An Inquiry-Based Approach to Library Instruction

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The work described in this article was founded on a philosophy that foregrounds the importance of students developing their own inquiry questions as an essential precursor to learning the complex skills of accessing, reading, and writing information texts. In the article, I outline how such an inquiry question was used to focus the work of 6-year-old students, involving them in the use and development of a variety of library and study skills. I refer to these students as “young inquirers” and show how with the support of their teacher, they were able to approach their inquiry with an actively questioning mindset that led them to some often surprising insights into the process of finding and using information.

Introduction

Amy and Kelly are two 6-year-olds who work in a pleasant open-plan classroom that borders on a central school courtyard. Their grade 1 class is responsible for the upkeep of the flower beds in the courtyard, and some of the students attend a weekly after-school gardening club run by parent helpers. It is June, and the school has decided to spend some money on hanging baskets for the courtyard. The students are keen to discuss the contents of these baskets, and because of this keenness, their teacher Mrs. Cox decides to involve them in deciding which plants should be purchased. Later they will visit the local garden center to purchase their chosen plants, but before that, in discussion with their teacher, the students realize that only certain plants will be suitable and that in order to plan successful baskets, they will have to find some information.

I followed the work of these students as they:

- set clear purposes for their work,
- drew up a framework for recording information,
- located information in a range of reference materials,
- collaboratively constructed their understanding of the information they located,
- made their recommendations for the purchase of plants, and
- were empowered by the knowledge they had constructed.

This article is an account of the work of this class of students and an illustration of the power of an inquiry approach to students’ learning, especially learning the skills involved in effective use of books. I also explore the role of the teacher in such an activity. How can a teacher support the learning and intervene at appropriate points to take it just that bit further?
A Framework for the Research
The work described here was carried out under the auspices of a curriculum development project (the EXEL—Extending Literacy project) that focused on students' interactions with text, especially nonfiction texts, as a key medium for their learning in a range of content areas (an account of some of the early work of the EXEL project can be found in Wray & Lewis, 1997, and some more recent work is described in Wray, 2004). The original concern was that nonfiction text had been relatively neglected as a resource for learning, and the focus of most elementary schoolteachers was on children learning to read rather than reading to learn. Such a concern was not new. Almost 20 years earlier, Her Majesty's Inspectorate of schools (HMI) had found "little evidence that more advanced reading skills were being taught" (Department for Education and Skills [DES], 1978, para 5.30). The DES (1989) report on reading policy and practice commented, "Schools saw it as an important obligation to help pupils master the complexities of advanced reading, but while they saw it as their duty, few gave coherent accounts of what these skills were and how they were to be developed" (para 36). By 1995, HMI were describing good practice in teaching reading as producing elementary school students of whom they could say, "The variety of their reading increases, they talk about it in structured ways and use reading regularly for an increasing range of purposes such as information seeking" (Office for Standards in Education [OFSTED], 1995, p. 8). In their survey of elementary schools, however, such good practice was found in only one third of schools, suggesting that it was not majority practice. Official reports such as these also made it clear that students' reading of fiction texts was relatively well developed. The perceived problems seemed to focus on what were often called advanced reading skills and in particular the reading of a wide range of nonfiction material.

As a check on such official pronouncements, we carried out a survey of elementary schoolteachers to elicit their current practice and views about literacy. This survey is described in more detail in Wray and Lewis (1997), but in brief, the findings echoed those arising from a review of the relevant literature. It did seem that fiction texts were given an overwhelmingly predominant position in many elementary school classrooms, both in terms of what was read and what was written. Teachers were much more secure in their understandings about how to develop children's fiction reading and writing than they were about nonfiction. These two factors appeared to be mutually reinforcing. Teachers were unsure exactly how to teach nonfiction reading and writing, so they tended to focus their attention on what they did understand: fiction. Students were given more access to fiction texts to read and were encouraged to write largely in fictional forms.

More recently, an awareness has developed that we need to think about reading to learn in a more extended way, taking into account the increased range of information sources that students need to be able to read effectively. The concept of information fluency is helpful in this regard, defined by
Callison (2004) as "the ability to analyze information needs and to move confidently among media, information and computer literacy skills resulting in the effective application of a strategy or strategies that will best meet those needs" (para 3). This suggests a need for a large element of student control over the process of identifying, accessing, reading, evaluating, and using texts in a wide range of forms.

One major aim of the EXEL project was to develop a process model to describe students' interactions with nonfiction texts and to link this to a range of strategies and materials for use in classrooms. The processes we were interested in had tended to be described in the literature as information skills, and in that they refer to the processes of locating and dealing with the information given in texts in a range of media, this was a useful descriptor. We were concerned, however, that the use of this term and linked terms such as information reading and study reading tended to indicate a separation between these ways of interacting with texts from ways more generally referred to as reading. As Cairney (1991) has argued, theories about understanding written text that characterize it as a process of information transfer, that is, as getting the information from the text, were strongly contradicted by conceptualizations of the reading process as transaction, that is, the active construction of meaning in negotiation with the text as written (Rumelhart, 1985; Goodman, 1985). Thus any model that aims to describe the process of interacting with expository texts must account for its transactional nature and build in a strong element of the reader contributing to the constructed meaning. As Meek (1995) put it, "Until now we have sometimes assumed that information books might do children's thinking for them. Instead even the simplest text to be read for information 'retrieval' (whatever that is) implies a complex network of interactions and intertextuality" (p. 21).

The above remarks notwithstanding, almost all attempts to elaborate more fully what happens when we read and learn from expository texts have tended to term themselves as descriptions of the information process. This is not to say that none of these attempts has anything to offer a more extended and interaction-based description of this process. Many of the elements described in information skills models are relevant to interactive models of the reading-to-learn process.

No shortage of models (or more usually, lists of skills) have been put forward with the intention of helping teachers plan more thoroughly for teaching students to use textual information. Of these models, two were particularly influential in our thinking about this issue. The first was an attempt to describe the information process in terms of six stages of activity (Winkworth, 1977). These six stages were used by Wray (1985, 1988) to form a basis for advice to teachers on teaching information skills through class project work. The stages were:
1. Defining the subject and the purpose of the enquiry,
2. Locating information,
3. Selecting information,
4. Organizing information,
5. Evaluating information, and
6. Communicating the results.

Although this model was useful as a guide for teachers of the processes through which their students might go as they pursued inquiries, it was incomplete. It lacked what we now believe to be the crucial element of actual interaction with a text. In the terms of models like these, when a reader faces the words on the page of an appropriate text, he or she is limited to selecting, extracting, and recording information. As argued above, this now seems inadequate as a description of the multifaceted transaction between a reader, who comes to a text with a whole range of attitudes, feelings, and arrays of knowledge, and the words on a page created by an author with a range of intentions, many of which go beyond simply passing on information.

A second formulation of the information process that had been widely quoted and used, particularly in secondary school contexts, was that of the Schools Council working group under the chairmanship of Marland (1981). Marland’s group tried to break down the process of a secondary school student carrying out an assignment involving the use of information. They suggested nine steps, which were phrased as nine questions as follows.
1. What do I need to do?
2. Where could I go?
3. How do I get to the information?
4. Which resources should I use?
5. How shall I use the resources?
6. What should I make a record of?
7. Have I got the information I need?
8. How should I present it?
9. What have I achieved?

A particular strength of how these steps were formulated was that as students were asked questions as they proceeded with their assignments, they were given the opportunity to consider directly the processes of their own learning and thinking. They were, therefore, encouraged to take a metacognitive stance on their own activities, a feature that, as I argue below, is a necessary part of serious attempts to extend learners’ control over their own thinking. The nine questions were, however, still inadequate in their reduction of the text-reader transaction to “How shall I use the resources?”

Because of such problems with existing models of the learning with text processes, we felt that we needed to reconceptualize this process. The model we developed, referred to as the EXIT (Extending Interactions with Texts) later became a central element of the National Literacy Strategy in the United Kingdom (DES, 2001). This model consists of 10 key activities.
1. Activating previous knowledge (What do I already know about this subject?)
2. Establishing purposes (What do I need to find out and what will I do with the information?)
3. Locating information (Where and how will I get this information?)
4. Adopting an appropriate strategy (How should I use this source of information?)
5. Interacting with text (What can I do to help me understand this better?)
6. Monitoring understanding (What can I do if there are parts I do not understand?)
7. Making a record (What should I make a note of from this information?)
8. Evaluating information (Should I believe this information?)
9. Assisting memory (How can I help myself remember the important parts?)
10. Communicating information (How should I let other people know about this?)

The model describes a process that is akin to that referred to in academic contexts as research. This process consists fundamentally of setting oneself a question or series of questions and engaging in inquiries in order to attempt to find answers. Inquiry-driven experiences of finding and using information can enable learners to engage in such processes with a clear goal in mind.

The Young Inquirer

We began the EXEL project with the misguided assumption that it would largely concern students who had reached sufficient fluency in their reading that they were able to use reading as a means of inquiry. However, it rapidly became clear that the processes involved when students were researching and interacting with text were not age-specific. Students encounter nonfiction texts (books, lists, notices, signs, etc.) from their earliest years, both in school and at home, yet most of the work on students' use of this kind of text has concentrated on older students. For example, the most widely known British research project into the use of reading as a medium for learning (Lunzer & Gardner, 1979, 1984) was undertaken with students aged 10 and up. Even the requirements of the National Curriculum in England (http://www.nc.uk.net) suggest that these are matters to be left to older students. Introducing students to the use of structural organizers such as chapter headings, for example, is not required until age 10.

The very terms used to describe such skills also often imply a chronological hierarchy. References to higher-order reading skills or advanced reading skills have led many teachers to believe that teaching study skills is best undertaken in the later stages of the primary/elementary school when students are competent readers. These ideas are beginning to change, and more attention has been given to inquiry as a feature of the curriculum experiences offered to younger students (Mallett, 2003; Neate, 1992). We
would now argue that students should be introduced to nonfiction texts and taught how to learn from them from their earliest days in school.

The literature generally supports the benefits of instruction in the use of information books to learn (Branch, 2003) although the critique presented by Eadie (1990) needs to be taken seriously. Eadie suggested that instructing students how to locate and use information was likely to fail because the students would probably not yet have asked the question that they were being taught to answer and would still need assistance later when they did think of the question to ask. Throughout the EXEL project, care was taken that work on students’ interactions with nonfiction texts stressed the need for these to be firmly located in a meaningful context, rather than taking the form of decontextualized study/library skills lessons. All the work of the project took place in the context of the ongoing work of the classroom, which usually meant an approach to the curriculum centered on cross-curricular inquiry. Most UK teachers of elementary school students adopt the approach of working through cross-curricular themes or topics (see Wray, 1999, for a general description of the UK inquiry approach), most of which will involve an element of students “finding out” from books and other information sources. It should be noted that in common with most UK elementary schools, this classroom had no access to a library specialist who could support the classroom teacher. The benefits of collaboration between teachers and library specialists have been well documented (Brady & Estes, 2005), but such collaboration was impossible in the context of the work of these students.

The work described here is drawn from a detailed study of the cross-curricular inquiry of six classes of 6-7-year-old students. The work of each of these classes was observed over the course of a full week, with the aim of testing whether these teachers and students were able to implement and extend the inquiry processes inherent in the EXIT model. Thus the study was a follow-on from the main EXEL project in that it sought to test the ideas of that project in a range of new teaching contexts, in this case the classrooms of younger students.

The Hanging Baskets Question
The students in Amy and Kelly’s class had a clear purpose to guide their inquiry, as described above. Mrs. Cox had guided them to make their focus as explicit and structured as possible. Simply to ask them to find out about plants would have been too vague and vast a task. As these students were relatively inexperienced information finders, Mrs. Cox had suggested that a grid would help focus their work and provide a scaffold for the kind of questions they might wish to ask. Through discussion, she was able to draw on their prior knowledge of gardening, flowers, and hanging baskets. As they brainstormed what they already knew, she wrote down their comments. Certain themes emerged that they drew together under several headings: height, spread, color, flowers and leaves, and smell. Together
they constructed a grid listing the information they would need to collect about each plant they researched. The teacher was able to extend their technical vocabulary during this process, substituting fragrance for smell, foliage for leaves, and so forth. By introducing these words at this stage, she was also preparing them for the vocabulary they would encounter when they started to look in books. Because the information the students would need to find would necessarily be technical, it quickly became apparent that the reference books already available to the class were largely inadequate in the level of detail they contained. With the help of the students themselves, the teacher was able to make available several gardening books and pamphlets for adults. Many students were so keen that they persuaded their parents to take them to local garden centers and stores to find reference materials, much of which was available free of charge. Of course, these materials were designed for adult readers, and their vocabulary, layout, and type size made few concessions to young readers.

Each heading of the grid acted both as a question to be answered and a key word to focus the students' inquiry and perhaps even to help with scanning the text for that particular word. The grid, therefore, scaffolded the students' work.

**Teacher modeling**

Before they began their inquiries, the teacher discussed with the students where they might find the information they needed. The students suggested several sources: books, asking experts (i.e., members of the gardening club), looking at other hanging baskets, asking their parents, and watching gardening programs on television. At this point, the teacher modeled for them how they might select and use information books. As she did this, she talked about what she was doing and why. She made what is usually an internal monologue accessible to the students. One extract from her demonstration was as follows.

> Now which of these books shall I use? This book's got flowers on the cover so it might be useful and the title ... yes Garden Flowers, that tells me it might be useful. Now what do I do? Yes, I can look in the index. Let's look up hanging baskets in the index. So I'm going to turn to the back of the book. Here it is. Index. Now. Its arranged alphabetically a ... d ... g ... h ... h ... here it is. H. Let's look for h, a.

Through this kind of cognitive modeling, that is, by making explicit to the students her thought processes as she experienced them, the teacher was able to give the students some important lessons on what an experienced reader does. The importance of teachers not simply telling students about the processes of problem-solving, planning, and strategic decision-making that characterize the reading process, but actually demonstrating them cannot be overemphasized. Modeling enables teachers to make explicit the thought processes that accompany involvement in literate activities: processes that by their very nature are invisible. Unless these
processes are made explicit, students cannot understand what it is like to think like an accomplished reader until they become one. In other words, much of their learning is directed toward trying to perform an activity of which they have no clear concept. It is little wonder that in such circumstances many students focus on what seem to be the visible aspects of reading such as sounding out the words and letters.

**Collaborative Inquiry**

Several groups of students were videorecorded as they undertook their inquiries. In pairs (6 students at a time) they worked around a table loaded with gardening and flower books, most of them books for adults. Their teacher checked on the group at intervals, but for most of the time the students worked independently. The videorecorder was left running throughout the morning, and after about 15 minutes during which they tended to whisper to each other and glance at the camera from time to time, the students seemed to become largely oblivious of its presence. Field notes and observations were also made. It was then possible to view and review the video and analyze what took place. Several striking features of the students' work emerged that morning.

The social, interactive nature of the task was important. On numerous occasions, the students prompted one another to continue working, to try another technique if they could not find what they were looking for, discussed information, worked together to try to understand difficult text, asked one another for help and advice, and of course also engaged in conversation. Interestingly, much of this conversation originated from the task. For example, at one point, the one student's attention was caught as he was searching for a picture of marigolds.

Barry: Oh! look at that ... that's ... that's ... It's made out of flowers.

*Points to picture of a flower bed laid out as a ship.*

Lisa: There's a Mickey Mouse one ... other ones in other places.

Barry: Whoa! That's brilliant!

Lisa: I've seen them millions of times.

Barry: *(to Simon)* Have you seen them at Torquay? They've got them. Made out of flowers. Them.

Simon: Where?

Barry: Torquay. Where they make them models out of flowers. You been to Torquay?

*Simon shakes his head.*

Barry: Been to Paignton?

Lisa: I've been to Paignton.

*(Torquay and Paignton are local towns the students have visited.)*

A teacher arriving at this moment might be tempted to conclude that the students were not on task, but in some ways they certainly were, being involved in making their own connections with the material with which they were working. This linking of prior knowledge and experience to new
material is a crucial part of the reading and learning process and reaffirms the importance of conversation rather than silence in young students' learning through inquiry.

**Scaffolding the Task**

The video evidence also demonstrated how important the grid was in scaffolding and prompting the students through a complex task of gathering information. It reminded them of what they needed to know, but also allowed them space for their own interests. Several times the grid prompted students to return to the book(s) for further information. For example, after some searching, Amy and Kelly found a reference to nasturtiums in the index. The following exchange took place.

Amy: Nasturtiums ... Nasturtiums ... GOT IT ... 157 ... 157 ... 157.

*Turning pages and checking number.*

Here. Nasturtiums. Should be here somewhere.

*Scanning page.*

There it is. Height 1 foot ... 30cms. Well done. I found it.

*Kelly begins to write. Amy closes book.*

Amy: I don't know the color yet, do I?

*(Color is the next column on grid.) Reopens book.*

157 ... Right ... What's the color? ... What's the color?

*Reads aloud.*

Red, orange, yellow. Red, orange, yellow. We'd better get red.

*Closes book again.*

Kelly: How do you spell ...?

*Both write in color column.*

Amy: Right. Fragrance.

*Looking at grid.*

What's its fragrance? Has it got a fragrance or has it not? I don't think ...

*Opens book and searching for page 157 again.*

Now where's it gone?

Here we see quite clearly the grid reminding Amy of what she needed to know and prompting her to continue her inquiry. The grid acted as scaffolding for the students, helping them move from the stage of joint activity alongside a teacher toward independent action.

**Using Study Skills: Practice in Context**

The students used a variety of study skills during their inquiry because they needed to use these skills. They were observed to use index pages, contents pages, alphabetical order, skimming, scanning, and extracting key information. Of course, they did not always use these successfully, and they showed varying levels of expertise, but they were practicing using important skills in the best possible way.
Sometimes they had to deal with sophisticated features. Amy and Kelly, for example, in looking up *Busy Lizzy* in an index, found the entry *Busy Lizzy—see IMPATIENS*. Puzzled by this, they sensibly approached their teacher for an explanation. Few teachers of 6-year-olds would plan to introduce their pupils to the use of Latin plant names, yet occurring as it did in the context of a real situation fascinated the students by their discovery. They also learned about cross-referencing in an index. How many library skills programs would introduce cross-referencing to 6-year-olds? Yet Amy and Kelly (by no means outstanding students) took it in their stride.

Most of the students were also willing to try several techniques if their first attempt to find an answer failed. Here is Amy again, starting her hunt for nasturtiums and trying a variety of strategies.

Amy: This one got anything?

    *Picks up a book.*

Kelly: I need to copy.

    *Looks at the spelling of nasturtiums in Amy’s jotter and writes.*

Amy: Index. It should be here somewhere. Yes ... right ... what does it say? ... Nasturtiums ... It hasn’t got it there. I’ll have to go to the contents. Turn to the front. Ah, here it is.

    *Searches contents page. Cannot find desired entry.*

It’ll have to be another book.

    *Scans pile of books on offer.*

Kelly: Look in that one.

    *Points to book.*

Amy: Yeah. I’ll look in this one.

    *Picks up book indicated by Kelly.*

Kelly: What’s it say?

    *Holds front cover with Amy. Reads “Ornamental Kitchen Garden.”*

Amy: This is the one I had.

    *Browsing through some pages of pictures, but actively searching.*

This tells us about ... hardy petunias ... French marigolds ... Nasturtiums? ... Sweet Williams ... Lizzie Busies ... Lizzie Busies. Midsummer Plants.

    *Reading page heading.*

Marigolds. I’ve got some of those in my backyard.

    *Muttered conversation between the two. Keep on “browse searching.”*

Amy: Where’s it gone? Nasturtium.

Kelly: Have a look in another book.

    *Amy and Kelly each pick up another book.*

Kelly: Have a look in the index.

Amy: Index. Right.

    *Both looking in index of their book.*

Amy: Nasturtiums ... Nasturtiums ... GOT IT.

As well as the structured techniques of using the index and contents pages, the students also used less structured techniques such as random
searching, skimming through books looking for pictures, and flicking pages. Because these techniques can also achieve results, it is important not to overemphasize a rigid index-contents-only approach to using information books. A flexible approach is more helpful, especially as many information books are not well organized. These students’ relative inexperience in locating information meant that they had no fixed ideas about what they needed to do. They were, therefore, willing to try a range of strategies rather than fixate on one that if it had not worked, might have left them unable to continue.

That these students had a flexible approach was also apparent in their willingness to use not only a variety of strategies, but also a variety of information sources. As well as consulting the books, students were observed sharing their existing knowledge with one another, asking experts, and looking at concrete examples, that is, real flowers. Again, it was clear that the collaborative, social nature of the task was important in allowing the students to make use of these sources.

**Empowerment Through Information**

Two of the students observed learned an important lesson that week. Lorraine and Charlotte learned that information can be empowering.

The pair had begun by browsing through the gardening books, looking at pictures. From these pictures, they decided that they wanted their hanging baskets to contain tomatoes, strawberries, and a bonsai tree. They wrote the names of these three plants in the first column of their grid and were about to start looking for further information when their teacher joined them. She pointed out that their suggestions were unusual and that they would need to find some good evidence to support these choices. Charlotte and Lorraine were not deflected from their ideas and started to search for evidence. In one gardening book, they discovered a variety of dwarf trailing tomatoes. In another they found a picture of strawberries in a planter, which clearly suggested that these were trailing plants. Then they turned to bonsai trees. They discovered a section in one book on growing and training bonsai trees, which told them that bonsai trees could be trained into any shape. They reasoned from this that they could train their bonsai tree to trail over the side of their basket. They worked out that they would need wire for this task, but failed to realize that it might take them 10 years to grow their tree. When their teacher returned, they were ready to argue their case and defend their choice of plants.

These students had learned that armed with the appropriate information, one can argue with powerful and important people such as the teacher. Knowledge can give the power to argue one’s case: a lesson central to democracy. Their teacher was humane and responsive enough to concede the argument, not wishing at this point to dampen the students’ enthusiasm. It should be noted, however, that when it came to trying to convince their classmates, Lorraine and Charlotte had a much more difficult task.
Implications

Here I provide some brief glimpses of young students with a real purpose and a structure that guided them in the successful use of information skills. This success is still, of course, patchy, and there remain some problem areas. Students as young as this lack maturity and often find the business of making sense of complex information difficult. Yet this work suggests that with a strongly perceived purpose to motivate them and an explicit structure to scaffold their work, young students can and do become effective inquirers. The implication can be made forcefully that we must not underestimate the capabilities of these students. The sooner they begin to work with books in this way, the more likely they are to develop their skills, possibly making redundant the familiar complaint of teachers about students copying whole sections from reference books. I suggest that experience of inquiry should definitely be part of the rich interaction with books provided in the best elementary school classrooms. This is true, I would argue, whatever the abilities, ages, and backgrounds of the students.

This research also persuades me that until we have observed students in action following through the demands of a clearly focused inquiry question, we can say little about these students’ capabilities or limitations. Students only act to their potential when they are excited and driven by an inquiry need.

The role of the teacher seems to be twofold in such an inquiry-based curriculum. He or she first has to create a classroom environment in which inquiry is central. This can imply some skillful negotiations with the demands of a subject-focused curriculum. Second, the teacher needs to consider carefully how and when interventions in students’ learning processes can best be made. I suggest that the teacher modeling learning strategies plays a central role in such interventions.

References


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