 6, Staff Developer, Male)

Another interviewee describes his knowledge base as incorporating 'my culture and my values' (Int. 15, p. 4, Learning Adviser, Male). Information, he says, should 'remain subservient to the ethical domain of our lives:

> ...we all have, I think, larger responsibilities and have values which we may or may not be aware of at the time, but that they inform a lot of what we do whether it is in our work or in our personal relationships or in the way in which we relate to other people and that I see as the kind of ethical domain of our lives, and that information should remain subservient to that rather than being the goal in itself. (Int. 15, p. 10, Learning Adviser, Male)

Wise use of information

Wise use of information occurs in a range of contexts including exercising judgement, making decisions, doing research. Using information wisely presupposes a consciousness of personal values, attitudes and beliefs as described above. Wise use of information involves placing the information in a larger context, seeing it in the light of broader experience, 'seeing the information historically, temporarily, socio-culturally and so on' (Int. 15, p.9, Learning Adviser, Male).

When information is seen 'within a larger context and with one's own life experience' (Int. 15, p.5, Learning Adviser, Male), information is then used in qualitatively different ways. New information is not created as in the previous category; rather it is used to the benefit of the information user, colleagues or clients. One example is provided in relation to counselling clients in a sexual harassment case. The interviewee explains the situation as one in which his knowledge indicates that the case should be reported. His experience of the larger context of such situations, however, indicates that this would not be a wise option:

...is there any point in the person actually telling anyone about it?...it may be an option and it may be that it would be the thing to co, but it is not necessarily a wise thing to do in terms of the pain involved. (Int. 15, p.3, Learning Adviser, Male)

This interviewee provides another illustration of wise use of information. In this case he is the 'recipient' in the interaction. He describes a colleague as being able to use her knowledge 'to elicit in me a deeper understanding of phenomena' (Int. 15, p.13, Learning Adviser, Male).

Another interviewee similarly describes effective information use in terms of using information wisely, for the benefit of people. In this case the interviewee is describing someone he considers to be effective, rather than himself:

... she knows the best way to be able assist those people. ... she works in a public contact job where what she knows has an impact on what happens in those people's lives... So the decisions that she makes about people in her job actually affects, has an effect on their lives. (Int. 11, p.6, Learning Adviser, Male)

Using information may also be for personal benefit, rather than for the benefit of a client. An illustration of using information for personal advantage comes from an interviewee who used information to decide to curtail his involvement in an area of professional interest:

I wasn't (benefiting) so I stepped out...I was getting information about the cost to me of being involved and for me to continue to ignore that information would have made my position...highly problematic. (Int. 12, p.5, Staff Developer, Male)

The peripheral role of technology

In this category information technology, although used by the participants, is not seen as making a contribution to information literacy. The respondent who describes this view of information literacy in most detail actually suggests that there may be an inverse relationship between effective use of information technology and information literacy. He leads into this comment by describing two acquaintances the first he considers to be an effective user of information technology, the second an effective user of information:

I don't know if he was a good information user or not. I do know he knows how to access information electronically... (She) has probably never used a computer...and to me she was a person who I would regard as being a good information user because she was able to be wise with that information...(Int. 15, p. 13, Learning Adviser, Male)

...there's a danger that there's an inverse relationship between being a good technical person and being a good information user when one construes information as something which needs to be related to knowledge and to wisdom. I shouldn't say there's an inverse relationship because I don't know, but one might well discover ... that there really is no relationship...(Int. 15, p. 14, Learning Adviser, Male)

Why information technology should be regarded as being quite outside the experience of information literacy, when viewed this way, is explained by another interviewee. This respondent is also concerned with the need for information to be subject to the 'beliefs and values and attitudes' of the information user. This is a role for human beings not information technology:

The computer knows nothing. It's not a knower, that computer over there, it's simply a machine. I can get information from it. I can look up my files, open up to e-mail, I can do those sorts of things but it is not knowledge. (Int. 15, p. 6, Staff Developer, Male)

Summary

To summarise, in category seven information literacy is seen as the wise use of information. When information is used this way, information is not transformed, as in category six, but people benefit. In this category, as in the previous two, information use is in the focus of awareness. Information technology, although present in awareness, is not just perpheral; it appears to be regarded with some scepticism, indeed very negatively. Most significant is the nature of the knowledge base that makes this experience possible. The knowledge base of wise information users is supplemented by values, attitudes and beliefs that they are explicity aware of and that they affirm in their use of information on a day to day basis.

These seven categories of description reveal the different ways in which higher educators experience information literacy. The categories provide pictures of real people working with information in real situations. Their thinking about information use reflects their own experiences of trying to use the information available to them as effectively as possible. It is these pictures that form the centrepiece of the new model of information literacy, he *relational information literacy wheel,* proposed in the first chapter.

We can conclude from these varying conceptions, that information literacy is not a linear process, nor is it necessarily technology driven as is often suggested in the literature; it is also not readily definable as a set of skills. Instead people's experience of information literacy is an intricately woven fabric, revealing different patterns of meaning depending on the nature of the light cast upon it.

How do these new pictures of information literacy compare with those which we have already used in the past? How should they influence teaching and learning? How can we bring students into the experience of developing personal knowledge about unfamiliar fields? What do we need to add to the existing research agenda to continue to explore information literacy this way? In the final chapter I will examine these categories in relation to other contemporary descriptions of information literacy and discuss their implications for information literacy education and research.