Developing Locating Information in Books in the Fifth Grade of the Elementary School

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by

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This thesis is dedicated with love to my mother and to the memory of my father

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Abstract

The aim of this research is to investigate the development of locating information in books in the fifth grade of the elementary school.

The dilemma, according to the review of the literature, is that many students are not competent to locate information even in the most common source, the book, and that those who are responsible for developing these skills in schools are themselves suffering from some kind of weakness. Indeed, there is not even a program which is accepted by the whole scientific community in this area. The review of the literature also provides us with some idea about bridging the gaps of those who are responsible for the development of these skills in schools, and brings us closer to the very heart of the contents of these skills.

Based on this state-of-the-art, the researcher designed a learning package program relating to the location of information in books for fifth graders of the elementary school, and he also designed a test for measuring the efficiency of this program.

The learning package program was implemented and tested in Israel in two elementary schools with teacher-librarians and with well equipped libraries through collaboration between the researcher and the educational context. One of the schools was of a low socio-economic status, and the other was of a high socio-economic status.

On the one hand the results strengthen the findings of the literature regarding the skill gaps of students and the lack of sufficient stimulation in schools, and on the other hand the results also reveal the possibility of improving, in many cases significantly, the location of information in books, by exposing students to the learning package program.

This study reveals, moreover, that it is possible to bring teachers closer to the area of locating information in books in particular, and even to close the gaps between information skills and the educational context in general.

Implications for teachers and librarians are included as well as recommendations for future research.

Chapter 1

Introduction

1.1 New relationships in education

Reaction to the low level of student achievement in U.S.A. in 1956, and the Russians' success in launching the Sputnik into space in 1957, stimulated the Americans to re-examine the role of education in their society (Davies, 1979, p. 15, 71; Carrol, 1981, p. 21). In the late 60s re-examination extended to the U.K. (Herring, 1982, p. 11).

The re-examination, both in U.S.A. and U.K. called for new relationships within the **"process of education"**. According to the new approach emphasis was shifting from:

Class	to	Student
Content	to	Concept
Teaching	to	Learning

(Winslade, 1972, p. 303-309; Beswick, 1977, p. 1-29; Davies, 1979, p. 29; 35-39; Carrol, 1981, p. 23; Herring, 1982, p. 11).

The new roles of the teacher and the learner

The replacement of class and content by student and concept necessitated a change in the approach to the art of teaching, from purveying facts to developing understanding, including the planning of experiences and tasks from which understanding can grow (Beswick, 1977, p. 9; Davies, 1979, p. 52-53; Carrol, 1981, p. 23). The

didactic type of teacher was, it was suggested, to be substituted by the **"co-ordinator"**, the **"organizer"** or the **"creator"** of learning situations (Lundin, 1983; Avann, 1983, p. 18; Heather, 1984-A, p. 15-16; Heather, 1984-C, p. 216).

The traditional idea of the student as a passive recipient of accepted knowledge began to be changed as well. It was expected that in this new atmosphere the student would be able to **"learn how to learn"** through inquiry and discovery (Beswick, 1977, p. 11-29; Davies, 1979, p. 53-59; Avann, 1983, p. 17).

1.2 The model of information skills

The new model of the student as an independent learner and an **"autonomous enquirer"** (Beswick, 1977, p. 20) required new techniques of learning how to learn, which involves finding information by oneself rather than being given information by the teacher (Heather, 1984-C, p. 216).

These techniques have recently been grouped by different educators under the term **"information skills"** (Heather, 1984-A, p. 43) in its broader sense (Brake, 1980-B, p. 3; Malley, 1983, p. 35) which is based on such areas as:

Reading study jobs (Mckee, 1948)

Work study skills (Howell, 1950)

Problem solving skills (Gengler, 1965)

Research and reporting process (Henslowe, 1977)

Resource based learning (Beswick, 1977)

Media skills (Hart, 1978)

School library media program (Davies, 1979)

Library skills

Life skills

Reading skills

Learning to learn

User education

Higher order skills

Study skills

Communication skills

Computer skills (Paterson, 1981, p. 1)

Reference skills

Reading extension (Avann, 1983, p. 136)

Enquiry skills

Independent learning skills (Griffin, 1983, p. 33)

Assignment techniques (Malley, 1984, p. 43).

There are many exhaustive lists which specify the information skills, but they are not identical in their approaches, and it is difficult to obtain a common and clear-cut insight into the framework of information skills (see, for example, Heather, 1984-A, p. 43). Nevertheless, the lists have many similarities (Heather, 1984-A, p. 43) and by emphasizing their common denominators it is possible to identify at least an overall framework which many of them have in common, as illustrated by the following tables:

Skill List	Defining information need	Locating	Selecting	Using	Organizing	Evaluating	Communicating	Final evaluation	Implications
Winkworth (1977, p. 5-6)	Define subject	Locate information	Select information		Organizing information	Evaluate information	Communicate information		
Brake (1979, p. 47)	Purpose	Location Retrieval	Selection		Organization	Evaluation	Communication		
Paterson (1981, p. 7-10)	Goal Setting	Locating information	Selecting and using information		Organizing information	Evaluating information	Communicating information	Retaining information	Development
Marland (1981)	what do I need to do?	Where do I go first? How do I get the information?	Which resources shall I use?	How shall I use the resources?	What should I make record of?	Have I got the information?	How should I present it?	What have I achieved?	
Coles, Shepherd and White (1982, p. 203-204)	Purpose and need	Where can I get the information?	How do I select the information?	What is the best way of using the information?	How shall I write it up?	What do people think of my project?		What have I learnt?	
	(1-5)	(6)	(7)	(8)	(9-10)	(11)		(12)	
Irving (1983-A, p. 4)	Formulating nature of information to be gathered	Identifying sources, tracing and finding them	Examining Selecting	Using or interrogating	Taking notes	Evaluating	Presenting and communicating	Evaluating to improve future efficiency	

Skill List	Defining information need	Locating	Selecting	Using	Organizing	Evaluating	Communicating	Final evaluation	Implications
Avann (1983, p. 23-24, 126)	Information need	Extract information from various sources	Interrogate-evaluate sources		Organize information record		Present the information	Evaluate the results	
Tabberer (1983-A, p. 100)	Formulate questions	Locate appropriate information			Organize information	Evaluate information	Communicate information		
Raddon (1984, p. 178-183)	Planning and defining problems	Find information		Managing and using information			Presenting information	Evaluating information	
Heather (1984-A, p. 45-48)	Defining the purpose	Locating information	Selecting information	Using and organizing information		Evaluating information	Presenting information	Final evaluation	
Malley (1984, p. 35-57)	User needs	Retrieving information	Evaluating information= selection		Orgainzing the information		Communicating the information		
Mancall, Aaron and Walker (1986, p. 18-27)	Identify specific need	Locate information		Utilize information		Analyse, evaluate information	Create new information		
Hughes (1986, p. 34	Plan	Gather information			Organize information	Analyse, extend, synthesize information	Create information	Evaluate and apply information	

The overall conclusion which is obtained by conflating all the above mentioned lists is that there is a systematic tendency to accept the following framework of information skills:

Defining information need

Locating information

Selecting information

Using information

Organizing information

Evaluating information

Communicating information

Final evaluation

Implications

Relevance to elementary education

The embryo of these skills is already present in the young pre-school child:

Hunger --› food --› search --› satisfaction (Irving, 1981-B, p. 13)

which means:

Feeling hungry, wanting food, obtaining through asking or finding it, and eating to remove the hunger (Irving, 1981-B, p. 8).

These skills are universal (Raddon, 1984, p. 187) and valid at all stages (Malley, 1984, p. 43), from babyhood (Irving, 1983-A, p. 3-4) to Ph.D. thesis (Marland, 1981, p. 14).

It is suggested by many researchers that information skills should be introduced very early in a simple form and then pursued in greater depth year by year in a spiral curriculum (Winkworth, 1977,

p. 10; Marland, 1981, p. 27; Heather, 1984-A, p. 30-32). Heather (1984-A, p. 31) emphasizes that early training achieves lasting effects.

The accessibility of the elementary school

In addition to the fact that these skills are relevant to the early years of schooling, it must be noted that the framework of the primary school is also more appropriate than other levels of schooling to developing information skills (Avann, 1983, p. 32; Griffin, 1983, p. 35; Heather, 1984-A, p. 26). The primary school is smaller in size, policies are more easily communicated (Avann, 1983, p. 32), and opportunities for full staff discussion, or indeed for an interested and enthusiastic innovator to exert influence are truly greater (Griffin, 1983, p. 35). The primary school is not rigidly divided into subject areas (Avann, 1983, p. 32). Most primary staff tend to teach across most areas of the curriculum and it is perhaps easier, therefore, to appreciate the wider relevance of newer teaching practice, and to put into effect a whole-school policy (Griffin, 1983, p. 35). There are no examination pressures to restrict the curriculum (Avann, 1983, p. 32). Classrooms have resources at hand (Avann, 1983, p. 32), and project work - which entails pupils finding and using information independently (Heather, 1984-A, p. 26) and is a vehicle for information skills instruction as well as its justification (Malley, 1984, p. 43) - is a common practice in most primary classrooms (Heather, 1984-A, p. 26).

1.3 Skill gaps

Unfortunately, it has been found in recent research that despite the warm recommendations to develop information skills there are students who still cannot effectively use resources as an information source or interact with them directly without the mediation of the teacher (Brake, 1980-B, p. 10). This extends even to the very "close" nature (Marland, 1981, p. 13; McCafferty, 1983, p. 9) of locating information in a book.

For example, Avann (1983, p. 35) reports that in an investigation in primary schools, in the group under her direct observation, the children were slow to locate words in the dictionary, seemingly having difficulty with second and third letter order.

Heather (1984-B, p. 90) also found that many of the top juniors were still having problems with ordering words starting with the same letters, and Brake (1980-B, p. 2) found even among the fourteen to fifteen year old students that the basic skills of alphabetical order were still lacking.

Avann (1983, p. 35) found that children in the primary school were not utilizing the "header words" to help find a correct page in the dictionary.

Heather (1984-B, p. 91) relates to the problems of primary school students in using encyclopedias as exemplified by a boy who found the appropriate page in an encyclopedia, but thought that the word for which he was looking was not there, because it was not one of the guide words at the top of the page...

Neville and Pugh (1975, p. 27-30; 1977, p. 16-17) found that many students aged nine and ten had failed to retrieve information from a book, because they did not know how to use the appropriate strategy, such as the table of contents and the index.

Heather (1984-B, p. 90) found that fourth-year juniors were still confused about the difference between the purpose of contents pages and of the indexes.

Paterson (1981, p. 13-14) reports that 52 out of approximately 100 eleven to twelve year old pupils of his sample stated wrongly that a particular textbook had an index when in fact the book did not have one...

In their study with first year secondary-school pupils Cole and Gardner (1979, p. 175) found that often an arresting illustration became a focus of attention and acted as a kind of trap.

Examples very similar to those mentioned above by Cole and Gardner are provided by Avann (1983, p. 43, 48, 54) and by Paterson (1981, p. 13).

Beard (cited by Paterson, 1981, p. 2) says that even postgraduate students at university showed little awareness of the value of an index in a book.

The situation in the U.S.A. is similar to the one in the U.K., and there are many formulae which express the skill gaps such as:

> It seems incredible that pupils are so little informed in regard to the use of the most common reference books. They are constantly asking

> questions that they could answer by themselves if they were familiar with the dictionaries, the encyclopedias... (Wolf, E., cited by Mulligan, 1981, p. 6).

Or,

> "I can't find any information in this book" when the... book contains many kinds of information (Gengler, 1965, p. 1).

Even freshmen in the universities do not know how to use reference tools (Biggs, 1979, p. 44).

Liesener's (1985, p. 16) overall view is that other than a hard core group of readers, users are neither becoming self-sufficient nor expanding their use of libraries as they mature.

1.3.1 Dangers

There are many dangers which derive from a lack of competence in locating information in books:

Irrelevant information

Students without competence in locating information in books may incidentally find irrelevant information (Avann, 1983, p. 43; Cole and Gardner, 1979, p. 175).

No information

When someone does not find information in a book because of his lack of competence in locating information in books, he may convince himself that the information does not exist in the book. It is not

even possible to rely on **"asking"** to correct user error, because most users do not recognize their own errors (Murfin, 1980, p. 18).

Tool error

On the basis of the above, it is only natural that a student who does not relate the fault to himself as a user error may relate it to the tool error because it is, as it were, not in the book (compare with students' wrong assessments: "Not in library" = "library error", in Murfin, 1980, p. 18).

Rejecting a book as a source of information

With a little bit of imagination one can predict that a constant tendency of the incompetent student to miss the information in a book because of, as it were, the tool error, may increase his **"frustration rate"** (Murfin, 1980) and may put him off, as a result of which he will stop looking for information in books or in libraries (Neville and Pugh, 1975, p. 30-31).

A reinforcement of this tendency is given by Heather (1984-B, p. 90). She says that if pupils do not know how to find words quickly in the dictionary they are likely to give up using a dictionary.

Dependence on others

One of the most dangerous implications which might derive from this being put off and **"giving up"** is to stimulate students to depend on others in locating information. As has been learned from Southgate, Arnold and Johnson (1981, p. 195-197), children prefer to ask others for help when they come to a word which they do not know, instead of using a dictionary. This researcher does not argue that a

dictionary is the best strategy to learn the meaning of an unknown word. It may be that guessing from contextual clues is better than looking it up in a dictionary (Marland, 1977, p. 105; see also "Alternative strategies", section 2.3.1.4.3.6), but if children do not rely on their capabilities and prefer to use other sources, why do they not use the natural tool for this purpose, the dictionary?! Once the student gets used to depending on others rather than locating information in a book by himself, he may become increasingly averse to an independent approach to learning and may be encouraged to rely on **"traditional sources"**, such as family, friends and neighbours who are likely to provide only a superficial level of information, and who are more likely to misinform (Brake, 1980-A, p. 3), or to become a victim of television, radio and the one newspaper he may happen to read (Line, 1976, p. 12).

These skill gaps and the dangers deriving from them have stimulated many researchers to learn more about this phenomenon, and to find solutions to it. The findings of these researchers will be the focus of the review of the literature in the next chapter.

Chapter 2

Review of the Literature

2.1 Introduction

The investigation into the phenomenon of the skill gaps among students in relation to information skills reveals that those who are expected to be responsible for the development of those skills are themselves suffering from some kind of weakness: the teachers have a problem with information and the librarians have a problem with education.

In addition to this there is no program which is accepted by the whole scientific community.

In the first three sections of the review the researcher will focus on the **"human factor"** of this phenomenon: the teachers and the school librarians.

In the first and the second sections the researcher will focus on their problems and in the third section he will focus on ways of solving these problems.

The fourth and the last section of the review will be devoted to the **"content factor"** of this phenomenon. In this section the researcher will try to bring together from a variety of sources what is offered by the literature in relation to locating information in books as a compensation for what could not be available in one single source accepted by the whole scientific community.

2.2 The human factor in developing information skills

2.2.1 The teachers' problem with information

2.2.1.1 Competencies and habits

Lack of competence

Recent research in schools in the U.K. reveals consistently that many teachers are suffering from incompetence in the field of information.

Avann (1983) found that most of the teachers in her in-service course had not been introduced to the principles of organized information during their schooling or professional education. She found also that the idea of information skills was not known to many of them.

Marland (1981, p. 10) says that it is difficult for teachers to determine which skills are required for an assignment, which are the dominant ones in a particular case, and at what level of difficulty these skills need to be exercised in the particular assignment set.

Irving (1983-B, p. 13) reports that pupils are set assignments which require resource knowledge and skills not possessed by their teachers.

Hounsell et. al (1980) reveal that teachers are not equipped to use information sources.

Southgate, Arnold and Johnson (1981, p. 159) argue that teachers found themselves in a "no man's land" in this area.

Hanson (1983, p. 32) says that research shows that teachers in general make little if any use of information services to solve their information problem.

These findings are not limited to the teachers of the U.K. only, but are shared by teachers elsewhere in the world, such as the U.S.A. (Young, 1974, p. 6; Lubans, 1978, p. 2) and Australia (Walker, 1974, p. 181).

Depending on others

Both Avann (1983) Hounsell, Martin and Needham (1979) and Hounsell et al. (1980) emphasize how much teachers depend on others as information sources.

Avann (1983, p. 7) says that as personal information seekers teachers do not turn naturally to books or libraries and that their first strategy is to "ask someone".

Hounsell, Martin and Needham (1979, p. 5,6,20) and Hounsell et al. (1980, p. 16) found that teaching colleagues were used regularly or occasionally by almost all the teachers of their survey.

In truth, both Heather (1984-A, p. 35) and Malley (1984, p. 52-53) do not in principle reject the dependence on others as a bad move. On the contrary, Heather (1984-A, p. 35) argues that "asking someone" can be an effective strategy if the question is formulated appropriately and the right person is approached.

Moreover, Malley (1984, p. 52-53) suggests that the skills of retrieving information should not merely be confined to information in the library or information unit. For example, he says, many

scientists in giving information sources their order of preference often rank their research colleagues above the library - "go to someone who knows" [researcher's emphasis]. But as is understood from Hounsell, Martin and Needham (1979, p. 6) and from Heather (1984-A, p. 35), this is not the case with the teachers. Hounsell, Martin and Needham (1979, p. 6) found that educational advisers and college and university staff were not considered by teachers as an important information source, mainly because they were not "at hand". They add:

> A colleague might be consulted in the staff room, during a morning break, but people who had to be sought out were seldom called upon for information. Other personal contacts, such as heads of department, heads and deputy heads were sometimes perceived as a threat. The idea that in seeking advice one risked revealing ignorance to an immediate superior was expressed in more than one of the interviews [researcher's emphasis].

Heather (1984-A, p. 35) emphasizes that when this method of "asking someone" was not successful, teachers rarely continued to search for the information through libraries.

Unawareness

Addressing teachers, Malley (1984, p. 44) says:

> Apart from not having the skills you do not realize that you have an information skills problem.

Liesener (1985, p. 13) generalizes that from all available evidence the assessment points to incredibly low levels of awareness and skills in relation to teachers.

Estrangement

Even the term "library" is an invitation to many teachers in the U.K. to "switch off mentally" (Hounsell and Martin, 1983, p. 9).

In the U.S.A. too, anti-librarianship approaches are prevalent, as follows:

Teachers do not want to enter into partnership with library media specialists because of their fear of encroachment (Stroud, 1982-A, p. 428; see also Keresztesi, 1982, p. 25 in relation to the **"intrusion in a sovereign domain"**, and compare Beswick, 1977, p. 100 in relation to the **"individualistic"** teacher), their admission to a **"lack of competence"** (Stroud, 1982-A, p. 428), and perhaps, their failure to see the need for a library (Johnson, cited by Aaron, 1982, p. 215).

In Canada as well, teachers do not agree on the curriculum involvement role of the librarian (Hambleton, 1984, p. 31).

2.2.1.2 Constraints

Imparting knowledge

In contrast to librarians, who tend to see themselves as reasonably impartial providers of the **"vehicles of knowledge"** (Avann, 1983, p. 30), or according to Marland (1986, p. 46), **"the way of accessing knowledge"**, teachers are educated to impart knowledge to others (Avann, 1983, p. 30; see also Hounsell and Martin, 1983, p. 9).

Beswick (1983, p. 10) says that it is necessary to face the fact that many teachers and parents do not see the importance of information skills, and would place them lower in priority than the acquisition of subject knowledge.

Fear

Beswick (1984, p. 17) warns that the integration of information skills teaching into the general work of the conventional teacher must be an unsettling and radical procedure. Beswick emphasizes:

> Concentrating on how you learn rather than what you learn leads to the teacher challenging, and perhaps losing faith in, his or her basic presuppositions, with disastrous results in the short term.

Herring (1981, p. 18) points out that asking teachers to acquire new skills of which they themselves have little experience is very difficult; hence the initial feelings of incompetence.

Nicholls (1983, p. 4) explains that an innovation frequently requires teachers to give up practices in which they feel secure and display a high level of competence and to adopt new practices in which, at least temporarily, they feel less secure and in which they might possibly be less competent.

Nicholls adds:

> There are expectations that teachers should be competent, and some may not be willing or able to tolerate feelings of insecurity.

Risk

Rowntree (1982, p. 235-236) asks:

> Why should individuals put their careers (or more basically their job-security) at risk by foresaking traditional practices in order to pursue a new ideal to which their colleagues and the institutional hierarchy may, at least initially, be none too sympathetic?

Lack of evidence

Beswick (1983, p. 6) says that we all like to think that traditional is mediocre and the innovative is excellence, but he poses the following questions:

> Do innovators never make mistakes, go in wrong directions, and is everything traditional second-rate?

> What do we say to the teacher, administrator or parent whose "**crisis of confidence**" has led to a disbelief in automatic progress: who perhaps remembers good teaching by traditional methods imaginatively deployed, or has been impressed by the tightly controlled structures of programmed learning, and those other educational doctrines employing a rigid systems approach and largely ignoring open-ended library reading?

Nicholls (1983, p. 5) explains that one factor which sometimes makes it hard to persuade teachers to become involved in innovation is the difficulty of showing that the innovation will be more successful than present practice. Nicholls emphasizes that the problem, common in education, is how to show that there is improvement.

In truth, investigators have attempted to document a positive correlation between the use of libraries and information sources on the one hand, and academic achievement on the other, but validation of this desirable relationship has proved to be elusive (Young, 1974, p. 4-8; Young and Brennan, 1978, p. 15).

Harris (1980, p. 12-13) explains the reasons underlying this unsuccessful validation:

> Library use or information use consists of an infinitely complex set of activities or behaviours, and... library use or information use in total is only a fragment of an infinitely complex set of activities or behaviours that

> constitutes studying or, more broadly, being a student. It is not at all surprising that simple correlations between some aspect of library use and academic achievement do not present themselves. Indeed, if they do, they should be treated with suspicion.

"Moral" and "professional" accountability

Two events in Avann's (1983, p. 45, 109) investigation in primary schools evoke the problem of accountability and its negative influence on the implementation of information skills in schools.

The first case deals with a teacher who claimed that topic work was an opportunity for children to practice previously imparted **"book skills"**, but who did not appear to monitor the practice of such skills in the topic work sessions, or remind the children to use them. The main aim of the work appeared to be the production of written work: models and drawings which would be seen by the head teacher (**"professional accountability"**, see McCormick and James, 1983, p. 18-19) and parents (**"moral accountability"**, see McCormick and James, 1983, p. 18-19) as evidence of what the children achieved in class.

The second case deals with another teacher who felt that the pressures on her, notably by the need to produce work to show head (**"professional accountability"**) and parents (**"moral accountability"**) led her to condone the superficially impressive topic books produced in her class.

It must be noted that these two cases emphasize once again the difficulties that the teachers have in being released from the "content model" which is based on the "product ideology" (Kelly, 1981, p. 218) in favour of the "process model" which is expected to enhance the development of information skills (McCafferty, 1983).

"Contractual" accountability

In recent years another type of accountability was added to the pressures on the schools, that is, the external pressures (Kelly, 1981, p. 219) which are also known as "contractual accountability" (McCormick and James, 1983, p. 19).

This type of accountability deals with the employers and the political masters. Although teachers rarely see their accountability as extending beyond their colleagues and clients (children and parents) to governors and local government officials, and neither do governing bodies regard their role as primarily concerned with monitoring the curriculum (McCormick and James, 1983, p. 21), the demands for the monitoring of "standards" and for greater public control of the curriculum are according to Kelly (1981, p. 219-220) having their effect on the work of primary schools, as much as on that of other phases of education. Kelly (1981, p. 220) elaborates the nature of this effect:

> The general thrust and direction of these external demands and pressures has been towards an emphasis on the teaching of the subject content as justifiable in itself rather than in relation to

> its contribution to the growth of the development of the pupil...
>
> In short, the needs of society are being held to take precedence over the needs of the pupils, so that a totally different philosophy is being foisted upon the primary school without, one suspects, any real appreciation of what this entails. In particular, it is doubtful if there is any real awareness of the extent to which these pressures are inhibiting the continued development of a special kind of approach to education.

Blenkin and Kelly (reviewed by Heather, 1984-A, p. 17) expect that the demands of society should be seen as a secondary consideration, although they think that society's demands will be met if a process model is adopted because skills are learnt more effectively and retained longer by this method.

Extra workload

Nicholls (1983, p. 4-5) suggests that the extra workload that innovation brings should not be overlooked:

> The tasks of planning and implementing innovation bring work in addition to the normal teaching duties of teachers. Some teachers find participation in innovation so stimulating and exciting that they willingly accept the extra work; others might accept the extra work for other reasons: they might, for instance, see involvement in innovation as a way to

promotion. There are other teachers, however, less enthusiastic about innovation or perhaps deriving their professional satisfaction from their classroom activities, who are much less willing to take on the additional task of innovating.

Nicholls (1983, p. 5) adds that closely related to the extra workload is the time factor, and he mentions two aspects of this: time needed during the working week for planning and the period of time over which planning needs to be carried out. Nicholls asserts that the tasks involved in the planning and implementation of innovations are time-consuming in both the dimensions mentioned, although it is the first which teachers often highlight as a problem.

Griffin (1983, p. 2, 36), who tried to identify opportunities for teachers to develop study and information skills teaching in primary schools, reports that teachers commented that they were "stretched" and had little time to work on their ideas. Griffin adds that the situation was aggravated through economies on non-teaching staff in schools and the teachers themselves being obliged to carry out additional secretarial and welfare duties.

Avann (1983, p. 109) reports that some teachers in her in-service course of information skills teaching felt that lengthy advance planning, although desirable, was not possible for them because of insufficient time to spare in the school day.

Herring (1981, p. 18) says that by suggesting that teachers incorporate user education into existing programs, we may be

threatening the teacher's control in terms of discipline in that there may be even more work done by the pupils themselves and/or more work done outside the controlled system of the classroom.

Tradition

The pressures on teachers to go back to traditional methods during the implementation of an innovation are strong. (Shipman, cited by Rowntree, 1982, p. 240).

Beswick (1984, p. 17) reports that many schools who experimented with resource-based learning, when unnerved by what took place, shipped back quickly into resource-based teaching.

Beswick (1983, p. 9) adds that teachers own comments suggest that they often tend to fall back on traditional presentation - teaching, because open-ended enquiry methods appear costly to resource, hard to prepare and difficult to assess.

Heather (1984-A, p. 26, 28) distinguishes between the advantages of the project work - which was expected to "entail pupils to find and use resources independently" - when conducted under ideal conditions, and between the shortcomings of the **"project work"** when conducted as a current practice.

Avann (1983, p. 41, 140) reports that much of the topic work - which "might be imagined [to create] opportunities to practice and extend information skills [in primary schools]" - is undirected copying from books, and although some teachers seemed aware of this, they are unsure how the situation might be improved.

Heather (1984-A, p. 19) comments on the nature of teaching in schools as a whole:

> Many authors consider that the move towards child-centered informal method, which took place in the late 1960s and 1970s has been replaced by a move back to more formal teaching methods.

Heather's (1984-A, p. 24) overall conclusion is that

> despite large changes in classroom organization in the past decade, the child-centered approaches and discovery methods... do not appear to have been adopted.

Markuson (1986, p. 40) from the U.S.A., intensifies the dimension of these findings mentioned above by reporting as follows:

> Learning [is] anything other than "the facts"... less than 1 percent of all teaching time is devoted to activities beyond recall and recognition.

Summary

The idea that "it is not the knowledge that is the power: it is the way of accessing knowledge and making use of it" (Marland, 1986, p. 46) has not yet been adopted by teachers and it seems, therefore, at first glance, that the main barrier for the unsuccessful implementation of the information skills across the curriculum is the teacher. But is it really true?

Recent research reveals that there also is a problem with school librarians in particular and with information in general.

2.2.2 The school librarians' problem with education

2.2.2.1 Outsiders

Hambleton (1984, p. 30) wrote in 1979:

> For the past twenty years many excellent, rational and resounding professional statements have stoutly proclaimed the potential of school library programs. Liberally sprinkled through these statements are phrases which assert that the school library of today is "the keystone" of the educational program, a "force for educational excellence" and the "heart" of the school. Unfortunately, these phrases remain only clichés...

It is a fact that the librarians who are expected to be central to the curriculum (Marland, 1986, p. 53) have not yet succeeded in getting the acceptance of the educational milieu (Malley, 1979, p. 1). In the U.K. they sit apart from the school, which gets on with its business (Marland, 1986, p. 43) and in the U.S.A. only few school libraries are being properly used for research or resource-based learning (Irving, 1981-A, part 1, p. 2).

Hambleton (1984, p. 30) concludes:

> There is obviously "static" in the communication system between sender and receiver. The message is not getting through, or, at least, is being distorted.

Some of the causes which are discussed in the literature in relation to the "source of this static" and focus on the school librarians part in being outsiders, are specified below.

2.2.2.2 Criticisms of school librarians

Creating needs that do not exist

Shapiro (1981, p. 185) says that from the librarian's point of view there is a "missionary zeal" to turn the savages (those who do not know their way around libraries) into civilized beings (those who appreciate and use libraries as an integral part of their lives).
The problem according to Harris (1980, p. 12-13) is that the librarians are not simply aiming to satisfy the information needs of their users, but to create information needs where none had existed.
At this juncture it is mandatory to mention Irving's (1978, p. 33) findings regarding the school librarians who were keen to ensure the maximum use of library resources, while the teachers were more concerned with the specific usage of only those resources considered relevant to the subject or to the pupil.
Harris (1980, p. 13) assumes that librarians would probably reply that they are trying to create awareness of information needs and he emphasizes:

> It is not uncommon to hear librarians complain that users claim that they have no information needs - they must have information needs!

Brake (1979, p. 42) says that in the language of librarianship need has taken on the guise of a neutral term; in everyday speech need is embedded in cultural associations which if touched may cause hostility, e.g. some pupils would react to the term and retort "I don't need to know nothing"!

Library lessons syndrome

Loertscher (1982-A, p. 416) reports that the school librarians of the U.S.A. have developed curricula of library skills that children neither enjoy nor need when taught in isolation from classroom curricular units.

Loertscher adds:

> Parading children through the library once or twice a week for forty minutes and teaching them a curriculum of our own design that has little relationship to classroom activities is of doubtful worth.

In relation to the U.K. Irving and Snape (1979, p. 4) report that most school librarians who operated some form of library-user education program (Irving, 1978, p. 32) did it mainly in the library and almost always in isolation from the curriculum. Irving (1978, p. 32, 35) adds that in contrast to the assumption of the school librarians that the instruction which was given by them was retained by pupils and used when subject needs arose, teachers identified pupil difficulties in particular subjects, suggesting that pupils

were not in fact transferring the knowledge and skills gained during library periods to other subjects.

Cole and Gardner (1979, p. 190-191) explain that as a result of learning to find out as a secondary aim to the learning of the subject content, the pupils had **"verbal knowledge"**, the knowledge was almost certainly inadequate, and they could not use it in real life and convert it to **"behavioural competence"**.

Similar findings in relation to different types of learning in isolation are provided by Neville and Pugh (1975, 1977), Neville (1977), Taylor (1978) and Liesener (1985, p. 17).

Brake (1980-B, p. 2) defines the library lessons as a type of learning which exists at the level of "knowing" rather than "doing" with very little transfer or utilization in every day life.

Markuson (1986, p. 38) says that reference skills are often taught in ways that literally fly in the face of what we know about learning theory, and he identifies four inherent instructional problems:

1. Research and reference skills, both concrete and abstract are taught without sufficient regard for the development levels of students.
2. Such skills are introduced, taught in one or at most a few sessions, with too little attention paid to sustained repetition or practice.
3. Librarian/student contact time is too infrequent, precluding efficient recall or retention over the long term.

4. Lessons are often ill prepared with too little attention paid to teaching strategies and learning styles.

No understanding in user studies

Brake (1980-B, p. 6) says:

> Too often in user education research we begin from such a model ["an abstract model of what an informationally competent, totally rational homosapiens does, or looks like"], usually implicit, and all we can see around us are "deviants"; but they are deviants of our own creation, labelled as such by virtue of an abstract model, within which *we may have great* difficulty in even recognizing ourselves. Most user education or study skills manuals are what I would call "prescriptive idealisations", and are too alien from existing practices to be meaningful to a great many people.

Liesener (1985, p. 13) asks:

> Is it possible that (1) our failure to reach a larger proportion of our potential client population and (2) the apparent ineffectiveness of our public relations and instruction in the past could be largely due to the unrealistic expectations of users or at least due to the lack of understanding of information seeking behaviours?

No critical measure

Beswick (1983, p. 12) says that there is clearly some "methodological lacuna" in the multitude of individual doctoral research theses about school librarianship in North America which report "no significant difference" without explaining why.

Stroud (1982-B, p. 127), who studied the research methodology used in school library doctoral research, reports:

> [The] survey research was by far the most widely used research technique... while it can do a very good job of describing a situation as it exists it does *not have* the capacity to explain why the situation is as it is.

In contrast to this approach Stroud (1982-B, p. 124-126) reports:

> [The] experimental [research, which] can determine causality or ... can say why certain phenomena are occurring rather than simply that something is occurring... is infrequently used, primarily because it is a difficult approach to use with people... People are not easily manipulated and experiments conducted in school settings are difficult to control.

Since the majority of the research in the field of school librarianship is doctoral research (Stroud, 1982-B, p. 125) ... the "methodological lacuna" is probably deeper.

Liesener (1985, p. 18) of the U.S.A says that the frame of mind in the field is still centered around the traditional standards

approach of measuring one's goodness by comparing what one "has" rather than what one "does" to what is recommended in some arbitrarily derived set of standards.

This "frame of mind" is illustrated by Beswick (1983, p. 3) as follows:

> The children must be learning: we have got the exact number of filmstrips described by media programs, district and school.

No dialogue

Beswick (1984, p. 18) worries about the lack of depth in the literature of school librarianship in relation to those areas which most relate to what teachers themselves do and write about. Beswick adds:

> It seems extremely odd that the school library movement shows little sign of discussing trends and challenges that some might think would be part of its case, and part of what we should be discussing with "the teachers."

By using "the remarkable P-R job of Ruth Ann Davies" as a "key text" Beswick (1983, p. 7-8) sharpens even more his criticism against "the curious avoidance of the controversial" of the school librarians:

> No dialogue is envisaged... and the possibilities of disagreement ... do not exist at least for her...

> No discussion of what we call now "the information skills curriculum" [and] "learning to learn"... enters into [her] consideration, nor are schools invited to check whether the skills are learned, whether the strategies... necessarily lead to their development or what would be done if they don't.

Beswick (1983, p. 3-4) argues that with occasional exceptions, the literature of school librarianship has tended to be the literature of exhortation, aspiration and mutual support, where local practitioners describe to each other what they believe is succeeding in what they hope they are doing, and where leading professional spokespeople urge their cohorts forward with eloquent statements of high idealism. Beswick, some of whose own writings have been of this kind, opens his heart and says that he is forced to agree that such accounts will only be convincing to those who accept the initial premise.

Brake (1981, p. 24) also mentions the very limited reference of user education literature to mainstream educational thought and emphasizes that, in general, the isolation of librarianship from the main intellectual developments of the twentieth century is astounding. Brake explains that the rationale for user education has largely developed from within the domain of librarianship, and one consequence of this has been a heavy emphasis upon the bibliographic aspects of information handling and use (see also Herring, 1980, p.

341). Brake adds that in educational terms such a concern may be marginal:

> I would rather a pupil could effectively gain access into, and derive meaning from, one source, than that she could find the titles of three hundred. Being able to manipulate our information tools is very important, as is having a critical understanding of the sometimes contradictory frameworks of meaning in which information is embodied. However, information is a raw material for thought and not thought itself. A collection of references, or a presentation of thoughts derived from several sources does not amount to very much. The bibliographic approach tends to assume that new thoughts and meanings are derived inductively from quantities of existing lists of information. In certain contexts the bibliographic approach may be relevant, e.g. when one wants to survey work in progress within a discipline. In other contexts where, perhaps, "learning", or "understanding" are paramount, the bibliographic approach may be counter-productive.

Remoteness from the educational role

Teacher-librarians, who are on the job in most of the secondary schools and in virtually all the primary schools in the U.K. (Herring, 1982, p. 15) seem to Beswick (1984, p. 15) splendidly qualified to be "change agents" in curriculum and methodology, on behalf of the services they direct. Beswick specifies some of these qualifications as follows:

> They are, after all, qualified and experienced teachers who should be able to speak to their peers without problems of credibility or acceptance. They ought to understand the pressures and dynamics of the classroom, and at the same time have an overall daily view *of what is* actually taking place in their libraries.

Unfortunately, realism suggests otherwise:

Irving (1978, p. 38) reports that the role of the school librarians [both teacher-librarians and chartered librarians according to Irving herself (Irving and Snape, 1979, p. 4)] as "a teacher whose subject is learning itself" is rarely assumed by those in charge of school libraries.

Beswick (1983, p. 3) himself reports that the teacher-librarians seem rarely to have been active participants in curriculum development project, research projects or innovative activities.

Beswick (1984, p. 15) explains this contradictory situation as follows:

> British teacher-librarians are overburdened, in both the quantity and the diversity of work required of them. Many teachers appointed to teacher-librarian posts are relatively young, feeling their way in the profession; even when they are more experienced they are rarely invested with sufficient authority and status (let alone time) to make an across-the-school impact. Not all of them would claim to be "leaders".

In the U.S.A. the situation is certainly not better. In contrast to the titles and definitions of the school library media specialist as an "educator" (Wehmeyer, 1984) who "is knowledgeable about educational processes" (Davies, 1979, p. 46), relatively few library media specialists are actively involved in the instructional process (Stroud, 1982-A, p. 428) and there are substantial indications that library media specialists do not want to assume curriculum responsibilities (Stroud, 1982-A, p. 428; Turner and Martin, 1979, p. 16-17; Liesener, 1985, p. 16).

Among the reasons which Stroud (1982-A, p. 428-429) specifies concerning this remoteness from the educational role the following may be quoted:

> Many, perhaps... have little or no actual classroom experience, feel that they know too little about the teaching process... many... select library work because they don't want or

> like to teach and many leave teaching to become librarians for the same reasons.

Stroud (1982-A, p. 429) concludes:

> It is foolish to expect that the segment of the library media specialists who feel this way are going to look upon the instructional design role with positive feelings...

Didier (1982, p. 149) questions whether the strong emphasis on management and administration in many library courses may have inadvertently overwhelmed other aspects of the professional role. Didier suggests that this question be addressed by the hypothesis that the higher the educational attainment of the library media specialist, the less involvement there is with students.

This tendency to abandon the educational role leaves room for questioning whether the concentration on the "hardware flashiness" (Loertscher, 1982-A, p. 417; Lord, 1982, p. 36) against the priority of which Swarthout (1967, p. 213) had already warned in the 60s, was, and still is, a kind of escape from focusing attention on the main role of education.

Inadequate definition

Marland (1986, p. 44-46) thinks that the major trouble is that libraries in schools have been accepted as "good things" for too long without their function being closely defined. Marland adds:

> The library has been blandly regarded as a pleasant place, useful sometimes to have the

> governors' meeting in, useful sometimes for social occasions, and "of course it is nice to see children reading in there". But the relationships between the libraries and the curriculum has barely been focussed upon in most curriculum debate.

Beswick (1984, p. 18) says that the school librarians have not articulated clearly enough, in terms that their colleagues in the classroom will understand, the library *resource center as a crucial* factor in teaching methodology.

Liesener (1985, p. 18) says also that inadequate progress *has been* made towards defining the goals and objectives of school library media programs in terms of services provided to clients and contributions made toward achieving instructional and learning goals. Liesener concludes that as a result of it much of the evaluation of library media which is currently performed, is based on strictly subjective judgments that may have nothing to do with the development and delivery of an effective program of services to users.

2.2.2.3 The librarians' angle

Dudley (1983, p. 62), who puts herself as a spokesperson on behalf of the librarians argues against the need to justify the program:

> We are librarians, we believe in libraries, we know to the very core of our beings that it is a

good thing to be able to make use of our library resources. We also know that it is not a measurable, a quantifiable good. Each of us ever involved in teaching anything has given a pretest and a posttest and we can always show that people who have taken our courses do better in our posttests than people who have not taken our courses. Moreover, we can show that people who have taken our courses like us better than people who have not taken our courses. We have gone beyond that and demonstrated that students learn more in a twenty-hour course than they do in a two-hour orientation. But that is not the question we seem to be trying to answer. The question as I understand it is, do students *need to know about* the library, do they do better term papers than people who do not know how to find an article in a journal, do they do better on their GRE? I resent the question and I ask each one of you to join me. I ask you to live by your faith in your profession, to take a stand on the same ground as our fellow humanitarians. Our English faculty do not spend very much of their working day assessing the needs of students to be taught Shelley rather than Keats, or evaluating the relative academic success in graduate school of students who have

> focused on the Victorian novel and those whose particular interest has been Romantic poetry. Nor do our friends in the Music Department dwell over-long on in-depth analyses of the long-term effects of the music curricula on Mozart students as opposed to Bach students. No Art faculty has concerned itself with comparing career satisfactions of those who study modern art with those who study classical art. It has not occurred to those who devote their lives to teaching literature, music, and art that they should follow the lead of the social scientists and hurry out to detail the purposes and behavioral objectives in each or any area of their curriculum in order to undertake accountability evaluations so they can justify their programs and budgets. Who would dream of justifying exposing students to Shakespeare, to Beethoven, to Rembrandt?

Dudley (1983, p. 60) emphasizes that the program is derived from the student's needs as a student:

> Do we need to wait until a student is pressured by the necessity to find a periodical article for a paper he has to hand in tomorrow to introduce him to the excitement of periodical indexes? These days, it might be a very long wait. Do we have so little faith in our students' capacity to share

our delight in the phenomenal and brilliant organization of knowledge represented by Library of Congress headings that we need to defer teaching it until students fail to find what they're seeking in the card catalog? The notion that no teaching can take place, that students will only learn and retain knowledge about the library if they are under pressure to use the library, is a peculiar phenomenon that appears over and over in bibliographic instruction literature. It not only demonstrates a lamentable lack of faith in the intrinsic *interest of the* content of what we have to teach, and is a sad commentary on our attitude about students, but speaks to a strange and limiting view of the nature of pedagogy. It is acceptable and possible to teach that two apples added to two apples will give us four apples. We can even teach that 2 + 2 = 4. We are not told we must wait until the student has a craving for apples or until he needs to add 2 more of something to the 2 somethings he already has. We make some assumptions about need and retention that somehow have no carry-over to teaching about how libraries' function. We have only ourselves to thank for this. We are certainly our own worst enemies.

Dudley (1983, p. 63) ends her philosophy very enthusiastically with the demand that the program should be implemented in all circumstances:

> When and Where
>
> When do we teach? Where? The answers are "always" and "everywhere". The answer is "Never stop". Where? At the reference desk when the student asks for a thesaurus and you've just reviewed a new one - When? Now - the time is ripe. Maybe the lesson you teach will be in a single sentence. But maybe, depending on the circumstances, it will develop for that student into the kind of exchange, the kind of learning experience, the flash of enlightenment that you experienced when you first decided to become a librarian. Where? At the restaurant when the waitress says, "Say, aren't you the librarian? You helped me with my paper last semester." When? Right then - the time is ripe. You have the opportunity to inquire about what she's studying now, what else she's doing, what her library needs are. Where? Of course in the classroom. Whenever and wherever you get the chance. With or without the presence of the professor. At the summer orientation program. At the fraternity house. At the Extended University. On the lawn. On the library steps.

> To recap. When? Now, Always. Anytime. Where? Anyplace. Every place. Who? Your users and your colleagues. Why? Because you are a librarian.

Summary

On the one hand the librarians are criticized because of their contradictory approach to the educational context, and on the other hand, as is reflected by Dudley (1983), they entrench themselves even more behind the... same positions, which brings the educational context to see them more as those who are "mirroring their aspirations" (Beswick, 1983, p. 4) in a "missionary zeal" rather than the ones who want, truly, to be integrated in this context. Although the librarians suffer to some extent from the fact that the teachers are not enough information minded, it seems that their part in their unsuccessful integration in the educational context is derived from the fact that they are not enough educational minded.

The overall conclusion is that those who are responsible for the development of information skills, both librarians and teachers, are not in a position to do this job successfully.

What is the solution?

In the following section the researcher will focus on ways suggested by the literature of bridging the gap between education and information of the human factor.

2.2.3 Bridging the gap

2.2.3.1 The emphasis on "context"

Many researchers who study how to bridge the gap between information and education focus more attention on the practical nature of education.

Hanson (1983, p. 7) reports that the most commonly held idea on the academic standing of education is that it should be regarded as an "applied science", a derivative field of study, or a profession, in the same way that law, medicine and engineering are regarded.

Hanson explains:

> The field of education consists of a set of practical problems, the showing of which demands the application of research from other disciplines.

Derr (1983, p. 203) adds:

> The knowledge from other fields is relevant if it identifies conditions within practical settings which inhibit or facilitate the efforts of practitioners to achieve professional goals.

In truth, it is always possible, according to Loertscher (1982-C, p. 110), for basic or scientific research findings to change the entire outlook, no matter what seems true from the practical world of experience (see also Kerlinger, 1977, p. 5-12), and there are

many examples in history, according to Jackson and Kieslar (1977, p. 16), such as Freud, Piaget, Skinner and Thorndike, whose ideas have obviously left their mark on both thought and practice in education. But on the other hand there is no sense according to Loertscher (1982-C, p. 110) in waiting for a great discovery to occur.

David (cited by Loertscher, 1982-C. p. 110) points out that it is even an error to think that basic research must precede applied research. Loertscher (1982-C, p. 110) stresses: "The converse is often true".

Beswick (1984, p. 15) reinforces this idea. He writes:

> Innovation very properly comes from the chalk face, not the colleges and institutes; teacher training necessarily <u>follows</u> the profession's practice and almost never leads it, though it may help to promote new developments which have already begun in schools.

More than that, many of the researchers who study the conditions for developing information skills in the schools of the U.K. refer to "action research" (Brake, 1981, p. 23; Avann, 1983, p. 14; Webb, 1984, p. 14), which is also called a "locally based research" (Loertscher, 1982-C, p. 110) and stresses even more the practical approach by "attacking real problems in <u>specific situations</u>" [researcher's emphasis] (Loertscher, 1982-C, p. 110).

In relation to the U.S.A., Aaron (1982, p. 233) says that there is pressure from many different sectors to justify library media programs and their effects on the education of students.

Consequently, many of her recommendations for future research studies (Aaron, 1982, p. 233-235) correspond with "locally based research", which is seeking, according to Loertscher (1982-C, p. 110) better information upon which to make decisions or changes in programs.

In addition to it, in 1979, school library media specialists and other professionals in the field came together for a two day conference on improving school library media programs through action research (Aaron, 1979). Loertscher (1982-C, p. 110) stresses very strongly that the professionals and the researchers ought to concentrate on improving present practices whenever possible, but also to be on the lookout for advances in basic research and to accept change as the need arises without weeping and wailing.

Herring (1981, p. 17) says that if school librarians wish to see a user education program implemented, they will have to be aware of the decision-making process in the school and face the realities of school politics and power structures - that is, if they are not to appear as educational kite-flyers, launching their new ideas without taking into account the strength of the wind.

Streatfield and Wilson (1981, p. 54) suggest that the nature of information should be understood in the context of the user group and the role played by information in the working life of the user.

Hounsell (1981, p. 12) explains:

> There is no such thing as a "useful" or "relevant" information source in a <u>general</u> sense. An information source only becomes useful or relevant

> when it can be put to use to further the particular purposes of the student in a specific setting - and it is useful only to the extent that it saves time or provides an avenue to material which would otherwise have been missed and without which the end-product (an essay or report, for example) would have been significantly poorer.

Hounsell (1981, p. 15) concludes:

> Training in information skills which fails to connect with the students' sense of purpose is likely to be little used or even ignored.

Heather (1984-A, p. 2) says that training information skills should take place in the context of purposeful activity, for example, a project, and the demands of the activity would determine the skills that are taught.

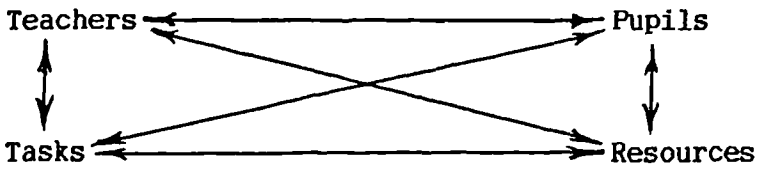
Heather (1984-B, p. 92) reports that successful project work was more likely to be related to introducing skills and reinforcing them in a relevant context.

Heather (1984-A, p. 39) also says that pupils will only see the relevance of information skills if they are introduced when a pupil needs to use them.

2.2.3.2 The centrality of the teacher

According to Brake's model (Brake, 1981, p. 25) the possibility of introducing, exercising and developing information - handling skills into schools seems to be determined, in large measure, by the

nature of the interaction between four elements - teachers, tasks, pupils and resources as is illustrated below:



Brake says that teachers have, in the main, the power to define such relationships. He adds:

> Teacher perceptions of pupils, of the learning process, of the constraints of the job are obviously crucial to how the elements interact.

Harris (1980, p. 13) says:

> It is the teacher who sets the formal tasks that generate the information needs, who determines explicit information needs, and who rewards the gathering, use and presentation of information. It is the teacher who determines the apparent requirements of success.

Avann (1983, p. 124) argues that it is the teacher's responsibility to ensure that there is a purpose in tasks set for the pupils, which implies planning and thinking through the task in advance.

Tabberer (1983-A, p. 104) says that in the framework of schools, teachers are the major controllers and managers of what pupils do, and what pupils use.

Beswick (1984, p. 14) argues that the teachers must *see library* resources as a priority for them. Beswick suggests that it would obviously help if they had regular exposure to informed guidance of the relevance of library resource provision to what they themselves taught or should teach, and how they themselves might set about teaching it.

Beswick (1984, p. 18) concludes:

> Until we have articulated to our teaching colleagues why the library is important to them in everything that they do, it may well be that we are standing in the kitchen before we have done our shopping.

More insight into this phenomenon is provided by Blumer (cited by Brake, 1980-B, p. 8):

> If the scholar wishes to understand the action of people it is necessary for him to see their objects as they see them. Failure to see their objects as they see them, or a substitution of his meanings of the objects for their meanings, is the gravest kind of error that the social scientist can commit. It leads to the setting up of a fictitious world. Simply put, people act towards things on the basis of the meaning that these things have for them, not the basis of the meaning that these things have for the outside scholar. Yet we are confronted right and left with studies of human group life and of the behaviour of people in which the scholar has made no attempt to find out how the

people see what they are acting toward. This neglect is officially fostered by two pernicious tendencies in current methodology: (1) the belief that mere expertise in the use of scientific techniques plus facility in some given theory are sufficient equipment to study an unfamiliar area; and (2) the stress that is placed on being objective, which all too frequently merely means seeing things from the position of the detached outside observer. We have multitudes of studies of groups such as delinquents, police, military elites, restless students, racial minorities, and labour unions, in which the scholar is unfamiliar with the life of the groups and makes little, if any, effort to get inside their worlds of meanings. We are compelled, I believe, to recognize that this is widespread practice in the social sciences.

2.2.3.3. Collaborative approaches of teachers and librarians

Speaking "with" them (Brake, 1980-B, p. 6).

Herring (1981, p. 17) suggests that school librarians must talk to their teaching colleagues in the language of education and not librarianship.

Mulligan (1981, p. 3) stresses the need for a "common experience of the things which is spoken of".

Markuson (1986, p. 39) appeals to the librarians and says:

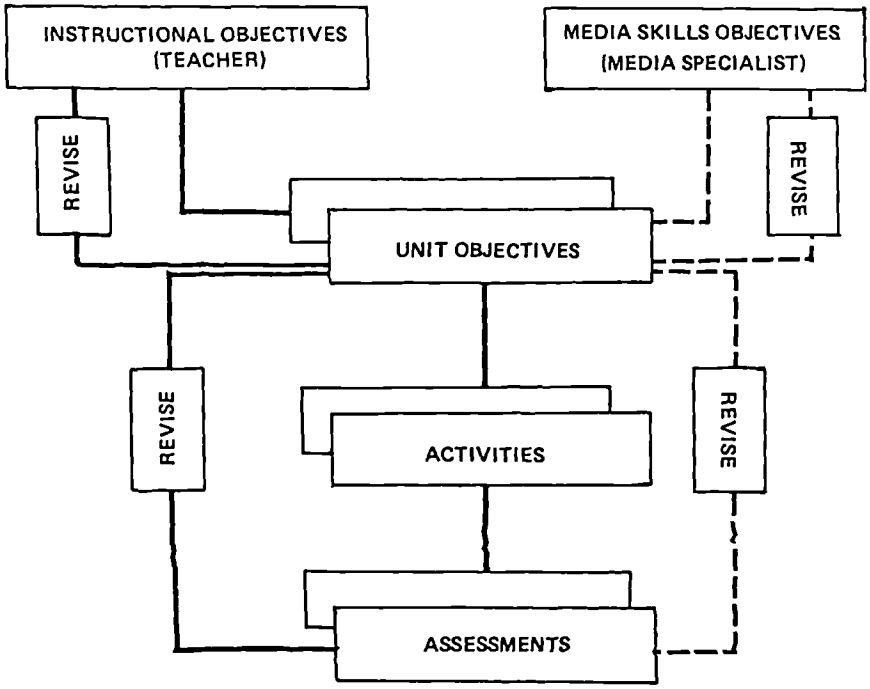
> We cannot be like the priests and priestesses of Yore, sharing our knowledge of process selectively, damning those who don't know what we think they should, and absolving ourselves of even a share of the responsibility for the final product.

Under the title: "marketing the model" Markuson (1986, p. 37) suggests that librarians should become more politically active within their peer community of teachers, administrators, school board members, PTA leaders, and school board, union, and education association members.

Marland (1986, p. 52) says that the crucial central role of the librarian is professional collaboration with the teachers.

Walker and Montgomery (1983, p. 24-25) suggest an "integrated model", as follows:

Integrated Model of Library Media Skills Instruction



In the integrated model... instructional objectives and library media skills objectives may be separately formulated, owing to the subject expertise of teachers and the library media skills expertise of library media specialists. However, in planning a teaching unit, instructional objectives and library media skills objectives are merged into one set of unit objectives.

> Thereafter, library media skills activities derive their subject matter directly and perhaps exclusively from the unit of study, and classroom teaching activities depend in large part on library media skills instruction. In fact, the distinction between instructional objectives, activities, and assessments on the one hand, and library media skills objectives, activities, and assessments on the other become specious as the two are merged into a single instruction unit.

Walker and Montgomery (1983, p. 16) explain the advantages of this model:

> An integrated approach to library media skills instruction takes advantage of the strength and preparation of the teacher in instructional theory and methodology and the strength of the library media specialist in the theory and application of instructional media. Instructional planning for library media skills then emerges as a process of logically and equitably dividing labor between teacher and library media specialist.

Walker and Montgomery add that as teachers and library media specialists grow to understand their respective role and functions, the communication problem vanishes, albeit slowly.

Emphasizing practice and not theory

Herring (1981, p. 19) suggests that the communication with teachers should not be theoretical. Herring (1981, p. 18) adds:

> The appeal will be to teachers' interests primarily. Any theoretical justification can be kept for those in power and explained to teachers later.

Some reinforcement of this approach is contained in Heather's (1984-C, p. 218) findings which reveal that the links between the overall philosophy of the schools and the teaching of information skills were not as strong as the researcher expected. She concluded that this was probably because the philosophy of each school was described by the headteacher, but the class teachers were responsible for implementing information skills teaching and topic work.

These findings correspond with Clark and Yinger's (cited by Herring, 1981, p. 18) findings, which show that learning objectives are seldom the starting point for planning and that teachers plan their courses around their pupils and around activities.

According to Maclure (cited by Nicholls, 1983, p. 43):

> The English view... would probably be that the case for teachers' autonomy is most formidable, not on grounds of philosophy, which is not a strong point in English education circles, but on grounds of practice - that is to say, that the best way to enlist a teacher's commitment to any

> innovation or to the idea of innovation as a recurrent phenomenon in education, is to implicate him in the process, because unless he is so implicated, he can and will resist and in all probability defeat the efforts of the innovators.

Rowntree (1982, p. 238) says:

> Teachers, like students, naturally need to be shown rather than merely told.

Griffin (1983, p. 39) suggests to increase teacher involvement in developing information skills by accessing them to the materials instead of reporting about them, and by visits to see examples of innovative practices in action.

Avann (1983, p. 139) intensifies this point even more saying that teachers may not be sure what a librarian can offer them. She emphasizes:

> It is a librarian's *task to make sure [the* teachers] find out.

Brake (1981, p. 23) reports that the main aim of the "Need To Know Project" was

> to help teachers create planned opportunities in the various subject curricula, for the introduction, exercise and development of a wide range of information skills... within the possibilities and constraints of each school, adapting as necessary.

Griffin (1983, p. 41) suggests that in the light of the considerable burden from the current shortages of resources, the more new works and new ideas can be presented not as additional tasks but as related, and even perhaps time-saving in nature, the more likely it is that teachers will become interested and, thus, involved.

...Nevertheless, theory is necessary

Avann (1983, p. 116) reports that as the in-service course and work in schools indicated, the innovation was partially adopted, because of a lack of application of the theory that underlies it.
Nicholls (1983, p. 88-89) on the one hand agrees, in truth, that in the field of education, theories that have no practical application serve no useful purpose, but on the other hand he emphasizes that, equally, practice that is not based on theory is likely to be ineffective in the long term.
Griffin (1983, p. 38) suggests raising teachers' general awareness by dissemination of general information which underlines the importance of developing children's skills as independent learners and which draws attention to past and present research and development in the sphere.

Reaching people and using channels

Griffin (1983, p. 38) emphasizes the special importance of the headteacher as a supporter of innovation in primary schools.

Patrick (1982, p. 427) says that the principal must promote adequate budgeting to provide professional and support staff and other resources to develop and implement the program. She adds:

> The principals should encourage teachers... and should provide the time and motivation for instructional planning.

Herring (1981, p. 19) argues that without the assistance of the headteachers and deputy heads the user education approach in schools is lost.

Griffin (1983, p. 38) also suggests that a further target might be language consultants (or teachers with responsibility for language development) within primary schools, advisers, school library services and teachers' centers.

"Taxonomies"

Recently, many researchers have published systematic lists of concepts and activities which are intended for librarians to achieve the full integration of information in the educational context.

For example, Loertscher (1982-B) suggests a "taxonomy for the 1980s", Avann (1983, p. 136-139) suggests "guidelines for librarians" and Jobe (1984) suggests "strategies for effective influence".

2.3 The content factor in developing information skills

2.3.1 Locating information in books

Unfortunately, beyond the expectations of good will and greater openness of teachers and librarians, there is another kind of gap which prevents the full implementation of these skills in schools. This gap is the lack of an overall program for developing information skills, as distinct from a tremendous variety of school library media programs *nationally* and internationally (Turner, 1985, p. 3) which include many aspects of information skills.

This chapter will focus on one aspect of these skills, that is, locating information in books.

2.3.1.1 Introduction

Locational skills: a definition

Locational skills are the linkage between the skills required to use the information once it has been found, but also, prior to using locational skills, to identify the purpose of the information search (see "The model of information skills", section 1.2; see also Herring, 1982, p. 65) and it involves finding materials and information (Herring, 1982, p. 65) in relation to "areas places and people" (Raddon, 1984, p. 181).

The idea of access to a source of information

> Most information sources have a system for ordering and arranging information. If the source is a person, only the framing of the question is crucial, because people make mental rearrangements of information easily. An organization might have numerous people with different areas of expertise, and the pupil may have to make a choice. A library or museum has people who might be approached, and a system for arranging material which is usually designed for independent access. The pupil therefore needs to be aware of the concept of order, rather than its peculiarities in a specific location, and aware of guides for discovering order. In a library, for example, there would be a sequence for arranging materials (e.g. a classification scheme), and guides to the arrangement (e.g. catalogues, subject indexes and a plan of the layout). A data bank would also require knowledge of how to use the terminal before accessing the information store (Marland, 1981, 1981, p. 31-32).

Marland (1981, p. 24) adds that the pupils' understanding of how information is organized, and their skill in applying this understanding, will determine how effective the search is.

The idea of access to the contents of a book

A book, like other information sources which come within "one set or genus" (Beswick, 1982, p. 11), also has a "system for ordering and arranging information" which facilitates access to its contents. This organizational system is based on the division of a book into parts which are known as "parts of a book".

While there is an overall agreement among researchers in regard to the usefulness of these parts as "clues" (Heilman, 1968, p. 421; Marland, 1981, p. 33; Irving, 1981-B, p. 11), "aids" (Henslowe, 1977, p. 8; Walker and Montgomery, 1983, p. 38), "short cuts", "helpers" (Heilman, 1968, p. 421), and "guides" (winkworth 1977, p. 5; Davies, 1979, p. 486; Marland, 1981, p. 33) in gaining an efficient access to the contents of a book (Heilman, 1968, p. 421; Henslowe, 1977, p. 8; Winkworth, 1977, p. 5; Marland, 1981, p. 33; Irving, 1981-B, p. 11), there is a lack of an overall conceptual approach in relation to the learning of this "system".

2.3.1.2 Parts of a book

2.3.1.2.1 Conceptual approaches to learning parts of a book

Gates (1974, p. 27-30) suggests a model which sub-groups the parts of a book from cover to cover under four physical divisions, as follows:

> The binding
>
> The binding holds the leaves of the book together, protects them, and makes them easy to handle... It has two important parts, the spine and the end papers...
>
> The preliminary pages
>
> The preliminary pages precede the body of the book and include the flyleaves, the half-title page, the copy-right page, the dedication, the preface, the table of contents, lists of illustrative material, and the introduction...
>
> The text
>
> The text is made up of the numbered chapters and constitutes the main body of the book.
>
> The auxiliary or reference material
>
> The auxiliary or reference material follows the text and may include an appendix, notes, a glossary, a bibliography, and an index...

Gates' approach to the parts of a book is derived from the need "to understand and appreciate the importance, significance, and usefulness of each of the physical parts of a book". Gates (1974, p. 27) explains:

> Each of the parts of the book has been added because it contributes to the usefulness of the book.

Davies (1979, p. 485-487) also suggests the cover-to-cover model, but instead of dividing it into four main physical divisions, she divides it into ten main information sources of a book, as follows:

1. Using title and subtitle of book as guide to *contents*
2. Using blurb on book jacket as indication of contents
3. Using title page to identify
   a. Author(s)
   b. Editor(s)
   c. Compiler(s)
   d. Illustrator(s)
   e. Edition
   f. Abridgement
   g. Translation
   h. Imprint information
      - Place of publication
      - Publisher
      - Imprint date
4. Using back (verso) of title page

a. Date of first and subsequent copyright dates

b. Owner(s) of copyright

c. Place of copyright registration

5. Using table of contents to identify

a. Titles of chapters

b. Sequence of chapters

c. Pages of chapters, appendices, lists of maps, lists of illustrations, glossary, bibliography, and index

6. Using preliminary information (front matter)

a. End papers

b. Frontispiece

c. Dedication

d. Preface

e. Foreword

f. Introduction

g. Acknowledgments

h. Contributors

i. Usage notes

7. Using the index to discover

a. Subjects or topics included in the book: persons, places, things, events, processes

b. Main subjects and topics listed in alphabetical order; subtopics listed after main topics

c. Page numbers after main subjects, main topics, and subtopics

d. Inclusive paging indicated by hyphen between the first and last page

e. Poetry uses separate indexes for poet, title of poem, and first line of poem

f. Cross references to key topics

8. Using bibliography to identify

a. Depth and breadth of information beyond content of book used

b. Verification of sources cited; means of placing paraphrased information in context

9. Using glossary and terminology list

a. Discover special meaning of words

b. Discover translation of foreign words

10. Using illustrations - pictures, charts, graphs, maps - to heighten meaning of text

Nevertheless, Davies' model is not an end in itself. According to Davies (1979, p. 478), this model provides

> an articulation framework for a school district's skill development program, K-12, pinpointing where within the program of studies each ... skill can be appropriately introduced, reinforced and/or extended.

This model according to her is also

> an invaluable instructional planning guide for classroom teachers and school library media specialists to use when determining specific skills to be integrated within a teaching or learning program.

Rogers (1984, p. 353-354) suggests another kind of cover-to-cover model, but divides parts of a book into only three main sections. The first section deals with those parts of a book which are displayed on the title page and the back (verso) of the title page, as follows:

Title

Author or editor

City of publication

Name of series

Edition

Copyright date

Date of publication

The second section deals with parts of a book other than those which are related to the preliminary information through those which are related, according to Gates (1974, p. 29-30) to the "auxiliary or reference material", as follows:

Preface

Foreword

Introduction

Table of contents

List of figures

Chapter headings

Subtitles

Footnotes

Bibliography

Glossary

Index

Appendix

Rogers' model of the parts of a book is only part of his "study-reading skills checklist" which was designed to identify the "degree of skill" of the students.

Illustrative material which includes also parts of a book such as:

Maps

Graphs

Charts

Tables

Cartoons

Pictures

Diagrams

and which is mentioned by Davies (1979, p. 487) Gates (1974, p. 28-29) and by Paterson (1981, p. 8) as an integral part of the parts of a book, is not considered by Rogers as parts of a book, but as "graphic aids" which are related to "specific study-reading comprehension skills".

Henslowe (1977, p. 68-69) abandons the cover-to-cover model and suggests sub-grouping the parts of a book under the umbrella of two categories: "format" and "bibliographic data". According to Henslowe:

> "Format" [is] intended to encompass the idea of the physical parts of a book, while "bibliographic

data" [is] intended to cover the information generally found about library books on the main entry catalogue card.

The "format" includes the following parts of a book:

Cover

Spine

(Collation)

Title page

Text body matter

Graphic material

The "bibliographic data" includes the following parts of a book:

Appendix

Author (name)

Bibliography

Charts (listing)

Copyright date or date of publication

Edition

Foreword/Preface

Glossary

Illustrations

Index

Cross reference

Introduction

Key, guides

Maps

Series

Table of contents

Tables

Titles

Volume number

Mckee (1948, p. 425-426) who looks on the parts of a book through the task which the pupil faces in locating printed information which is pertinent to his problem, suggests dividing the parts of a book into two sections, as follows:

1. Those parts "which give references to pages and information contained in the book volume", as follows:

   Title

   Table of contents

   Lists of maps, illustrations, tables of figures

   Side-heads and running-heads

   Chapter, sectional, and topical heading

   Footnotes

   Index

2. Those parts "which are more useful for other purposes than for locating information within the book", as follows:

   Glossary

   Appendix

   Copyright date

Preface

The "scope and sequence of media skills K-12 district media center" by Leon County Schools (1978, p. 10-14) also includes a model of parts of a book under the title "parts of a book", as follows:

S K I L L	G R A D E S				
	Elementary			Middle School	High School
	K,1	2,3	4,5	6,7,8	9,10,11,12
V. PARTS OF A BOOK					
1. cover	x				
2. spine	x				
3. title	x				
4. title page	x				
5. illustrations	x				
6. copyright date		x			
7. table of contents		x			
8. chapters		x			
9. index		x			
10. glossary		x			
11. preface			x		x
12. foreword			x		
13. dedication			x		
14. list of illustrations			x		
15. appendix			x	x	x
16. bibliography			x		x

Other items which are considered by many researchers as parts of a book as well are included in this "scope and sequence" as other entities under the umbrellas of different sections.

Some of these items are included under "publication terminology", as follows:

SKILL	GRADES				
	Elementary			Middle School	High School
	K,1	2,3	4,5	6,7,8	9,10,11,12
VI. PUBLICATION TERMINOLOGY					
1. author	x				
2. illustrator	x				
3. publisher		x			
4. producer				x	
5. editor				x	
6. adaptor				x	

Some other items are included under "methods of research" as follows:

SKILL	GRADES				
	Elementary			Middle School	High School
	K,1	2,3	4,5	6,7,8	9,10,11,12
X. METHODS OF RESEARCH					
1. use parts of the book			x		
6. bibliography					
a. simple			x		
b. complete				x	
7. cross reference				x	
8. footnotes					x

Winkworth (1977, p. 7) suggests that only information which pupils need to carry out their assignments successfully should be taught. Consequently, Winkworth's (1977,p. 5-6) model deals with parts of a book only in relation to their contribution to each stage of the research process, and in relation to their sequential levels of difficulty.

As a result of this approach some parts of a book such as:

Index

Volume letters

Guide words

Cross references

are sub-grouped under the first stage of the research process "define subject", as guides to use encyclopedias to obtain general survey of subject.

Winkworth also suggests introducing these parts of a book in the primary school and to reinforce them in the upper levels of schooling.

Under the second stage of the research process "locate information" she specifies a separate sub-section, "locate information in materials", which includes books too. In relation to books she suggests using:

1. Title and preface as guides to contents.
2. Contents page and index to locate topics.

She also suggests introducing these parts of a book in primary school and reinforcing them in the subsequent years of schooling.

Under the stage "organize information", she suggests compiling a

Bibliography

Bibliography is suggested by her to be introduced in middle school and secondary school up to 'O' level. Under the stage "evaluate information" she suggests evaluating accuracy and authority of source by using

Copyright date

Copyright date is to be introduced in secondary school up to 'O' level.

Under the stage "communicate information" she suggests quoting material by using

Footnotes

but does not say when they should be introduced. She also suggests at this stage using

Illustrative materials

and also suggests introducing it in secondary school up to 'O', and in the 6th form.

Like Winkworth (1977, p. 5-6), Marland (1981) specifies parts of a book only on the basis of their contribution to each one of his "nine questions steps" in the completion of the assignment.

Under the heading "how do I get to the information?" which focuses on "tracing and locating individual sources", Marland (1981, p. 22, 31) suggests exploiting the usual arrangement of set texts, for example:

Introduction

Preface

Footnotes

to facilitate the pupils' task at this stage. Under the heading "which resources shall I use?" which focuses on "examining, selecting and rejecting individual resources", Marland (1981, p. 32-33) suggests examining contents and packaging, e.g.:

Blurb

Title page or equivalent

Preface

Index

Bibliographic references

He also suggests examining any information given concerning

Author

Editor

Publisher

He also suggests sampling the contents for

Illustrative material

and using the

Contents list

Under the heading "how shall I use the resources?" which focuses on "interrogating resources", Marland (1981, p. 33) mentions the following parts of a book:

Contents list

Index

Subheadings

Glossary

Appendices

Chapter summaries

Under the heading "how should I present it?" which focuses on "presentation, communication [and] shape", Marland (1981, p. 35-36) suggests using

Subheading and/or number sections

Tables and diagrams

Similar to the work of Winkworth (1977, p. 5-6) and Marland (1981) of the U.K. there are many American library media programs which base their models of parts of a book on the stages of the research process, although many of them are more library-based rather than information-based, such as Gillespie and Spirt (1983, p. 37), Seaver, (1984, p. 18) Van Vliet (1984, p. 16), and they sharpen even more the "nice contrast in the two developments" (Malley, 1983, p. 35; see also Irving, 1983, p. 6).

For example, many American research programs begin with the orientation of the library media center and even with the need to "name personnel of the library media center" (Seaver, 1984, p. 18), while many English frameworks such as those of Winkworth (1977, p. 5-6), Marland (1981) and others begin with the definition of the subject as the starting point (see "The model of information skills", section 1.2).

Many American programs which are based on the research process are also characterized by their very specific insight into levels of difficulty and sophistication, such as the following program by Seaver (1984, p. 18-28) for K-3:

Key: O objective is introduced but not expected to be mastered

X objective is expected to be mastered by 75% of students

I. ACCESS TO RESOURCES	K	1	2	3
2. Identify on print... material				
Cover	x			
Front	x			
Spine	o	x		
Book pocket	o	x		
Book card	o	x		
Book jacket	o	x		
Title		o	x	
Author		o	x	
Illustrator		o	x	
Call number		o	o	x
Title page		o	o	x
Table of contents		o	o	x
Publisher			o	x
Place of publication			o	x
Copyright or publication date			o	x
Index			o	x
Glossary				o
Appendices				o
List of illustrations				o
Map list				o
Time list				o
...				
6. Locate specific information in				
Title page			o	o
Table of contents			o	o
Index			o	o
List of illustrations				o
Map list				o
Time list				o
7. Locate information using				
...				
b) Visuals				
Pictures	o	o	o	o
Photographs	o	o	o	o
Captions			o	o
Maps			o	o
Graphs/Charts			o	o
Time table				o
...				

II. SELECTION OF RESOURCES	K	1	2	3
...				
J. Select appropriate part of a print item to locate specific information			o	o
...				

III. UTILIZATION OF RESOURCES	K	1	2	3
A. <u>Use of print... materials</u>				
...				
5. Use the cover of a book to find:				
a) Title	o	o	x	
b) Author	o	o	x	
a) Illustrator		o	o	x
...				
7. Use visuals to get information	o	o	o	o
8. Use picture clues to decode	o	o	o	o
...				
12. Use table of contents to locate information		o	o	x
13. Use index to locate information			o	o
14. Use guide words to locate information			o	o
...				
16. Interpret maps			o	o
17. Interpret simple graphs and charts			o	o
...				
25. Use call number to locate specific materials in the library media center				o
26. Use copyright information to determine how current material is				o
...				

IV. PRODUCTION OF RESOURCESES	K	1	2	3
A. <u>Visual production</u>				
...				
3. Construct a model book including front, back, spine, author, title, publishers and copyright date	o	o	o	x

Traynor (1978, appendix), who studied skimming and scanning skills, begins his "system of ordering" parts of a book with "a first look at the book".

Under this section he mentions parts such as:

Title

Author

Date of publication

Editor

Preface

Table of contents

Index

Afterwards, he focuses especially on the table of contents and the index. In relation to the table of contents he mentions:

Chapters

Number... of ... page [where] chapter begins in the book

Sub-heading

In relation to the index he mentions:

Entries

[Sub-entries]

Another section in his model is "looking quickly" under which he mentions:

Headings

The last section of his model deals with

Pictures

Heather (1984-B, p. 33-63) suggests a model which is divided by two levels of learning: first year juniors and fourth year juniors; under each level of learning she focuses on some parts of a book which were taught or used in her study as follows:

Under the level of the first year juniors Heather (1984-B, p. 33-46, 60-61) mentions:

Title
Author

in relation to learning "structure of a book".

Next she focuses on the:

Contents page

and emphasizes:

Chapter headings
Page numbers

Her approach to the learning of the contents page in this level is limited to its position organization and its basic functions.

Index

is mentioned next with two extra parts of a book:

Main headings
Sub-headings

Her approach to the learning of the index at this level is, in parallel to the contents page, limited to its position organization and its basic functions.

At this level Heather also mentions:

Pictures

in relation to answering questions from information in pictures, and in addition to this she mentions:

Illustrations

Maps

Tables

Under the heading "pupils' research" she also suggests that students compile their own

Bibliographies

At the level of fourth year juniors Heather (1984-B, p. 47-59, 61-63) mentions again the

Index

and in addition to this she mentions once more:

Headings

Sub-headings

but this time her approach to the learning of these parts of a book is more advanced and focuses on the use of these parts.

Extra parts of a book which are mentioned at this level of learning and not in the previous one are

Cross references

In addition to the use of the index she mentions again:

Chapter-headings

but this time her approach to the learning of these parts of a book is more advanced and focuses on the use of chapter headings.

At this level of learning she mentions also

Pictures

but this time in relation to a more critical approach.

Discussion

Two contrasting tendencies emerge as a result of the different approaches to the "system for ordering" which is based on the parts of a book.

On the one hand, this kaleidoscopic view contributes to the enrichment of the idea behind the teaching of locating information in books. On the other hand the differences among the conceptual approaches do not encourage the creation of a unified and overall "system for ordering information". On the contrary, in some cases the same part of a book is treated by different researchers in very contradictory ways, for example: In contrast to Gates (1974, p. 27-30), who regards the parts of a book in the context of their physical location in the book, and categorizes the table of contents as a part of the "preliminary pages" and not as a part of the "reference material [which] follows the text", like the index, Mckee (1948, p. 425-426) regards the parts of a book through the task which the pupil faces in locating pertinent information, and considers both of the table of contents and the index as the "most important" parts of a book "which give references" to pages and to information contained in a book.

Another example may be adduced. Both Winkworth (1977, p. 5-6) and McKee (1948, p. 425-426) delineate the parts of a book through the tasks which the pupil has to perform. However, Winkworth groups the preface together with the title under the sub-section of locating information in books, as guides to the contents, whereas McKee separates the title from the preface which he considers as

"more useful for other purposes than for locating information within the book".

Moreover, even under the same conceptual approach of the same author one can find very great paradoxes. For example, it is curious that items such as author, illustrator, publisher and editor, which are considered by many researchers as parts of a book, are considered by Leon County Schools (1978, p. 11) as other entities. Even more surprising is the grouping of items in the section of "methods of research" of this "scope and sequence". Under this section the sub-section of parts of a book is mentioned separately from the sub-sections of bibliography, cross reference and footnotes, as though it were other entities than parts of a book.

At the moment when many teachers are not familiar with these skills, the endless differences among the conceptual approaches are liable to encourage the "erecting of the professional tower of Babel" (Mulligan, 1981, p. 3) rather than strengthening the "common experience of the thing which is spoken of" (Mulligan, 1981, p.3).

The problem of diversity becomes even more complicated when studying the lists of the parts of a book from their quantitative point of view.

2.3.1.2.2 Quantitative approaches to learning parts of a book

The lists of parts of a book treated above under the aspect of their conceptual approach, as well as other lists contained in the literature have been summarized by the present researcher. The following tables detail the scope and distribution of the items:

List Part of a book	Avann (1983, p. 106, 122)	Barkholtz (1976, p. 48-51)	Becker (1970, p. 61-63)	Brainard (1978, p. 5, 100)	Davies (1979, p. 485-487)	Drummond & Wignell (1979, p. 79)	Gates (1974, p. 27-30)	Gengler (1965, p. 56)	Gillespie & spirt (1983, p. 37-41)	Heather (1984-B, p. 60-63)	Henslowe (1977, p. 67-68)	Hyland (1978-A, p. 142-143)	Leon County Schools (1978, p. 10-14)	Marland (1981, p. 32-33)	McKee (1948, p. 426)	Paterson (1981, p. 7-10)	Robinson (1965, p. 267)	Rogers (1984, p.353)	Seaver (1984, p. 18-28)	Stinson (1970, p. 5-6)	Taylor (1978, p.117-119)	Traynor (1978, appendix)	Walker & Montgomery (1983, p. 32-40)	Wehmeyer (1984, p.324-325)	Winkworth (1977, p. 5-6)	Yarling (1968, p.157)	Total
Abridgement					1																						1
Acknowledgement					1																						1
Appendix		1		1	1		1		1		1		1	1	1			1	1		1		1	1		1	15
Author	1	1			1		1		1	1	1		1	1		1		1	1			1	1	1		1	16
Back of the print item							1		1														1				3
Bibliography		1			1		1	1	1	1	1		1			1		1	1		1		1	1		1	15
Binding							1																				1
Blurb					1									1													2
Call number							1												1								2
Caption																			1		1						2
Cartoon																		1					1				2
Chapter	1	1			1		1			1			1			1					1	1					9
Chapter heading					1	1			1	1					1			1									6
Chart		1	1		1			1		1	1			1		1		1	1		1		1				12
Compiler					1																						1
Contributor					1																						1
Copyright-date		1			1		1		1		1		1		1			1	1	1			1	1	1	1	14
-owner					1		1																				2
-place					1		1																				2

List Part of a book	Avann (1983, p. 106, 122)	Barkholtz (1976, p. 48-51)	Becker (1970, p. 61-63)	Brainard (1978, p. 5, 100)	Davies (1979, p. 485-487)	Drummond & Wignell (1979, p. 79)	Gates (1974, p. 27-30)	Gengler (1965, p. 56)	Gillespie & spirt (1983, p. 37-41)	Heather (1984-B, p. 60-63)	Henslowe (1977, p. 67-68)	Hyland (1978-A, p. 142-143)	Leon County Schools (1978, p. 10-14)	Marland (1981, p. 32-33)	McKee (1948, p. 426)	Paterson (1981, p. 7-10)	Robinson (1965, p. 267)	Rogers (1984, p.353)	Seaver (1984, p. 18-28)	Stinson (1970, p. 5-6)	Taylor (1978, p.117-119)	Traynor (1978, appendix)	Walker & Montgomery (1983, p. 32-40)	Wehmeyer (1984, p.324-325)	Winkworth (1977, p. 5-6)	Yarling (1968, p.157)	Total
Cover	1										1		1	1					1					1			6
Cross reference					1			1	1	1	1		1	1		1			1		1		1				11
Dedication					1		1						1													1	4
Diagram								1								1		1			1						4
Edition		1			1		1				1							1				1					6
Editor					1		1						1	1													4
End paper					1		1																				2
Flyleave							1																				1
Footnote							1						1		1	1		1					1	1	1	1	9
Foreword					1						1		1	1				1			1	1				1	8
Front of the print item					1		1		1										1				1				5
Glossary		1			1		1		1		1		1	1	1	1		1	1	1	1		1	1		1	16
Graph			1		1		1	1	1									1	1	1			1				9
Guide								1			1																2
Guide word																							1				1
Heading		1			1					1					1		1				1	1	1				8
Illustration	1				1	1	1			1	1		1	1		1		1	1		1						12
Illustrator					1		1		1				1						1				1	1		1	8

List Part of a book	Avann (1983, p. 106, 122)	Barkholtz (1976, p. 48-51)	Becker (1970, p. 61-63)	Brainard (1978, p. 5, 100)	Davies (1979, p. 485-487)	Drummond & Wignell (1979, p. 79)	Gates (1974, p. 27-30)	Gengler (1965, p. 56)	Gillespie & spirt (1983, p. 37-41)	Heather (1984-B, p. 60-63)	Henslowe (1977, p. 67-68)	Hyland (1978-A p. 142-143)	Leon County Schools (1978, p. 10-14)	Marland (1981, p. 32-33)	McKee (1948, p. 426)	Paterson (1981, p. 7-10)	Robinson (1965, p. 267)	Rogers (1984, p.353)	Seaver (1984, p. 18-28)	Stinson (1970, p. 5-6)	Taylor (1978, p.117-119)	Traynor (1978, appendix)	Walker & Montgomery (1983, p. 32-40)	Wehmeyer (1984, p.324-325)	Winkworth (1977, p. 5-6)	Yarling (1968, p.157)	Total
Index	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	26
Introduction		1			1	1	1				1							1			1						7
Jacket					1														1								2
Key								1			1									1							3
List of figures															1			1									2
List of illust.					1		1						1		1				1				1			1	7
List of maps					1	1									1				1				1				5
List of tables															1												1
Map	1		1		1		1	1	1	1	1		1	1		1		1	1	1	1		1			1	17
Marginal note																							1				1
Note					1		1																				2
Page number		1			1		1			1											1	1					6
Photograph														1					1		1						3
Picture			1		1				1	1							1	1	1			1	1				9
Preface		1			1	1	1	1	1		1		1	1	1	1		1		1	1	1	1		1	1	18
Publication- - date of	1	1			1		1				1					1		1	1			1	1	1		1	12
- place of		1			1		1											1	1				1			1	7
Publisher	1	1			1		1		1				1	1				1	1				1	1		1	12

List Part of a book	Avann (1983, p. 106, 122)	Barkholtz (1976, p. 48-51)	Becker (1970, p. 61-63)	Brainard (1978, p. 5, 100)	Davies (1979, p. 485-487)	Drummond & Wignell (1979, p. 79)	Gates (1974, p. 27-30)	Gengler (1965, p. 56)	Gillespie & spirt (1983, p. 37-41)	Heather (1984-B, p. 60-63)	Henslowe (1977, p. 67-68)	Hyland (1978-A, p. 142-143)	Leon County Schools (1978, p. 10-14)	Marland (1981, p. 32-33)	McKee (1948, p. 426)	Paterson (1981, p. 7-10)	Robinson (1965, p. 267)	Rogers (1984, p.353)	Seaver (1984, p. 18-28)	Stinson (1970, p. 5-6)	Taylor (1978, p.117-119)	Traynor (1978, append-ix)	Walker & Montgomery (1983, p. 32-40)	Wehmeyer (1984, p.324-325)	Winkworth (1977, p. 5-6)	Yarling (1968, p.157)	Total
Series							1				1							1									3
Spine							1		1		1								1				1	1			7
Sub-heading					1	1				1				1	1						1	1					7
Sub-title					1		1											1									3
Summary		1												1		1											3
Table of contents	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	26
Tables		1					1			1	1					1		1		1	1						8
Time list																			1				1				2
Title		1			1		1		1	1	1		1		1	1	1	1	1	1		1	1	1	1	1	18
Title page		1			1		1		1		1		1	1					1	1		1	1	1		1	13
Translation					1																						1
Translator							1																				1
Typographical aids											1					1							1				3
Verso		1			1		1								1												4
Volume number											1			1													2
Total	9	22	6	3	46	8	40	11	20	16	26	2	23	20	16	18	5	28	29	11	20	14	31	15	6	19	

Based on these tables the researcher has found that:

1. Almost all of the lists mentioned above are different in their respective scopes.
2. Only 11 of the 70 items (15.7%) mentioned above are included in 50% or more of these lists.
3. Only 2 items: table of contents and index are included in all the lists.
4. More than 90% of the items are treated incidentally.

Discussion

One cannot help being overwhelmed by the wide range of discrepancies and differences between the descriptions of what are, after all, no more than a few dozen parts of a book, in fact an "ordinary book", to use McKee's term (McKee, 1948, p. 426).

It is true that the sample of lists is not representative, but it certainly conveys some idea of how difficult "it is for teachers to determine what skills are required for an assignment" (Marland, 1981, p. 10) and what is the best way to proceed (Tabberer, 1983-B, p. 12).

But that is not all. In addition to the parts of a book which facilitate the access to the contents of an "ordinary book" there are also extra systems of ordering information which facilitate the access to what McKee (1948, p. 426) names "specialized sources of information". These "specialized sources" are known also as "reference books". In the next section the researcher will focus on these reference books and their relevance to this study.

2.3.1.3 Reference books

A definition

The term "reference book" has come to mean a specific kind of publication which has been planned and written to be consulted for items of information, rather than read throughout (Gates, 1974, p. 76).

Books of this class... are usually comprehensive in scope, condensed in treatment and arranged on some special plan to facilitate the ready and accurate findings of information. This special arrangement may be alphabetical, as in the case of most dictionaries or encyclopedias; chronological, as in historical outlines and similar compends ; tabular, as in the case of statistical abstracts; regional as in atlases; classified or systematic as in the case of some bibliographies, technical handbooks, etc... There are other books however, which, while intended primarily to be read through for either information or pleasure, are so comprehensive and accurate in their treatment and so well provided with indexes that they serve also as reference books [researcher's emphasis] (Sheehy, 1976, p. XIV).

Types of reference books

Katz (1982, vol. 1, p. 18-20) distinguishes between two types of reference books:

The first is the "control-access-directional type of source". Under this type Katz (1982, Vol. 1, p. 19) mentions the following reference sources:

Bibliographies

Catalogs

General systematic bibliography

Indexes

Katz says that these sources do not give definitive answers, but serve to direct users to the sources of answers. He adds that for their effective use, the items listed must be either in the library or available from another library system.

Katz (1982, vol. 1, p. 18) says, moreover, that this type of reference books consists of "secondary sources" which permit access to "primary sources" (see also Hanson, 1983, p. 3).

The second type is the "source type".

Under this type Katz (1982, vol. 1, p. 20) mentions the following reference sources:

Encyclopedias

Fact sources

Dictionaries

Biographical sources

Geographical sources

Katz says that works of the source type suffice in themselves to give the answers. He adds that unlike the access type of reference work, they are synoptic.

Katz (1982, vol. 1, p. 18) tells us, moreover, that almost all the source types of reference consist of "tertiary sources" which are a distillation and collection of primary and secondary sources, twice removed from the original.

Miller (1982, p. 387) illustrates the relationships among various sources along a "content bibliographic continuum".

According to Miller the emphasis of what Katz (1982, vol. 1, p. 20) calls "source type", is on the contents and less on the bibliographic tools, while on the more sophisticated levels of this continuum the emphasis is shifting hierarchically from the contents to the purely bibliographic tools such as citation index and card catalog. Miller (1982, p. 389) suggests that when the reader knows almost nothing and needs an overview he should use a textbook, dictionary, handbook or comprehensive encyclopedia.

These sources, which are related according to Miller (1982, p. 387) to the content domain and are known also as "general substantive sources" (Freides and White, cited by Berge and Pryor, 1982, p. 102) will help students to define and narrow the topic, while bibliographies and indexes would then be used to locate recent and very specific material on the topics (Freides and White, cited by Berge and Pryor, 1982, p. 103).

Recommendations for elementary schools

Based on lists which deal with reference books, the researcher listed all the reference books mentioned in these lists, in addition to the grade levels in which they are to be introduced, as is shown in the following table:

List / Reference book	Gillespie & spirt (1983, p. 37-41)	Leon County Schools (1978, p. 13)	Seaver (1984, p. 18-28)	Walker & Montgomery (1983, p. 32-40)	Wehmeyer (1984, p. 326-327)	Winkworth (1977, p. 5)
Dictionary	2,3,4	K,1	K,1,2,3	3	K,1,2,3	Primary
Encyclopedia	2,3,4	4,5	1,2,3	4	K,1,2,3	Primary
Telephone directory	5,6			3		Middle
Atlas	5,6	4,5	2,3	5	4,5,6	Middle
Almanac	5,6	4,5	2,3	5	4,5,6	Middle
Gazetteer		4,5,6		5		
Handbook/Manual		2,3	5,6,7,8			
Thesaurus	5,6			6	4,5,6	
Index		5	5,6,7,8	5	7,8	
Special dictionary	9,10	6,7,8	5,6,7,8	5	7,8	
Yearbook		6,7,8			7,8	Middle
Bibliography	7,8			7,8		Secondary

According to this table, the sequence of recommended levels for introducing reference books is correspondent with Miller's (1982, p. 387) content bibliographic continuum. Consequently, the emphasis of the recommended reference books for the elementary school is of the "content" or the "source type", while in the upper levels of schooling emphasis is shifting towards more sophisticated tools of the "bibliographic" or the "directional type".

Among the reference books which are chiefly recommended to be introduced first in the elementary school are the dictionary and the encyclopedia.

2.3.1.4 Selected skills

In this section the researcher will focus on some skills in the area of locating information in books, which are related to the most frequently recommended parts of a book and reference books.

The skills are:

Locating information by reference to the table of contents

Locating information by reference to the index

Locating information in the dictionary

Locating information in the encyclopedia

Alphabetisation procedure

2.3.1.4.1 Locating information by reference to the table of contents

2.3.1.4.1.1 The location of the table of contents in books

Taylor (1978, p. 118) says that the table of contents is usually located at the beginning of the book following the title page.
Heather (1984-B, p. 37) does not give so precise a location but prefers a broaden one: "at the front of books".
Yarling (1968, p. 70-71) asked children of the fourth and the sixth grade levels to find the table of contents in a book. If the child looked haphazardly through the book, he was not given credit. To be successful in this exercise the child had to know that the table of contents was located in the front of the book.

2.3.1.4.1.2 The organization of the table of contents

The table of contents is a list of chapters

Traynor (1978, appendix) says that most books are divided into parts or chapters and these are listed in the table of contents.
Gordon (1976, p. 295) adds that the table of contents is a list of chapters, sections etc., in a book, in the same order as they appear in the text (see also Pollette and Dame, 1978, p. 68).

Numbers next to chapters are page numbers

(Heather, 1984-B, p. 37).

Taylor (1978, p. 118) adds that these numbers are the first page numbers of the articles and stories or chapters (see also Niven, 1980-A, p. 4).

Sub-headings under chapter headings

Barnes and Burgdorf (1974, vol. 1, p. 41) say that chapters in the table of contents are sometimes divided into smaller units to help you find things more easily. These smaller units are termed "subtitles" by them.

Traynor (1978, appendix) calls them: "sub-headings". Cooper (1985-A, p. 34) says that it is much more helpful when the author gives us some sub-headings under each chapter heading.

A detailed organization of the table of contents:

A controversial issue

The detailed table of contents is controversial. On the one hand Taylor (1978, p. 118) says that a detailed table of contents can tell a great deal about the book.

In addition to it Gordon (1976, p. 295) even says that many publishers seem to think that a contents list, especially if it is expanded in much detail, can take the place of an index.

On the other hand Gordon (1976, p. 296) argues against the detailed table of contents:

> The longer and more detailed a contents list, the less helpful I find it in practice - smaller and smaller needles get lost in bigger and bigger haystacks...

2.3.1.4.1.3 Locating information on a certain topic

Locating the appropriate chapter

In order to look for particular things in a book Heather (1984-B, p. 51-53) suggests the appropriate chapter in the table of contents should be chosen. She mentions a teacher who introduced it to fourth year juniors, with the help of Niven (1980-B, p. 15). Heather says that the following was written on the board:

Chapter	
1. Living things	6
2. Food	12
3. Water	15
4. Breathing	21
5. Blood and the heart	26
6. Skin	30
7. Defense against infection	35

Heather (1984-B, p. 53) adds an example of the type of question asked:

In which chapter would you look up information on lungs?

Heather found that about half the class got all the answers to the six questions right, and that many pupils, although getting the answer right, put the number of the chapter rather than the word.

Heather reports also that the same exercise was used in another school, and the pupils seemed to find the exercise easy.

Heather also raised the possibility that relevant information may be found in more than one chapter. She reports that this was also taught to fourth year juniors by means of another exercise from Niven (1980-B) which was similar to the previous exercise on chapter headings but more difficult, as there was more than one possible answer. Heather says that the teacher explained that when doing topic work you may find information in more than one chapter. Heather found that the pupils coped quite well with this exercise, considering the difficulty of the task.

McKee (1948, n. 430) also suggests teaching the use of the table of contents of an ordinary book as an aid in deciding whether that book contains "information on a certain topic".

The broad nature of the topics in the table of contents

Traynor (1978, p. 43) says that the table of contents is useful as an aid in suggesting the "broad topics" that will be covered within the book.

Heather (1984-B, p. 37) reports about a teacher of first year juniors who was showing the class a book of birds and asked them:

"what sort of chapters would you have in a book of birds?" The answers given by the pupils were "types of birds" and "where birds live". The teacher said it was likely that the headings would be similar to these as they would be "general headings".
Taylor (1978, p. 113) says that the table of contents is introduced to find a "particular story" or "section".

2.3.1.4.1.4 Locating information relative to the book as a whole

Barkholtz (1976, p. 49) says that the table of contents can provide us with "a pretty good idea of the kinds of things that can be found in the book".
Heather (1984-B, p. 37) reports that when a teacher of first year juniors asked her pupils "what is a contents page?" they answered "what's in a book", "the titles of stories" and "chapters".
Yarling (1968, p. 71) says that the table of contents can tell the parts of the book without thumbing through, tells where the chapters are, and tells how many chapters there are and on what pages. The Board of Education of the City of Chicago (1978, p. 68) says that the table of contents shows the organization of the book.
Cooper (1985-A, p. 33) says that the contents table in a book gives a "brief outline" of what the book contains.
Yarling (1968, p. 71) says that one of the purposes of the table of contents is to give an "overview" of what the book is about.

Gengler (1965, p. 106) tested sixth graders on their ability to utilize a book's table of contents by means of a problem situation which was verbally presented as follows:

> (Hand examinee a book). Tell me, please, what this book is about. What kinds of information might I find in this book?

Gengler adds that the test administrator made the selection of the books which were used in this test from children's books which contained adequate tables of contents, and whose titles would not indicate the specific contents.

2.3.1.4.2 Locating information by reference to the index

2.3.1.4.2.1 The location of the index in a book

There is an overall agreement among researchers to teach the students that the index is usually located at the back of a book (see for example, Gordon, 1976, p. 294; Taylor, 1978, p. 118; Niven, 1980-A, p. 6; Heather, 1984-B, p. 38).

Yarling (1968, p. 71) asked children of the fourth and sixth grade levels to find an index in a book. If the child looked haphazardly through the book, he was not given credit. It was necessary for the child to know that the index is usually located in the back of the book.

2.3.1.4.2.2 The organization of the index

The index itemizes alphabetically the subjects of a book

Gordon (1976, p. 294) says that the index of a book is the key to the location of each detail that a book has to offer in precisely the same way as a library's subject index points the way to each of its resources. Gordon (1976, p. 296) adds:

> The whole point of an index is that it itemizes in detail the contents of a book... in an order (almost always alphabetical) which makes it easy to find any particular item quickly, without all the labour of combing through a contents list.

Traynor (1978, appendix) says that the titles in the index are called "entries".

The index itemizes alphabetically the sub-subjects of a book

Barnes and Burgdorf (1974, vol. 1, p. 43) say that topics usually have divisions called "sub-topics", which indicate what information is given about each topic. "Sometimes", they add, "the index is arranged vertically under the main topic... others are arranged horizontally".

Heather (1984-B, p. 51) calls these sub-topics: "sub-sections" and emphasizes that sub-sections are in alphabetical order.

Each entry and sub-entry is followed by page numbers

McKee (1948, p. 436) says that after each topic we find the numbers of the different pages on which the author tells us something about the topic.

McKee (1948, p. 438) adds that the number (or numbers) that follow each sub-topic show on what page (or pages) of the book the information is given.

Davies (1979, p. 487) says that inclusive paging is indicated by a hyphen between the first and last pages.

Cross references

(See "Cross references", section 2.3.1.4.4.1; this information about the cross references in relation to the encyclopedia is valid also in relation to the index).

Different types of indices

McKee (1948, p. 428) emphasizes the need to understand the different forms in which material in the index may be organized. He adds that this refers to the nature of the different types of indices, main topic only, and main topic - sub-topic, to the relation of sub-topic to the main topic, and to the different ways in which sub-topics are arranged.

Coleman (1968, p. 432-433) writes:

> The simplest index merely gives a topic word and lists pages. Even in this simple form, however, some children have difficulty understanding the implications of the various forms of punctuation. Specific attention must be given to the difference between pages 18-22 and 18,22. Further, a child must be shown how to read 18-22, 38.
>
> When we move into the more complex form of indexing in which there are subheadings, further skills are needed. Some books for elementary school children have the subheadings arranged one above the other. This is certainly easier to read. For the purposes of conservation of space, however, most of the indexes using subheadings are arranged in paragraph form. This means the student must read fine print closely set together. Some children are helped by using a blank card under the line they are reading to keep subtopics and

> pages straight. In subheadings the pupils have to learn another punctuation form, the semicolon, since subtopics are commonly divided by semicolons. This matter of punctuation may seem minor and frequently is given little attention in the instructional program.

Frinsko and Drew (1978, p. 194) focus attention on the complex nature of index skill as a result of the several component parts to each entry plus the various types of entries, and they suggest that children must be provided with experiences that will enable them to develop insights into the composite nature of the index skill before they can "look it up".

2.3.1.4.2.3 Locating information on a specific topic in the index

The key skill is alphabetisation procedure

Coleman (1968, p. 425) says that in the development of ability to use the index, it is necessary to begin with certain skills which are prerequisites. Coleman adds that the first supporting skill is the knowledge of the order of the alphabet and the ability to locate letters within it.

Gordon (1976, p. 296) says that the alphabet is the key to every index, which is in turn the key to every information book (see also Traynor, 1978, p. 45).

The key word search strategy

McKee (1948, p. 439) says:

> If you wish to use the index of a book in finding the answer to a question, you must decide what topic to look for. In many questions there is usually one word that shows or suggests the topic to use. Such a word is called a key word.

Nevertheless, the access is not always straight forward:

McKee (1948, p. 440) himself emphasizes that for some questions one may need to use more than a single key word. He even says that sometimes you may fail to find the answer that a book gives to a question because you do not choose the right sub-topic in the index.

Karlin (cited by Traynor, 1978, p. 44) says that in order to use an index of a book effectively, a reader must be able to "enter" the index. Karlin adds that entry involves topic determination which can create problems of its own in cases where alternatives must be considered.

Coleman (1968, p. 432) says that the most difficult aspect in teaching the index is helping children identify the key words under which they will look. Coleman adds that this requires an analysis of the sentence or a question about its total meaning, and then an identification of the word which is the focus of that question.

Heather (1984-B, p. 39) reports how a teacher of first year juniors went through the questions by finding the main words in the question and teaching the children how to find the appropriate entries in the

index. Heather says that only a few children got past the questions.

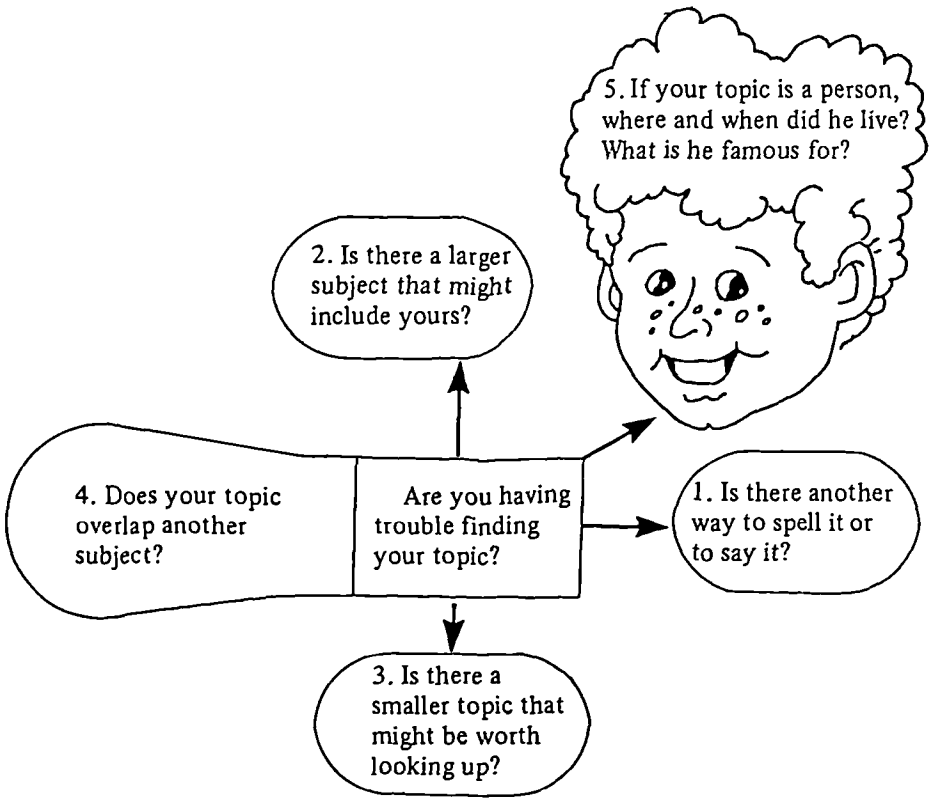
Heather (1984-B, p. 51) reports also how the fourth year juniors had to decide which word in the question was likely to be the main heading in the index, and which part of the question was likely to be in the sub-section.

Karlin (cited by Traynor, 1978, p. 44-45) says that the ability to see relationships among topics and sub-topics which is essential to achieve maximum benefit from an index is maturational.

Coleman (1968, p. 432) says that the ability to identify the key word is in part a matter of mental maturity and in part a learned technique in selecting significant words.

Marland (1981, p. 15) says that the use of the index may involve analytical and critical thought and a high degree of understanding of the topic even before searching can begin to be effective.

Wehmeyer (1984, p. 84) suggests a key-word search strategy made up of five questions or patterns, as is illustrated by the following chart:



Key-word search strategy

The specific nature of the information provided by the index

Yarling (1968, p. 71-72) who tested children of the fourth and the sixth grades asked them:

Why does a book have an index?

Answers such as the following were considred adequate:

To find specific information in a book.

Tells exactly on what pages things can be found.

Tells you if certain topics are found in the book.

Is more specific than a table of contents.

Tells you on what pages words are found.

Heather (1948-B, p. 38) strengthens the specific nature of the information provided by the index by her report on the use of indexes in the first year juniors.

Heather says that one teacher explained why an index might be useful in preference to the contents page. This teacher, according to Heather's report, told pupils that if they were looking for information on a specific subject in a book there might not be a whole chapter on what they wanted to find. This teacher added that if there was not a chapter on what the pupils wanted, there was something in the back of the book they could use called the index.

2.3.1.4.2.4 Locating information of a broad nature by reference to the index

Beyond the usefulness of the index in providing specific information of a certain topic it is also very useful in providing information about the book as a whole.

Kamm and Taylor (cited by Gordon, 1976, p. 295) say that a glance at an index will often give a much better idea of the scope of a book than an examination of the contents page. They add that a very good way of making a quick assessment of the value of a book, or of comparing two similar books, is to use the index to find a reference to an aspect of the subject which particularly interests the reader.

Niven (1980-A, p. 6) says also that the index is very important in helping the reader find out what is in a book, as it contains far more information than the contents page.

2.3.1.4.2.5 The index saves time

Cooper (1985-B, p. 17) says that many information books have an index to help the reader find quickly the information he wants. Also Neville and Pugh (1975, p. 26,28) emphasize that the quickest way to locate information in a book is by using the index.

2.3.1.4.3 Locating information in the dictionary

A definition

A dictionary may be defined as follows:

> A reference book consisting of words customarily listed in alphabetical order and followed, variously, by information about the[m]. ("Dictionary", 1985, vol. 4, p. 78).

The two aspects of this definition, "words... in alphabetical order" and "information about the[m]" are the basis of the two processes in relation to the location of information in the dictionary. The first aspect, "words... in alphabetical order" is the basis of locating the entry word in the dictionary. The second aspect, "information about the[m]" is the basis of locating the information within the entry word in the dictionary.

2.3.1.4.3.1 Locating the entry word in the dictionary

The key skill is alphabetisation procedure

(See also "Alphabetisation procedure", section 2.3.1.4.5)

Traynor (1978, p. 45) says that the key skill in the use of the dictionary is alphabetical order, which is relevant to the use of the index.

Coleman (1968, p. 425) says that in the development of ability to use the dictionary the first supporting skill is the knowledge of the order of the alphabet and the ability to locate letters within it.

Shores and Snoddy (1978, p. 126) say that when a child becomes familiar with the alphabet he can begin to learn to alphabetize and to use a primary dictionary.

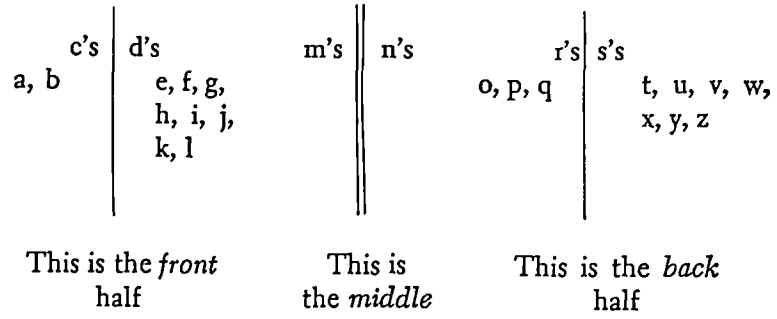
Locating approximate place of word in the dictionary

Barnes and Burgdorf (1974, vol. 1, p. 10) say that when one looks up words in the dictionary, it is helpful if one knows where to look. To speed up the process, they suggest that the dictionary be divided into three parts:

1. ABDCEFG (the front)
2. HIJKLMNOP (the middle)
3. QRSTUVWXYZ (the back)

Mot and Baisden (1937, p. 124) suggest another division of the

dictionary in order to find words quickly, as follows:



Heather (1984-B, p. 34) reports that in one class of first year juniors the pupils were told that in order to find a word in the dictionary they first had to know whether the first letter of the word is near the beginning, middle or end of the alphabet and then to find the corresponding place in the dictionary.

Heather (1984-B, p. 34) reports also that in another class of first year juniors the pupils were encouraged to find the approximate place of the word in the dictionary.

Using the example "comb", the pupils were asked to try and open their dictionaries at the C's. Heather adds that some of the pupils got excited because they had opened the dictionary at the C's straight away.

Guide words

Barnes and Burgdorf (1974, vol. 1, p. 12) say that guide words are placed at the top of a dictionary page to show the reader what words are on the page. They explain that the guide word on the left

is the first word on the page and the guide word on the right is the last word on the page.

Niven (1980-A, p. 15) suggests students should make a habit of looking at the guide words each time they use a dictionary. He adds that this helps the reader decide much more quickly if the word he is looking for is on that page.

The importance of the guide words in locating entry words in the dictionary can also be learned from Hyland (1978-A, p. 142). The only criterion on which she based her test of dictionary usage focused on the location of an appropriate entry word by the use of the guide words.

A new letter may start in the middle of a page

Heather (1984-B, p. 34) reports that one teacher of first year juniors explained that a new letter in the dictionary does not necessarily start at the top of the page. Heather adds that other classes were given exercises whose purpose was to illustrate this, such as: "Find the first word beginning with A and the last word beginning with A".

Words may be spelt differently from their sound

Heather (1984-B, p. 34-35) reports that one teacher explained to the pupils that when using a dictionary one is also coping with the sounds of words, as words may be spelt differently from how they sound. She explained to the pupils that there were three ways in

which people learned to read:

1. Phonics - sounding out the word
2. Look and say
3. Sentence

She explained that "q" must have a "u" with it that is not sounded and the "dge" at the end of "hedge" makes a strange sound. The teacher also talked about the Initial Teaching Alphabet and wrote out some of the words that were already on the board phonetically.

Heather (1984-B, p. 35) reports also that in other classes of first year juniors pupils experienced problems when they tried to spell words phonetically. Heather adds that when pupils were asked verbally to look for eiderdown by the teacher, some pupils started looking under I.

The Curriculum Commission of the National Council of Teachers of English (cited by Coleman, 1968, p. 431) suggests that in order to meet the primary objective of checking one's spelling of a word through finding it in a dictionary, the student must be able to look for the words as he has spelled it, and then, if this spelling is not found, to speculate on other spellings and look them up.

Words with affixes and root words

Barnes and Burgdorf (1974, vol. 1, p. 15) suggest that to find many entry words it is necessary to drop any prefixes, suffixes, and endings they may have. Words without affixes are termed "root words" by them.

2.3.1.4.3.2 Locating information within the entry word

Meaning

Barnes and Burgdorf (1974, vol. 1, p. 17) say that a dictionary helps the reader learn the meaning of words. They add that these meanings are called "definitions".

Cooper (1985-B, p. 27) says that sometimes two or more meanings for the same word are to be found in the dictionary and the reader has to decide which one is correct in a particular sentence.

Barnes and Burgdorf (1974, vol. 1, p. 19) suggest that when many meanings are given for the same word, it is necessary to check the "sense" of the meanings.

Heather (1984-B, p. 47) reports about an exercise which involved pupils giving examples of three words from the illustrated page of the dictionary with one meaning, then another three words which each had two meanings, and finally three words each of which had three meanings.

Illustrations

Barnes and Burgdorf (1974, vol. 1, p. 22) say that the dictionary provides pictures to help the student understand meanings.

Walker and Montgomery (1983, p. 36) suggest that the student will find specific information using picture clues in decoding and using visuals already from k-1.

Illustrative sentences

Barnes and Burgdorf (1974, vol. 1, p. 21) say that to help the student understand definitions, sentences are sometimes given to show how a word is used.

Fort Wayne Community Schools (1978, p. 146) suggest also that the student learns to use the word in a sentence for clarity.

Pronunciation

Barnes and Burgdorf (1974, vol. 1, p. 25) say that the dictionary helps the reader how to pronounce words. They explain that this is done because many letters in the English Language can have more than one sound.

Seaver (1984, p. 21) suggests that the student will be introduced to locate pronunciation within an entry in a beginner's dictionary.

Syllabification

Barnes and Burgdorf (1974, vol. 1, p. 33) say that it is necessary to know how to divide words into syllables in order to pronounce words.

Seaver (1984, p. 21) suggests that the student should be intorduced to locate syllabification within an entry in a beginner's dictionary.

Stress and accent marks

Barnes and Burgdorf (1974, vol. 1, p. 35) say that when a speaker pronounces a word of more than one syllable, one syllable is

usually uttered with more force than the others. They add that a mark (') is put after the syllable that receives more stress. This mark, they say, is called an "accent" or "stress mark".

Parts of speech

Katz (1982, vol. 1, p. 303) says that the most generally useful grammatical help a dictionary renders is to indicate parts of speech.

Barnes and Burgdorf (1974, vol. 3, p. 18) say that listing the parts of speech is often helpful in identifying the use of a word in a sentence. Barnes and Burgdorf (1974, vol. 3, p. 19) add that a word may be many different parts of speech depending on its use in a sentence.

Seaver (1984, p. 21) suggests that the students will be introduced to locate part of speech within an entry in a beginner's dictionary.

Plural spellings

Barnes and Burgdorf (1974, vol. 1, p. 36) say that if "s" is added to the word to show the plural, the plural is usually not shown in the dictionary. They add that if "es" is added to words ending in s, x, z, ch and sh, the plural is also not shown. In contrast to this, they say that "irregular plurals", such as "man" and "men" are shown.

Seaver (1984, p. 21) suggests that the student should be introduced to locate the plural spellings within an entry in a beginner's dictionary.

Derivations of words

Scripture and Greer (1955, p. 17) say that most of the words used today come from other languages, sometimes through two or three languages.

Barnes and Burgdorf (1974, vol. 3, p. 24) say that knowing the origin of a word often helps in determining its meaning. They add that to help the reader trace word origins (etymologies), dictionaries list them at the beginning or at the end of the entry and that they are enclosed in brackets.

2.3.1.4.3.3 The cumulative nature of learning the location of information in the dictionary

Wilson (cited by Heather, 1984-A, p. 37) says that first a child is taught how to locate words in a dictionary, then he or she can progress to seeing which meaning is relevant in context.

Walker and Montgomery (1983, p. 36-37) suggest that the student will "find words" in a dictionary in the third grade, and will find the meaning, part of speech, derivation, syllabification and pronunciation of a word in the fourth grade.

Heather (1984-B, p. 60-63) who reports about the skills which were taught and used in schools mentions first those skills which are concerned with "locating a word" and afterwards the skills which are concerned with the "use of dictionaries for definitions".

The shift from locating a word to locating the information about the word is also reflected through the problems which the students experience in learning the location of information in the dictionary.

Heather (1984-B, p. 35) reports that when pupils of the first year juniors were looking for definitions, some of them found the appropriate word, then closed the dictionary, so that they had to find the word all over again in order to write down the definition.

Heather (1984-B, p. 36) reports also that in another lesson of first year juniors, pupils could find the words in the dictionary, but

still had problems answering the questions in relation to their definitions.

An extra aspect of the cumulative nature of learning the location of information in the dictionary is reflected by progression from simple dictionaries to more advanced ones.

Coleman (1968, p. 427-428) says that

> the child today... looks at a picture dictionary in kindergarten and first grade where he will meet perhaps only two items of information - a picture, and a name, or a picture showing action and a single word, the verb which describes the action. He may in first grade meet three elements in the definition: the picture, the word, and a sentence using the word in a common meaning.
>
> He moves from this to a dictionary with large print which gives a word syllabified, the phonetic pronunciation, the most common meanings, and a sentence.
>
> These dictionaries for our third and fourth grade children have illustrations carefully designed to indicate size and perspective.
>
> At the next level, the dictionary includes the information that is in the easier dictionaries, and, in addition, indicates the part of speech.
>
> From this, children move into the dictionary which adds the word root, synonyms, and derivatives...

> Thus the child... moves by graded stages to the unabridged dictionary.

Leon County Schools (1978, p. 13) also suggest to introduce the picture dictionary in the kindergarten and in the first grade through the second and the third grades, while the abridged and the unabridged dictionaries are recommended for the fourth and the fifth grades.

Seaver (1984, p. 21) mentions also a beginning dictionary and an intermediate one. She suggests to introduce a beginner's dictionary in the kindergarten to locate information by using illustrations, while the intermediate one is only recommended for the third grade.

Drummond and Wignell (1979, p. 61) say that firstly, when the child needs to spell words in his creative writing, he learns to locate them on charts around the room, and then he graduates to using simple dictionaries as well.

To summarize, Hopman and Yocham's (1964, p. 332) statement is quoted hereunder:

> As children progressed through elementary school and as their communication needs became broader, their skill of dictionary usage became refined.

2.3.1.4.3.4 The need for an individual dictionary

Stinson (1970) developed a reading program which focused on research study skills, including dictionary skills, and studied the effect of this program at the sixth grade level. Regarding the

dictionary section of the program, Stinson (1970, p. 44-57, 82) reports that inspite of the fact that the experimental group was stimulated by a systematic approach and was not allowed to leave errors standing it did not score significantly better than the control group, which was stimulated by only an incidental approach. One problem which was obvious to Stinson (1970, p. 82) was that while there were a sufficient number of dictionaries available, students were unable to keep them in their desks. Stinson says that since it is generally agreed that having a dictionary at each desk is the best practice, this may have been to the detriment of the program.

Davies (1979, p. 488) suggests we should realize the value of having a dictionary readily at hand when studying and develop the "dictionary habit".

Shores and Snoddy (1978, p. 126) suggest that a good standard dictionary should be available to each student. They add that since dictionaries differ in essential features, the instructional task of the teacher can be facilitated if each pupil has a copy of the same dictionary. They say, moreover, that single copies of different dictionaries can be used to supplement the basic instruction and indicate variations among dictionary practices.

Coleman (1968, p. 429) suggests that if one third of the class has one dictionary and one third of the class another and the other third has another, meanings may be compared. He adds that it is valuable not only to have in one fourth or fifth grade class some of the children with a beginner's dictionary and some with a junior

level one, but there should be dictionaries published by different companies. Coleman explains that this allows a comparison of meanings and a discussion of the clarity and the appropriateness of the meanings for the particular sentence in which the word is found.

2.3.1.4.3.5 Purposeful use of the dictionary

> Attitudes, understandings, and skills are closely related in the teaching of the dictionary as a functional tool. Two important aspects of an instructional program of dictionary usage are apparent. Skills must be taught for the "know how" of using a dictionary; but attitudes and understandings must be inculcated for the "Know when" of dictionary usage. In accomplishing our goal of helping children to become efficient and frequent dictionary users, teaching children to know when needs emphasis.
>
> A mastery of needed skills does give children confidence and efficiency in their use of the dictionary. But the way children put these skills to purposeful use becomes the crux of dictionary usage (Hopman and Yocham, 1964, p. 328).

Coleman (1968, p. 430) stresses that as far as possible children should not be asked to look up word meanings unless there is a demand to know this meaning. Coleman adds that drill as a drill is

not likely to have the same carryover as practice which serves a clear purpose. He summarizes:

> Skill in using the dictionary is a skill in using a tool and is not an end in itself.

Heather (1984-B, p. 90) reports that many of the dictionary exercises in primary schools involved pupils looking up the meaning of words with which most seven year olds would already be familiar, for example, bicycle and wellingtons.

Harker (1978, p. 4) warns that dictionary usage can be over-emphasized in word attack. He suggests that when encountering an unknown word, pupils should be taught to refer to the dictionary only when other methods of word attack have failed, since constant reference to the dictionary develops dependence rather than independence in word attack.

Katz (1982, vol.1, p. 292) is of the opinion that a dictionary is to be used to define not only words the reader does not know but words he thinks he knows. Katz adds that the most difficult words to define are not abstract or technical, but words that are associated with everyday speech or writing, for example, "door" or "be" or "in".

2.3.1.4.3.6 Alternative strategies

Contextual clues

Marland (1977, p. 105) argues that there is a better thing to do rather than look it up in a dictionary:

> How about training the pupil to work out the meaning as far as he can from the context?

Marland explains:

> Reading being a constant process of guessing ["psycho-linguistic guessing game"] ... there is nothing wrong with having only a rough meaning - that's how half of us read half the time.

Southgate, Arnold and Johnson (1981, p. 196) report that only 2 children among 50 of the first and the second grade suggested consulting a dictionary when dealing with difficult words while 23 children suggested guesses as an alternative strategy.

"Expanding schemata"

Eeds and Cockrum (1985, p. 495-496) report that word meaning instruction that helps learners fit new words into an already existing conceptual networks ("expanding schemata") is substantially more effective than having students look up words in a dictionary or read words in an interesting and relevant context. Eeds and Cockrum (1985, p. 497) conclude that more new words will be learned and remembered if teachers add direct instruction in word meaning to their reading programs.

2.3.1.4.4 Locating information in the encyclopedia

A definition

An encyclopedia may be defined as follows:

> A reference book (Gates, 1974, p. 92; Katz, 1982, vol. 1, p. 167-212) containing extensive information on all branches of knowledge, usually arranged in alphabetical order ("Encyclopedia", 1933, vol. 3, p. 153).

The two aspects of this definition, the arrangement of "all branches of knowledge... in alphabetical order", and the "extensive information on all branches of knowledge" are the basis of the two processes in relation to the location of information in the encyclopedia, very similar to the process applying to the dictionary.

The first aspect, the arrangement of "all branches of knowledge... in alphabetical order" is the basis of locating the entry word in the encyclopedia.

The second aspect, the "extensive information on all branches of knowledge" is the basis of locating information within the entry word in the encyclopedia.

Mot and Baisden (1937, p. 159) say that the difference between dictionaries and encyclopedias is that dictionaries deal mostly with "words" while encyclopedias deal with "subjects".

Like Mot (1937, p. 159), Fort Wayne Community Schools (1978, p. 165) distinguish between the "encyclopedia subject information" and "the dictionary word information".

Sheehy (1976, p. 109) says that theoretically the dictionary is concerned only with the "word" not with "the thing represented by the word", differing in this respect from the encyclopedia which gives information primarily "about the thing". In practise, Sheehy says that the larger modern dictionary is very often encyclopedic, giving information about the "thing" as well as the "word", thus combining the features of the two types of reference books (see also Katz, 1982, vol. 1, p. 291).

Leahy (1980, p. 20) says that the encyclopedia can be called "a dictionary of nouns".

Fort Wayne Community Schools (1978, p. 162), walker and Montgomery (1983, p. 35) and Wehmeyer (1984, p. 326) suggest that the student learns to discriminate between dictionaries and encyclopedias in elementary school.

2.3.1.4.4.1 Locating the entry word in the encyclopedia

The key skill is an alphabetisation procedure

(See also "The key skill is an alphabetisation procedure", section 2.3.1.4.2.3; "The key skill is an alphabetisation procedure", section 2.3.1.4.3.1; "The key skill for locating information in reference books", section 2.3.1.4.5.1).

Due to the fact that most of the general encyclopedias list subjects alphabetically and have an index volume (Fort Wayne Community Schools, 1978, p. 165) the importance of alphabetisation procedure in relation to them is of first priority, the same as in the cases of the index and the dictionary.

Michaelis (cited by Gengler, 1965, p. 36) writes:

> Without a mastery of the skills involved in handling items arranged in alphabetical order, a child is unable to use resources effectively.

(See also Barnes and Burgdorf, 1974, vol. 2, p. 1).

Locating information on spine

(Rogers, 1984, p. 354).

McKee (1968, p. 429) suggests that the student understands the meaning of guide letters on covers of volumes.

Fort Wayne Community Schools (1978, p. 165) say that on the back, or spine, of each volume are the letters included in the volume. They suggest teachers should demonstrate the placement of letter markings on the spine by naming a subject, such as "moon", and by asking

students to point to the letters on the correct volumes of different encyclopedias.

Guide words

(See also "Guide words", section 2.3.1.4.3.1).

Fort Wayne Community Schools (1978, p. 165) suggest students in the fourth and the fifth grades should be reminded that guide words save time in locating entries.

In relation to the time factor it must be noted that Gengler (1965, p. 90, 276) studied pupils' speed in locating the information by using "words at the top of the pages".

Fort Wayne Community Schools (1978, p. 165) suggest also to show to the fourth and the fifth graders that the guide words cover the subjects contained on two-page spread, and that they are the same on succeeding pages for long articles.

Beginning of a section on a specific topic

Heather (1984-B, p. 42) reports that when one of the first year junior girls found the appropriate section on Sweden, she started reading in the middle of a sentence at the top of the page. She adds that a few of the other pupils started at the top of the page as well rather than at the beginning of the section on Sweden.

Last name of a person

Mot and Baisden (1937, p. 164) suggest one should always look for the surname (last name) of a person. They add that if a person has a title, one should look for the last name too.

Compound words

McKee (1948, p. 429) thinks that the student will understand the placement of topics made up of compound words.

Mot and Baisden (1937, p. 164) suggest that in words of two or more parts, students should look for the first part.

Cross references

Fort Wayne Community Schools (1978, p. 168) say that three kinds of cross references are used in encyclopedias. Two of them are related to locating the entry word and will be mentioned here, while the third is related to locating the information within the entry word and will be mentioned in section 2.3.1.4.4.2.

The first two cross references which are related to locating the entry word according to Fort Wayne Community Schools are:

> The "see" reference which directs the reader from a heading under which information is not given to a heading under which information is given;
>
> The "see also" reference which refers the reader from a heading under which information is given to other headings under which additional related material may be found.

Index

(See also "Locating information by the index", section 2.3.1.4.2).
Gordon (1976, p. 296) says that the usefulness of an encyclopedia depends more than is often realized on the quality of its index, even when the textual information is arranged alphabetically.
Fort Wayne Community Schools (1978, p. 165) suggest the students should be shown that referring to the index in the encyclopedia guides the reader to more information.

The key word search strategy

(See also "The key word search strategy", section 2.3.1.4.2.3).
Fort Wayne Community Schools (1978, p. 167) suggest mentioning to fourth and fifth graders that the encyclopedia is usually consulted to answer specific factual questions, and pointing out that a key word in the question usually suggests the appropriate subject entry. They also suggest preparing a set of cards with lists of questions for practice work with the student selecting the key word in a question and going to the encyclopedia to locate the answer.

2.3.1.4.4.2 Locating information within the entry word

Headings within the article

Fort Wayne Community Schools (1978, p. 167-168) suggest explaining to the student, with the help of the World Book or another suitable encyclopedia reprint, that the author developed an outline of the topics and sub-topics before writing the article and showing how the bold face headings serve as an outline for the user, making it possible to locate facts quickly without reading the complete article.

Cross references within the article

(See also "Cross references", section 2.3.1.4.4.1).

Fort Wayne Community Schools (1978, p. 168) focus attention on the special kind of cross reference within the article. They write:

> The "see" reference within an article... directs the reader to another article for more information on or explanation of an item that has been mentioned.

Bibliography

Fort Wayne Community Schools (1978, p. 168) say that the bibliography in the encyclopedia is a list of books for further reading on the subject.

2.3.1.4.4.3 The nature of the information which is supplied by the encyclopedia

Although the encyclopedia is an "authoritative source of information" (Fort Wayne Community Schools, 1978, p. 166) which is "recognized by scientific and intellectual worlds" (Keresztesi, 1982, p. 17) and although "an effort is made to include a wide variety of information from all fields... there is too much information being generated daily to allow any single encyclopedia the boast of containing all knowledge scattered over the face of the earth" (Katz, 1982, vol. 1, p. 168).

Katz (1982, vol. 1, p. 169) emphasizes:

> To clear up a common misunderstanding, no general encyclopedia is a proper source for research. (This does not include specialized works). It is only a springboard. Furthermore, in presenting material with almost no differentiation, the general encyclopedia is not completely accurate or up to date; important facts must be double-checked in another source, if only in a second encyclopedia.

Fort Wayne Community Schools (1978, p. 167) say that the encyclopedia article is a "summary of basic facts" which serves as "an introduction" to or "survey of a subject".

Winkworth (1977, p. 5) suggests encyclopedias should be used to obtain "a general survey of a subject" while defining a subject as the first stage in the research process.

Nevertheless, Pila (1978, p. 18) reports that many students come to believe that the encyclopedia is "almighty". She explains:

> Somehow it has everything. People, events, continents, and wars, they're all here; and in the thinking of some people they're here in depth. Because of this, students have no trouble making the short jump to the idea that there is only one place to go when wanting information for a paper: the encyclopedia.

Katz (1982, vol. 1, p. 169) says that an encyclopedia, no matter how good, is not a substitute for additional reading or for a collection of supporting reference books.

Leonard (1985, p. 90) raises the problem of the tendency to copy from encyclopedias because of their "compact writing style" which makes it difficult for children to internalize the information and to summarize it in their own language.

In an effort to prevent this "notorious copying" Leonard says that teachers frequently ban the use of encyclopedias. By doing so, Leonard adds, they eliminate a source that offers quick access to information and illustrates the outline form and other organizational skills.

Leonard suggests some techniques for information gathering that minimize the "copying problem". One of these techniques, for

example, is having students use a data retrieval sheet specifically designed for the assignment at hand.

2.3.1.4.4.4 Types of encyclopedias

Katz (1982, vol. 1, p. 168) says that encyclopedias may be divided into two or three categories:

1. by format - there are the general and subject sets of 4 to 24 volumes... and the smaller works of 1,2 or 3 volumes...
2. by scope - here the division is either general... or by subject.
3. by audience - the general work may be for a child, teenager, or layperson. If a subject set, it is likely directed to an expert or near-expert in that subject field.

Heather (1984-B, p. 61-62) suggests a simple one-volume encyclopedia for first year juniors and a multi-volume encyclopedia for fourth year juniors.

Shores and Snoddy (1978, p. 126) suggest that at least one good set of general encyclopedias should be in the classroom, but it seems better to have two sets, one alphabetized by volume and one with a general index. They add that when the index volume is the key to the use of the entire set, three or four index volumes are needed for the average size class.

2.3.1.4.5 Alphabetisation procedure

2.3.1.4.5.1 How to alphabetize

The key skill for locating information in reference books

As shown above, the alphabetisation procedure is the key skill for locating information in the index, in the dictionary and in the alphabetical encyclopedia.

Michaelis (cited by Gengler, 1965, p. 36) says that, in fact, there is no more widely accepted way of organizing information in reference materials than alphabetical order.

Sheehy (1976, p. XIV) adds that if the reference book is not itself arranged alphabetically, it is usually provided with a detailed alphabetical index.

Here it may be useful to mention once again Michaelis (cited by Gengler, 1965, p. 36) who points out that

> without mastery of the skills involved in handling items arranged in alphabetical order, a child is unable to use resources effectively.

The procedure

> Use the first letter of each word to alphabetize (Barnes and Burgdorf, vol. 2, p. 1).
>
> When there is more than one word with the same beginning letter, we use the second letter to

> alphabetize (Barnes and Burgdorf, 1974, vol. 1, p. 3).
>
> [If] the first two letters are alike, alphabetize... by using the third letter as a guide (Barnes and Burgdorf, 1974, vol. 1, p.5).
>
> When the first three letters of words are the same, you will need to look at the fourth letter in order to alphabetize (Barnes and Burgdorf, 1974, vol. 1, p. 6).
>
> If more than three beginning letters are the same, continue to the fourth, fifth and so on (Barnes and Burgdorf, 1974, vol. 3, p. 1).

In relation to entries which consist of more than one word, "Alphabetisation" (1968, vol. 1, p. 187) and The American Library Association (1968, p. 2) suggest two approaches:

1. "Letter by letter":

> Letter by letter alphabetisation is done by mentally collapsing the separate words into one string of symbols and arranging the entire string into a unique order ("Alphabetisation", 1968, vol. 1, p. 187).

2. "Word by word":

> Arrange word by word, alphabeting letter by letter within the word. Begin with the first word on the first line, then go to the next word, etc. Apply

> the principle of "nothing before something", considering the space between words as "nothing". Thus a single letter or shorter word precedes a longer word beginning with the same letter or letters. When two or more headings begin with the same word, arrange next by the first different word (American Library Association..., 1968, p. 2).

2.3.1.4.5.2 "How to learn"

The "cumulative" approach

The general approach in the literature is that alphabetisation procedure must be introduced from the very beginning years of schooling and even earlier and will be developed gradually year by year. For example, Walker and Montgomery (1983, p. 36-37) suggest that the student should alphabetize in the kindergarten through the first grade by the first letter in a word, in the second grade to the second letter of a word, in the third grade to the third letter of a word and in the fourth grade to the end of words.
Similar programs are suggested by other researchers such as Seaver (1984, p. 20) and Wehmeyer (1984, p. 324).

The context

In addition to the "when" and "what" it is suggested by many researchers that how to learn the alphabetisation procedure should also be focused on.

Salinger (1983, p. 334) says that exercises requiring children to put words in order according to second third and even fourth letters are not enough to demonstrate the utility of alphabetizing to a child. Salinger suggests activities with beginning dictionaries, indices, catalogs, language experience word banks and spelling or sight word lists which provide experiences that will make transfer of the skill to other tasks an easy next step.

Gordon (1983, p. 181) says that it is probably best to start demonstrating the principles of alphabetisation beyond the first letter of a word with a dictionary.

Drummond and Wignell (1979, p. 5) suggest that the telephone directory is very useful for learning words arranged in alphabetical order.

Winkworth (1977, p. 5) suggests introducing alphabetical order when using encyclopedias to obtain a general survey of subject, and in relation to locating materials on shelves.

Hughes (1983, p. 16) suggests introducing alphabetical order in the second grade under the umbrella of identification, location and organization of resources.

Hyland (1978-B, p. 31-32) suggests teaching alphabetical order as an integral part of the library learning process from the students' perspective. Consequently Hyland suggests teaching alphabetical order in relation to the organization skill which refers to the basic floor plan and workings of the school media center space.

Wehmeyer (1984, p. 324) suggests developing alphabetizing skills while learning to use the card catalog.

Discussion

Although there is no overall program for the development of locating information in books which is accepted by the whole scientific community, it seems that through the in-depth penetration of the professional literature it is possible to collect useful information as a starting point for the design of any program in this area.

Equipped with the suggestions of the professional literature how to bridge the gaps of the teachers and the librarians, and equipped with very useful aspects of contemporary knowledge about locating information in books, the present researcher was ready to design the methodology and the procedures of his current study in the field.

Chapter 3

Methodology

3.1 Design of treatment

3.1.1 Philosophy

In light of the fact that teachers are not always competent to develop information skills, and librarians, for a variety of reasons are very often outsiders to the educational context, the researcher decided to design a program which is expected to encourage the development of information skills in elementary education.

The program is based on two principles:

1. Ease of implementation.
2. Accessibility.

1. Ease of implementation

The researcher has tried to achieve this purpose by shifting the focus from the teacher who does not have sufficient qualifications for developing information skills to the student on the basis of

Maximum Student

Minimum Teacher.

Basing himself on this approach the researcher has designed a learning package program which is essentially intended for students' performing as "autonomous enquirers", and which limits the role of the teacher to a "leader from behind".

In relation to the students, the learning package program "ensures that all students get all the information" (White, 1981, p. 217) breaking it into "manageable units" which take the learners "step by step" (Berge and Pryor, 1982, p. 99) "at their own pace" (Berge and Pryor, 1982, p. 93) "from basic to more complex" through "exercises or assignments" as "follow-up" to each "idea" or "concept" (Berge and Pryor, 1981, p. 99).

In relation to the teachers, it is assumed that the learning package program which is so carefully adjusted to the students of the elementary level is very easy even for teachers without sufficient qualifications in the area of information skills, enabling them to "follow closely students' progress and readily identify areas where individuals or groups are having difficulties" (Berge and Pryor, 1982, p. 93). Moreover, it must be noted that the learning package program as a method of learning is not unfamiliar to teachers. On the contrary, teachers prefer very often to teach those subjects which are provided by workcards to subjects which are not provided by workcards (Avann, 1983, p. 101).

2. Accessibility

The learning package program is very easy material for dissemination; it can be accessed by every teacher, in every place and at every time, which is exactly what teachers need: "Accessibility to the materials" (Griffin, 1983, p. 39).

3.1.2 The learning package program

Beyond the overall philosophy of the learning package program it was important at the outset to define exactly the very immediate purpose of the learning package program as a workable tool.

The purpose of the learning package program was defined as follows:

"Enabling children in the fifth grade to locate information in books independently".

The scope of the learning package program was defined on the basis of the findings from the researcher's review of the literature in relation to locating information in books in the following areas:

Alphabetisation procedure

Locating information in the dictionary

Locating information in the encyclopedia

Locating information by reference to the table of contents and the index.

Once each one of the selected skills had been identified it was necessary to define its program objectives, instructional objectives and its performance objectives (Walker and Montgomery, 1983, p. 42) as follows:

Alphabetisation procedure

Program objective

Understanding the conceptual arrangement of the alphabetisation procedure.

Instructional objectives

1. Arranging letters in the alphabet
2. Arranging words by the use of the alphabetisation procedure.

Performance objectives

The performance objectives in relation to the first instructional objective focus on tasks such as inserting missing letters in the alphabet, correcting mistakes in a wrong alphabet and decoding codes which are based on a knowledge of the alphabet.

The performance objectives in relation to the second instructional objective focus on the arrangement of words by their first through their fourth letter.

Each of these tasks is based on the "following directions" technique and on practice including reinforcement.

The complete program of this section is included in Appendix 1 in English, and in Appendix 9 in Hebrew.

Locating information in the dictionary

Program objective

Understanding the conceptual arrangement of the dictionary for locating information in it.

Instructional objectives

Locating entry words in the dictionary and locating the appropriate information within these entry words.

Performance objectives

The performance objectives in relation to the instructional objectives focus on locating entry words and the appropriate information within these entry words concerning:

1. Words of a simple form as they are written in the dictionary without affixes; these are known as "root words" (Barnes and Burgdorf, 1974, vol. 2, p. 4; vol. 3, p. 5-6; Giladi, 1976, p. 50).
2. Words with affixes, whose affixes must be dropped before they can be located in the dictionary (Giladi, 1976, p. 50).
3. Words which may be written in the dictionary in only one of the two spellings: "modern spelling" [in Hebrew, in which vocalic letters (used in Hebrew to indicate vowels) are added ("Modern spelling", 1977, p. 342)] and "grammatical spelling" [in Hebrew, in which vocalic letters are dropped ("Grammatical spelling", 1977, p. 342)], and must therefore be attempted in both of the two spellings when the need arises (Giladi, 1976, p. 72-75).

4. Words having the same spelling, but different pointing [set of points and lines of Hebrew words to facilitate reading them, ("Pointing", 1985, p. 1717)], pronunciation and meaning; these must be located in the dictionary according to the appropriate pronunciation (Giladi, 1976, p. 44-45).
5. Conjugated verbs (in Hebrew, in which verbs change in spelling, pointing and pronunciation according to their conjugation) which must be located in the dictionary in the masculine form, in the first person singular and in the past tense (Giladi, 1976, p. 55-59).
6. Words having the same spelling and sound, but different meanings (homonyms); the appropriate meaning must be located by means of contextual clues (Giladi, 1976, p. 100-104).
7. Idioms consisting of two words; very often these are mentioned in the dictionary under only one of their main words. These idioms must therefore be located by attempting each of the two main words (Giladi, 1976, p. 94-95).

Each of these cases is based on the "following directions" technique, and on practice including reinforcement.

The complete program of this section is included in Appendix 1 in English and in Appendix 9 in Hebrew.

Locating information in the encyclopedia

Program objective

Understanding the conceptual arrangement of a multi-volume alphabetical encyclopedia for locating information in it.

Instructional objectives

1. Creating and compiling a multi-volume alphabetical encyclopedia.
2. Locating entry words in the self-made encyclopedia and locating the appropriate information within these entry words.

Performance objectives

The performance objectives in relation to the first instructional objective consist of two main tasks:

The first focuses on the arrangement of the articles in the encyclopedia by using the alphabetisation procedure.

The second focuses on the division of the encyclopedia into volumes.

Both of the two tasks are based on the "D.I.Y." technique assisted by the "following directions" technique.

The performance objectives in relation to the second instructional objective involve problem solving situations in which the students suggest topics to each other in order to locate them in their self-made encyclopedias.

The complete program of this section is included in Appendix 1 in English, and in Appendix 9 in Hebrew.

Locating information by reference to the table of contents and the index

Program objective

Understanding the conceptual arrangement of a book for the location of information in it by reference to the table of contents and the index.

Instructional objectives

1. Creating and compiling a book with a table of contents and an index.
2. Locating information in the self-made book by reference to the table of contents and the index.

Performance objectives

The performance objectives in relation to the first instructional objective consist of a chain of tasks which begin with the definition of the subject for the designed book, through locating information for it, selecting information and organizing information (including the creation of some parts of a book, especially the table of contents and the index).

All these tasks are based on the "D.I.Y." technique assisted by the "following directions" technique.

The performance objectives in relation to the second instructional objective involve problem solving situations in which students suggest topics to each other in order to locate them in their self-made books by reference to the table of contents and/or the index.

The complete program of this section is contained in Appendix 1 in English, and in Appendix 9 in Hebrew.

Reliance on alternatives to books

In spite of the fact that this research focuses on locating information in books, the researcher preferred not to base the learning package program on the use of books due to two reasons:

1. Not all the books required for the implementation of the learning package program are available to the teachers.
2. Not all the teachers will like to break off their close work with the package in favour of working with extra books.

It has been found that teachers who worked with the "Research Lab" limited themselves to the first two levels which could be answered solely by reference to the workcards (Avann, 1983, p. 101).

In view of these constraints the researcher decided to avoid problems with books, and suggested other alternatives.

Throughout the whole learning package program, the researcher used only one book, the dictionary, which was expected to be within reach of every student.

This decision to rely on alternatives to books rather than on the books themselves may leave room for the suspicion that the learning package program is not efficient, especially in light of the assumption that the more the practice situation resembles real-life reading situations, the more likely is transfer of learning to occur (Traynor, 1978, p. 50; Hyland, 1978-B, p. 35; Heather, 1984-A, p. 39). But it must be noted that the alternatives which were chosen

instead of books such as D.I.Y. technique and problem solving situations are very warmly recommended by the literature (for D.I.Y. see for example, Avann, 1983, p. 66-74; Heather, 1984-A, p. 40-41; Heather, 1984-C, p. 218. For problem solving situations see for example, Gengler, 1965; Avann, 1983, p. 72-73; Heather, 1984-A, p. 40).

Once the learning package program had been designed it was necessary to find a test for measuring its efficiency. In the next section the researcher will focus on the measuring instrument.

3.2 The design of the measurement techniques

3.2.1 The test

3.2.1.1 The shortage of appropriate tests

As a result of the recent findings in the literature about the differences between "knowing" and "doing" (see "Library lessons syndrome", section 2.2.2.2), it was not enough to ask students about the locational process of information in a book, but to put them face to face with real-life situations, e.g. with the books themselves.

Unfortunately, there is no test whatsoever which focuses on locating information in books in Hebrew, and most of the tests in English are not correspondent with real-life situations, or with what is called by Rowntree (1977, p. 162-163) "educational relevance". Most of the tests in English are of a multiple-choice nature, and it is not clear enough what they are trying to measure (Hoffman, 1962; Rowntree, 1977, p. 139; Brainard, 1978, p. 61-64; Utley, Mitchell and Philips, 1983, p. 77-81). In addition to this, many of the most famous tests of a multiple-choice nature suffer from other disadvantages. For example, the Iowa Tests of Basic Skills and the Richmond Test of Basic Skills, which is the English modified version of Iowa Tests of Basic Skills (Sayer, 1979, p. 54) are not valid enough for measuring specific skills in their sub-sections separately (Snoddy and Shores, 1969, p. 682; Stinson, 1970, p. 40;

Sayer, 1979, p. 96), which are correspondent with the skills most widely recommended by the literature.

Becker (1970, p. 90) raises the possibility that the Iowa Tests of Basic Skills are not sensitive enough to detect implications of in-depth learning.

Similar findings to Becker were obtained by Didier (1982, p. 153) in relation to the Michigan Educational Assessment Program. It seems to her that the Michigan Educational Assessment Program may not be a sufficiently sensitive or appropriate instrument to measure the effect of the library media program of high achieving students.

Even the Ohio School Library Test for measuring library skills of fourth through twelve graders, which is considered by its creator as "the only school library media test ever to be successfully validated" ("Instructional materials for purchase", 1981, p. 10) is also a test of a multiple-choice nature (Hyland, 1978-A, p. 138-145).

Taylor (1979, p. 84) criticizes the Placement-Test of the Research-Lab because it is based on the knowledge of definitions rather than on actual use of the defined skills.

Liesener (1985, p. 18) argues that research must also focus on identifying measurable indicators of program quality that are related to learners and the achievement of instructional objectives. Liesener adds that without something considerably better than what we currently have available we will continue to evaluate irrelevant facts or extremely subjective judgements of programs which can be and are extremely unfair and unrelated to program effectiveness.

Nevertheless, there is another type of test which is related to what is called by Harrison (1983, p. 24) "task-oriented tests", which deal with application of what has been learned to achieving some end rather than using it for the completion of testing exercises which show only that knowledge of the skill has been acquired.

In truth, these tests may be used as a measurable tool, and from this point of view there is room, perhaps, for criticism of their shortcomings as tests (see for example, Utley, Mitchell and Philips 1983, p. 79-81), but the nature of their contents is closer to what is known as "reading realistic tasks" (Traynor, 1978; Taylor, 1979; Neville and Pugh 1975, 1977; Neville, 1977) or "problem solving situations" (Gengler, 1965) which deal with real-life situations rather than with examinations.

Unfortunately, these tests are problematic in as much as they are a kind of "hidden test" which is related to scientific studies and is tailored to specific needs which are not always correspondent with the needs which are predominantly emphasized by the literature, as mentioned above in section 2.3.1.4 and which constitute the scope of the present learning package program.

3.2.1.2 The design of the test

Due to the fact that no available test answered the researcher's needs, he had to design a test of his own.

The test is divided into four main sections which are correspondent with the most widely recommended skills in the literature as

mentioned above in relation to the scope of the researcher's learning package program.

Section 1: Alphabetisation procedure

This section consists of two tasks. In each task the student is required to arrange seven given words using the alphabetisation procedure, whilst taking into consideration the external procedure (the procedure of the first letter) and the internal procedure (the procedure of the second through the next letter to the end of the word).

The complete text of this section of the test is contained in Appendix 2 in English and in Appendix 10 in Hebrew.

Section 2: Locating information in the dictionary

General specifications

This section consists of seven tasks. Each task is based on a sentence which includes a word or words that represent one phenomenon in the locational process of information in the dictionary. The student has to locate the appropriate definition of each of these words in the dictionary and to mention the page number of this definition in the dictionary.

Task by task specifications

Tasks 1 and 2 involve "root words".

Task 3 involves words in both "modern" and "grammatical" spelling.

Task 4 involves a word with affixes.

Task 5 involves a conjugated verb.

Task 6 involves words having the same spelling and sound, but different meanings.

Task 7 involves idioms consisting of two words.

The complete text of this section of the test is contained in Appendix 2 in English and in Appendix 10 in Hebrew.

Section 3: Locating information in the encyclopedia

General specifications

This section consists of eight tasks. Each task is based on a question which includes the name of a subject or the name of a person which represents one phenomenon in the locational process of information in the encyclopedia. The student has to locate the appropriate information on the subject or the name of the person in the encyclopedia, but has to mention only the number of the appropriate volume (in relation to a multi-volume encyclopedia) and the number of the page (or, if needed, the number of the first and the last pages of the specific information), except task 2 in which the student also has to extract an extra piece of information from the text.

All the encyclopedias which are used in this test, whether one-volume or multi-volume, are arranged by alphabetisation procedure and all of them are suitable for children, except one, in relation to task 3, which is of a more professional nature.

Each task which deals with locating information in a multi-volume encyclopedia is based on four volumes only of this encyclopedia and not on all the other volumes as well, for two reasons:

1. Lack of open space on the desk in front of the student.
2. Four volumes still leave enough room for each student to furnish evidence of competence or incompetence in locating information in a multi-volume encyclopedia.

Task by task specifications

Tasks 1 and 4 involve names of subjects of a simple form, such as the "root words" of the dictionary, without affixes or any other complications, in multi-volume encyclopedias which are general.

Tasks 2, 7 and 8 involve names of persons.

Tasks 2 and 7 are based on multi-volume encyclopedias which are general, while task 8 is based on a one-volume encyclopedia which is a subject encyclopedia.

The subject encyclopedia deals with authors of children's books.

Tasks 3 and 6 involve compound names in multi-volume encyclopedias.

The encyclopedia to be used for task 3 is a subject encyclopedia dealing with geography while the encyclopedia to be used for task 6 is a multi-volume general work.

As mentioned above the encyclopedia to be used for task 3 equally is of a more professional nature.

Task 5 involves "modern spelling" in a multi-volume encyclopedia which is of a general nature.

It must be noted that the "modern spelling" used in this encyclopedia is sometimes of a very unusual nature.
The complete text of this section of the test is contained in Appendix 2 in English and in Appendix 10 in Hebrew.

Section 4: Locating information by reference to the table of contents and the index

General specifications

This section consists of eight tasks which are related to two types of books:
The first type includes a table of contents and an index.
The second type includes a table of contents only.
In each of these tasks the student has to locate information in one of these books. The only way of locating the information efficiently in the first type of books is by reference to the index and in one case (task 5) by reference to the table of contents as well. The only way to locate the information efficiently in the second type of books is by reference to the table of contents.
As in the section dealing with locating information in the encyclopedia, here too the student is asked to mention only the page number of the appropriate information in the book, except for tasks 4 and 6 in which he is also asked to extract an extra piece of information from the text.

Task by task specifications

Tasks 1,2,4,6 involve the first type of books in which the student has to locate the information by reference to the index.

The indexes of tasks 1,2,6 are of a simple nature, consisting only of main entries and page numbers.

The book of task 4 includes a general index of a simple nature as well, but in addition to this it also includes some extra "spin offs" of this general index to illuminate specific aspects (Katz, 1982, vol. 1, p. 82).

In task 1 the book deals with our body; it is suitable for kindergarten and for the first years of schooling.

In task 2 the book deals with animals, and is suitable for the higher grades of elementary school through high school.

In task 4 the book deals with games and is suitable for elementary school and junior high.

In task 6 the book deals with geography and is suitable for high school and beyond.

Tasks 3,7,8 involve the second type of books in which the student has to locate information by reference to the table of contents only.

In task 3 the table of contents is of a very simple nature, consisting of chapter headings and page numbers.

Task 7 involves a series of books each of which has a separate table of contents with chapter headings and sub-headings.

In task 8 the table of contents consists of chapter headings and sub-headings.

Task 5 involves, in truth, the first type of book as well, and is therefore similar to tasks 1,2,4,6, but instead of locating the information in this book by reference to the index only, the student can locate the information required for the completion of this task by reference to the table of contents as well.
The complete text of this section of the test is contained in Appendix 2 in English and in Appendix 10 in Hebrew.

Marking the test

A task which was not attempted was considered a mistake.
In cases where it was necessary to extract information from the text, and the information was correct, although the other details, such as the page number or the number of volume, were wrong or missing, the answer was accepted as correct.
In cases where it was necessary to mention the page number without information from the text, and the page number was wrong or missing, the answer was considered a mistake.
In addition to the requirements mentioned above in relation to all the sections of the test, there were also extra specific criteria for the section dealing with alphabetisation procedure, as follows:
More than one mistake in the external procedure in relation to one task, or more than two mistakes in the internal procedure in relation to one task, were considered total confusion.
The marks which were achieved by the students were used by the researcher to measure the efficiency of the learning package program.

3.2.2 The experimental design of the study

The experimental design which was selected to judge the impact of the program is based on the popular design:

O_1 X O_2

O_3 O_4

(Lubans, 1981, p. 84)

In this design

> X...represent[s] the exposure of a group to an experimental variable or event, the effects of which are to be measured.
>
> O...refer[s] to some process of observation or measurement.
>
> The X... and O_n in a given row are applied to the same specific persons.
>
> The left-to-right dimension indicates the temporal order, and X... and O_n vertical to one another are simultaneous (Campbell and Stanley, 1969, p. 6).

On the basis of this code O_1 and O_2 represent pre and post tests taken by an experimental group which is also exposed to a treatment (X) such as the learning package program of this study, while O_3 and O_4 represent pre and post tests (the same as of O_1 and O_2) taken by a control group which is not exposed to the treatment (X) mentioned above such as the learning package program or to any other treatment of this kind (Nachmias and Nachmias, 1986, p. 36).

The only variable by which the two groups are distinguished is the treatment which is concerned with the test group only. Thus, if

there is a difference in the behaviour of the two groups, between the first measurement (O_1 vs. O_3) and the second measurement (O_2 vs. O_4), it may be attributed to the treatment, or in the case of this study, to the learning package program (Yaziv and Eizenbach, 1972, p. 174; Press and Yaziv, 1980, p. 80).

Campbell and Stanley (1969, p. 13) distinguish between two versions of this design:

1. "The pretest-postest control group design", in which equivalent groups as achieved by randomization are employed.
2. "The nonequivalent control group design", in which extant intact comparison groups of unassured equivalence are employed.

In this research which consists of a program and of a test of real-life situations, it is only natural to use version 2, "the quasi experimental design" (Campbell and Stanley, 1969, p. 13), in which

> the groups constitute naturally assembled collectives such as classrooms, as similar as availability permits but yet not so similar that one can dispense with the pretest (Campbell and Stanley, 1969, p. 47).

3.2.3 Statistics

The goal of the statistical analysis of this study is to establish whether or not the differences between the selected test and control groups in pre and post tests are significant (SPSS, 1975, p. 267), i.e. if they are big enough to signify real or true differences between the two populations from which the samples are derived (SPSS, 1975, p. 267; Rowntree, 1984, p. 107). In practice, a level of significance of 0.05 or 0.01 is customary (Spiegel, 1972, p. 168) which means that there is 5% or less probability that the differences which are identified by the sample occurred by chance.

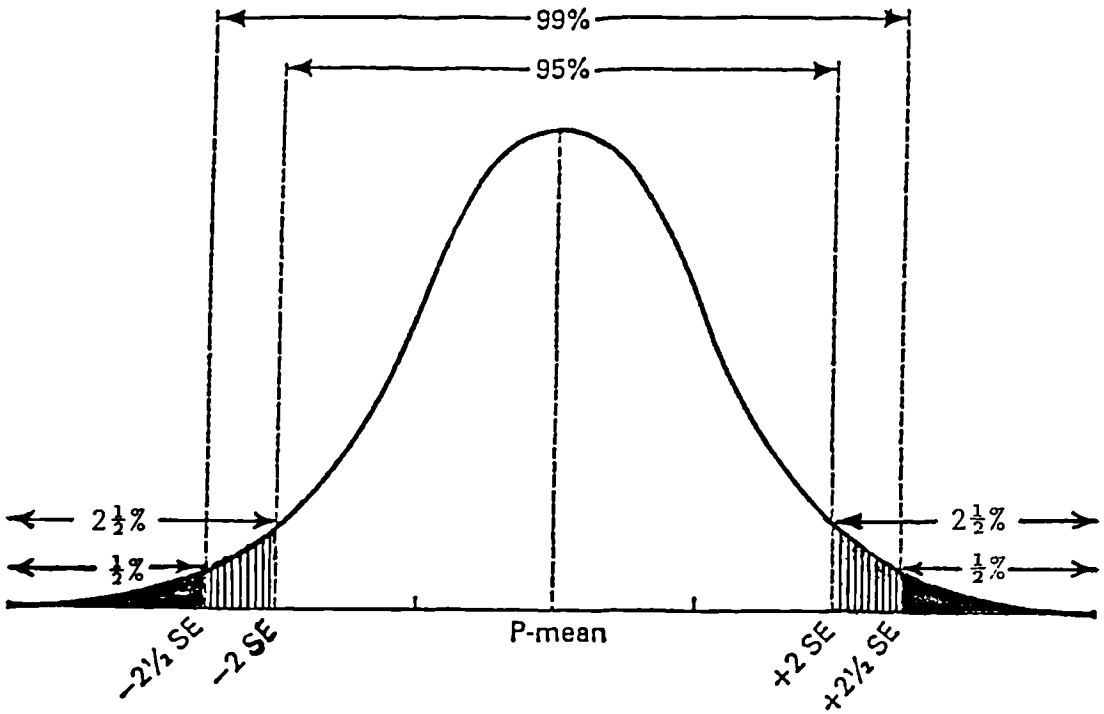
The test which was selected to give such answers is the "t" test:

> The test provides the capability of computing student's "t" and probability levels for testing whether or not the difference between two sample means is significant (SPSS, 1975, p. 267).

It is achieved by translating the observations of both distributions of the achievements of the test and the control groups of the sample into "t" values (Rowntree, 1984, p. 81; 139).

The "t" values are measured by standard errors of the differences between means (SE-diff) of the sample (Rowntree, 1984, p. 90, 110, 139-140).

Bearing in mind that each value of SE-diff ("t" value) reflects proportions of the normal curve, i.e. of the real population, as illustrated by the following diagram,



Based on Rowntree (1984, p. 98, 115, 135, 139-140)

the point where the critical regions begin (e.g. 2 SE-diff = 5% or 2 $\frac{1}{2}$ SE-diff = 1%, for two tailed tests) can be calculated (Rowntree, 1984, p. 139).

The "t" test also takes into consideration the size of the sample (Spiegel, 1972, p. 191).

Two versions of the "t" test

There are two versions of the "t" test.

The first is a "t" test for independent samples.

The second is a "t" test for paired samples.

While the first compares between two groups whose observations are selected independently, the second compares between two groups whose observations are paired (SPSS, 1975, p. 267-271).

Once this study deals with independent samples only the first version is appropriate. The first version was used for this study.

3.3 "Locally based research"

Once the measurement devices were designed, the researcher was ready to start a "locally based research" to validate the efficiency of his program (Loertscher, 1982-C, p. 110; see also section 2.2.3.1).

3.3.1 Sample

The sample was based on two selected populations of fifth graders in two different elementary schools in Israel. The one is "Herzel School" in Haifa, which represents the higher socio-economic status of the sample, and the other is "Zur Shalom School" in Kiriat-Bialik, near Haifa, which represents the lower socio-economic status of the sample.

The reason for the selection of this sample was to learn about the efficiency of the learning package program in two populations of contradictory abilities which would sharpen as much as possible the dimensions of the influence of the learning package program on better students and on weaker ones respectively. In order to obtain the appropriate populations the researcher applied to the Office of the Ministry of Education and Culture in Haifa, the city in which he lives, and was referred to one of the inspectors of elementary schools in Haifa and Northern Israel. This inspector referred the researcher to two elementary schools. The first was "Herzel School" which was described by him as a school of higher socio-economic status with students who were described by him as "normal" and "established" in their learning achievements.

The other was "Zur Shalom School" which was described by him as a school of lower socio-economic status with students described by him as having difficulties with their studies.

The inspector emphasized the relationship between students' achievements and their socio-economic status and thereby assessed the findings of many researches which were done in Israel and which equally emphasized the relationship between students' achievements and their socio-economic status (Algarbli, 1975, p. 220; Peled, 1976, vol. 1, p. 273-278; Stahl, 1977).

3.3.1.1 " Herzel School"

3.3.1.1.1 Catchment area

Haifa is the third largest city in Israel (after Tel-Aviv and Jerusalem). Haifa has a population of 350,000 including the peripheral suburbs; it is located in the northern part of Israel, on the Mediterranean sea shore. It can be divided into three main strata:

The lower stratum along the sea shore and slightly uphill on the slopes of Mt. Carmel, which includes the port, a commercial center and the Arab population.

The intermediate stratum, on the slopes of Mt. Carmel, which consists of the first mainly Jewish settlement in Haifa and includes another commercial center.

The higher stratum on the plateau of Mt. Carmel, which consists of the modern settlement of Haifa.

3.3.1.1.2 The nature of the high socio-economic status

"Herzel School" is located on the plateau of Mt. Carmel, in the heart of the modern settlement of Haifa, and it represents the high socio-economic population of this study.

Some characteristics of this high socio-economic status are specified in relation to the two selected classes of "Herzel School", as follows:

Preliminary information

Number of students in each of the two classes			
Class	Girls	Boys	Total
5th class 1	18	22	40
5th class 2	19	21	40

Demographic information

The demographic information on the students of the two selected classes of "Herzel School" was provided by the secretary, and the researcher was allowed to use it only after receiving permission from the headteacher. The information on the existence of this file and the permission to extract the demographic information from it were given to the researcher by the headteacher of "Herzel School" through his interview with him (see "Outline for interview with headteacher", Appendix 3 in English and Appendix 11 in Hebrew).

Demographic information

Demographic items		5th class 1	5th class 2
Student's country of origin	Israel	37	39
	Other	3	1
Father's country of origin	Israel	24	25
	Other	16	15
Mother's country of origin	Israel	28	23
	Other	12	17
Mother's and/or father's country of origin	Israel	30	33
	Other	10	7
Language spoken at home	Hebrew	38	37
	Other	2	3
Father's education	Years of schooling		
	0-11	1	4
	12 and above	39	36
Mother's education	Years of schooling		
	0-11	2	3
	12 and above	38	37
Father's occupation			
"Blue collar" (unskilled labourer)		3	3
"White collar"		37	37
Mother's occupation			
Housewife		11	10
"Blue collar" (unskilled labourer)		2	2
"White collar"		27	28

Virtually all the students were born in Israel.

More than 50% of their parents were also born in Israel and 75% of the students had at least one parent who was born in Israel.

The language spoken at home was almost entirely Hebrew.

Almost all mothers and fathers had completed secondary education (12 years of schooling) and above.

Father's occupation was virtually totally related to the "White Collar" population, and the tendency among the mothers who were not housewives was to be equally related to the "White collar" population.

Abilities

As an outsider to the educational context of this school, the researcher was not permitted to access information about the abilities of the students on a personal basis.

All that he could obtain was information of a very general nature about the two groups as a whole. According to this information the two groups were expected to be similar to each other in their abilities, with each of the two groups consisting of good, intermediate and weak students.

The information about the abilities of the students of the two selected classes of "Herzel School" was provided to the researcher through his interview with the two class teachers of these two classes (see "Outline for interview with class teacher", Appendix 4 in English and Appendix 12 in Hebrew).

3.3.1.1.3 The overall nature of the school

Although "Herzel School" is located in a very beautiful area on the open plateau of the modern settlement on Mt. Carmel, it consists of two big buildings which evoke a claustrophobic feeling. According to the information which the researcher obtained about the overall nature of "Herzel School" through his interview with the

headteacher (see "Outline for interview with headteacher", Appendix 3 in English and Appendix 11 in Hebrew):

- The two buildings are populated by 800 students! 35 teachers! and include 20 classes!
- In each class there are approximately 40 students who are sitting in the traditional way in front of the teacher in 4 rows of 5 double seats.
- The nature of the teaching in general is frontal, didactic and class-based rather than informal and child-centered.

3.3.1.1.4 Teachers' attitudes towards locating information in books by their students.

In order to collect data about teachers' attitudes towards locating information in books by their students in the two selected classes of the fifth grade in "Herzel School", the researcher decided to interview the class teachers of these two classes (see "Outline for interview with class teacher", Appendix 4 in English and Appendix 12 in Hebrew).

At first glance there is room for suspicion that one single teacher should be allowed to represent the attitude of all the other teachers of the class, but in Israel the class teacher in elementary school teaches most of the subjects taught in her or his class and she or he is, moreover, the main "address" to which her or his students turn (Peled, 1976, p. 281-288)). This fact was reconfirmed during the interview which the researcher had with the two class teachers of "Herzel School". In addition to this, it was found that

the subjects which were not taught by them were sports, handi-crafts and music, which may be considered as irrelevant to the nature of this study.

From the responses of these two class teachers in "Herzel School" it seems that the teachers encourage their students to locate information in books for their homework.

According to these responses they sometimes refer their students to a specific page in a book, and sometimes they refer the students to a book without specifying the appropriate page number.

On the basis of their recommendations for additional reading it was found that the two class teachers focus almost exclusively on encyclopedias, in addition to some emphasis on geographical atlases and Bible Commentaries.

3.3.1.1.5 Libraries

The following description of the libraries of "Herzel School" is essentially based on the information which the researcher obtained through his interview with the teacher-librarian of "Herzel School" (see "Outline for interview with teacher-librarian", Appendix 5 in English and Appendix 13 in Hebrew) and partly on the researcher's own impressions through his visits to these libraries.

A centralized library of reference books

A library of reference books is located in a special room which, in addition to its shelves and books, also includes tables and seats for students using the books.

The books are arranged by subjects which are distinguished by different colours. A book with two main subjects is bought in two copies which are located under the two appropriate colours.

The library has no catalog.

The end responsibility for this library rests with a teacher-librarian who is doubly qualified, possessing library qualifications as well as educational qualifications.

As in the U.K., this teacher-librarian is provided with very few hours, i.e. only six hours a week, four of which are allocated to two of the four afternoons on which the library is open for preparing homework (on the other two afternoons the services are provided by other teachers who have no library qualifications) whilst two of them are allocated for all other jobs!

The teacher-librarian admitted that most of the work is carried out by her on a voluntary basis. The books are carefully kept and they include many new titles!

In total, this library includes 2000 copies.

The library is open to every student in "Herzel School" four days a week after the school day, in the afternoons, for only two hours, from 15:00 to 17:00.

During the school day the library is open for organized visits only, on the basis of the whole class with its class teacher, but the teacher-librarian is not in attendance.

A centralized library of fiction books

A library of fiction books is located in a special room used only for lending services.

The books are arranged by alphabetisation procedure on open shelves.

The lending services are provided by mothers on a voluntary basis, under the supervision of the teacher-librarian who also has the end responsibility for this library.

The books are carefully kept and they include many new titles.

In total, this library includes 3000 copies.

The library is open to every student from third grade through sixth grade, during the school day, from 8:30 to 11:30.

Classroom libraries

Each of the first and of the second grades has a classroom library of approximately 100 fiction books which are borrowed frequently, by the classroom teacher, from the central library of fiction books.

These books are kept in a locked cupboard inside the classroom, and once a week, generally on Fridays, the class teacher organizes the lending procedures for the students.

3.3.1.1.6 Students and libraries

In order to collect data about the habits of the students of the two selected classes of "Herzel School" in using libraries for locating information in books, the researcher designed a questionnaire for the students (see "A questionnaire for the student

about the use of libraries to locate information in books", Appendix 6 in English and Appendix 14 in Hebrew).

The first three questions of the questionnaire focus on the use of the school library, the public library and the friends' and neighbours' libraries (private collections) for locating information in books.

The fourth question focuses on the reference books which are available in the students' own libraries (private collections).

The questionnaire is based principally on closed questions each of which consists of only two alternatives, so that the student has to tick the alternative which is relevant to her or him.

On the one hand, this procedure helps the students answer the questions, and on the other hand it helps the researcher compare the answers as well (Press and Yaziv, 1980, p. 70). In truth, in question four the students are free to list the reference books of their own private libraries and this question might therefore also be considered as an open question, but on the other hand it limits them to their own specific collections and "narrows in this way in advance the repertoire of the[ir] possible responses" (Press and Yaziv, 1980, p. 69).

The questionnaire was administered by the researcher. Before the questionnaire was answered by the students the researcher read them the whole text of the questionnaire, explained how to tick the relevant answers, and answered all their questions.

However, the fourth question which required the students to list the reference books in their own libraries was answered at home, while

the other three questions were answered in the classroom under the supervision of the researcher.

From the responses of the students of the two selected classes in "Herzel School" the researcher has collected the following findings:

Type of library	Use	5th class 1	5th class 2
School library	yes	6	0
	no	34	40
Public library	yes	1	0
	no	39	40
Friends' and neighbours' libraries (private collections)	yes	8	8
	no	32	32

As shown in this table, most students do not use the school library and the public library, and only a few use their friends' and/or neighbours' libraries (private collections).

The only possibility available to these students to locate information in books is limited to the use of their own libraries (private collections) at home.

From the responses of the students of the two selected classes in "Herzel School" about their private libraries (private collections) the researcher obtained the following information about their reference books:

Type of reference book	5th class 1		5th class 2	
	Total	Average per student	Total	Average per student
Dictionary	40	1.0	39	0.97
Encyclopedia	84	2.1	80	2.0
Other reference books	57	1.4	73	1.8

In truth, in relation to the dictionary, once all the students have their own dictionaries, hopefully, "good standard" ones, (Shores and Snoddy, 1978, p. 126) "at hand" (Davies, 1979, p. 488), and even if it is the only one they possess, they are expected to be covered by their own collections. But in relation to encyclopedias and other reference books, it is not sure at all that they can rely on their collections in all circumstances.

In relation to encyclopedias, there is no guarantee that even two formats are enough for covering the whole spectrum of their information needs during the elementary years of schooling, and the average of one or two extra sources of reference books compared with the variety of subjects which are studied through elementary education, is obviously of no consequence.

Discussion

A very big question mark surrounds the whole area of locating information in books in the selected classes of "Herzel School". It is true, on the one hand, that the students are surrounded with

libraries and books and are encouraged, according to their teachers, to locate information in books, but on the other hand these students do no at all use their school library for this purpose, nor do they use the public library, in addition to the fact that their own collections are of a very limited nature. And if we bear in mind the traditional nature of teaching in "Herzel School", the question mark mentioned above is liable to become even bigger.

3.3.1.2 "Zur Shalom School"

3.3.1.2.1 Catchment area

Zur Shalom is a new suburb in the northern part of Kiriat-Bialik, a small town with a population of 30,000, near Haifa, along the northern part of Haifa Bay.

In contrast to the mountainous nature of Haifa, Zur Shalom is located on the open plains, very far from the center of Kiriat-Bialik - as it were a separate area.

This feeling of separation is not only of a geographical nature, but of a socio-economic nature as well. In contrast to the more established population in the center of Kiriat-Bialik, Zur Shalom was designed as a reception area for new-comers from Eastern Europe, North Africa and the Middle Eastern Countries. The population in Zur Shalom consists mainly of persons of low socio-economic status, although there are also some people of high socio-economic status.

3.3.1.2.2 The nature of the low socio-economic status

"Zur Shalom School" is located in the open plains of Zur Shalom, in the heart of the new-comer population, and represents the lower socio-economic status in this study.

Some characteristics of this low socio-economic status are specified in relation to the two selected classes of "Zur Shalom School" as follows:

Preliminary information:

Number of students in each of the two classes			
Class	Girls	Boys	Total
5th class 1	17	13	30
5th class 2	16	14	30

Demographic information

As in "Herzel School", the demographic information on the students of the two selected classes of "Zur Shalom School" was obtained through students' personal file which was kept by the secretary, and the researcher was allowed to use it by permission of the headteacher only. The information about the existence of this file and the permission to extract information from it were given to the researcher by the headteacher of "Zur Shalom School" through his interview with him (see "Outline for interview with headteacher", Appendix 3 in English and Appendix 11 in Hebrew) in the same way as in "Herzel School".

Demographic information

Demographic items		5th class 1	5th class 2
Student's country of origin	Israel	18	18
	Other	12	12
Father's country of origin	Israel	1	3
	Other	29	27
Mother's country of origin	Israel	3	1
	Other	27	29
Mother's and/or father's country of origin	Israel	4	4
	Other	26	26
Language spoken at home	Hebrew	15	15
	Other	15	15
Father's education	Years of schooling		
	0-11	23	22
	[0-8]	[14]	[13]
	12 and above	7	8
Mother's education	Years of schooling		
	0-11	21	21
	[0-8]	[8]	[13]
	12 and above	9	9
Father's occupation			
"Blue collar" (unskilled labourer)		23	24
"White collar"		7	6
Mother's occupation			
Housewife		17	22
"Blue collar" (unskilled labourer)		9	5
"White collar"		4	3

In truth, many students in the two selected classes of "Zur Shalom School" were born in Israel (60%), and in relation to this parameter there is a certain kind of similarity between the two schools.

But, in relation to the other parameters, the tendencies in "Zur Shalom School" are as yet quite different from those of "Herzel

School", as follows:

Almost all the parents were born abroad, in North Africa, in the Middle East, and in Eastern Europe, and only very few (13%) had at least one parent who was born in Israel.

Approximately half of the students still speak languages other than Hebrew at home.

Most of the parents did not complete their secondary education (12 years of schooling) and almost half of the fathers and slightly fewer of the mothers only completed elementary education (8 years of schooling) or did not even complete this lowest level of education either.

The father's occupation in the majority of cases is "blue collar" and almost all of them are unskilled labourers while only a few are included in the "white collar" population.

Most of the mothers are housewives and only a very few are included in the "white collar" population.

Abilities

As the researcher was an outsider to the educational context of this school, the information about the abilities of the students on a personal basis was kept from him.

All that he could obtain was information of a very general nature about the two groups as a whole.

According to this information the two groups were expected to be similar in abilities, and each of the two groups consisted of good, intermediate and weak students.

The information about the abilities of the students of the two selected classes of "Zur Shalom School" was provided to the researcher through his interview with the two class teachers of these two classes (see "Outline for interview with class teacher", Appendix 4 in English and Appendix 12 in Hebrew) in the same way as in "Herzel School".

3.3.1.2.3 The overall nature of the school

"Zur Shalom School" is located in the very heart of "Zur Shalom" center, and its many small buildings spread out into the open plains, surrounded by meadows and trees, and the feeling is of a pastoral nature.

According to the information which the researcher obtained about the overall nature of "Zur Shalom School" through his interview with the headteacher of this school (see "Outline for interview with headteacher", Appendix 3 in English and Appendix 11 in Hebrew):

- This school is populated by 500 students and 40 teachers, and includes 20 classes.
- In each class there are 30 students, or less, who are sitting in front of the teacher in 4 rows of 4 double seats.
- The nature of the teaching in general is frontal, didactic and class-based rather than informal and child-centered, although there is some emphasis from time to time on informal approaches too.

3.3.1.2.4 Teachers' attitudes towards locating information in books by their students

In order to collect data about teachers' attitudes towards locating information in books by their students in the two selected classes of the fifth grade in "Zur Shalom School", the researcher decided to interview the class teachers of these two classes (see "Outline for interview with class teacher", Appendix 4 in English and Appendix 12 in Hebrew) in the same way as in "Herzel School". The two class teachers, like the ones in "Herzel School", taught most of the subjects in their classes except of those which may be considered as irrelevant to the nature of this study, such as sports, handi-crafts and music.

From the responses of the two class teachers of the two selected classes of "Zur Shalom School" it is revealed that their policy towards locating information in books by their students is very similar to the policy of their colleagues in "Herzel School": it seems that they encourage their students to locate information in books for their homework; sometimes they refer their students to a specific page in a book, and sometimes they refer the students to a book without specifying the appropriate page number, and they focus almost exclusively on encyclopedias in addition to some emphasis on atlases of geography and Bible Commentaries.

3.3.1.2.5 Libraries

The following description of the libraries of "Zur Shalom School" is essentially based on the information which the researcher

obtained through his interview with the teacher-librarian of "Zur Shalom School" (see "Outline for interview with teacher-librarian", Appendix 5 in English and Appendix 13 in Hebrew) and partly on the researcher's own impressions through his visits to these libraries, in the same way as this was done in relation to "Herzel School".

A centralized library of reference books

A centralized library of reference books is located in a special room which, in addition to its shelves and books also includes tables and seats for students using the books; herein it resembles "Herzel School".

The books are arranged according to subjects which are grouped under different colours. A book dealing with two main subjects is not bought in two copies which are located under the two appropriate colours, but is kept in one copy only which is located under a third kind of subject based on a combination of the two main subjects covered by this book.

The library has no catalog.

The end responsibility for this library rests with a teacher-librarian who has educational qualifications, but lacks library qualifications.

In contrast to "Herzel School" the teacher-librarian in "Zur Shalom School" is allowed many more hours to run the library. In total, the teacher-librarian has sixteen hours a week: four to prepare subjects for "library periods" and maintain the library with the help of

students, and twelve hours for "library periods" in collaboration with the class teachers.

The books are in good condition, and include many new titles.

In total, this library, has 1000 copies.

The library is open to every student of "Zur Shalom School". It is open every day, but on the basis of pre-arrangement with the teacher-librarian, because the library is frequently occupied when classes come in to have their "library periods".

According to the information supplied by the teacher-librarian each class of the third through sixth grades has a "library period" once a week.

It is regrettable that this wonderful library is not open in the afternoons, after the school day, enabling students to do their homework there.

A centralized library of fiction books

A centralized library of fiction books is located in a special room which was designed for lending services only.

The books are arranged according to subjects, each of which is sub-divided according to grade level and within each grade level the books are arranged by alphabetical procedure and are kept on open shelves.

The end responsibility for this library rests with a librarian of the public library of Kiriat-Bialik. For half of the week she works during the school day and for the rest of the week she works in the afternoons.

During the school day the lending services are organized on the basis of visits of the whole class, being "extra library periods" in addition to those which are offered in the centralized reference library.

In the afternoons the lending services are based on individual service for those who want to borrow books more than once a week. This service in the afternoons is based on students' payments.

The books are in good condition and there are many new titles.

In total, this library has 1000 titles.

Classroom libraries

Each of the first through sixth grades has a classroom library of approximately 30 fiction books, which are gifts provided by a special fund and donations from parents. These books are located in each classroom on an open shelf. Each student has a personal card showing the name of the books which he reads, and the class teacher organizes the lending services.

A pedagogical library

In addition to the three types of libraries described above, there is a further type of library of 300 reference books and audio-visual aids for teachers.

One of the teachers is in charge of this library, this being her extra job.

3.3.1.1.6 Students and libraries

In order to collect data on the habits of the students of the two selected classes of "Zur Shalom School" in using libraries for locating information in books, the researcher used the same students' questionnaire (see "A questionnaire for the student about the use of libraries to locate information in books", Appendix 6 in English and Appendix 14 in Hebrew) as that which was used for the same purpose in "Herzel School".

The questionnaire was administered by the researcher, as in "Herzel School".

From the responses of the students of the two selected classes in "Zur Shalom School" regarding their habits in using libraries for locating information in books, the researcher has collected the following findings:

Type of library	Use	5th class 1	5th class 2
School library	yes	0	0
	no	30	30
Public library	yes	4	0
	no	26	30
Friends' and neighbours' libraries (private collections)	yes	12	16
	no	18	14

As illustrated in this table the majority of students use neither the school library nor the public library in parallel to their friends in "Herzel School".

In truth there are more students in "Zur Shalom School", nearly half of them, who use their friends' and/or neighbours' private libraries (private collections), but the only possibility left to the other

half of them to locate information in books is limited to the use of their own libraries (private collections) at home.

From the responses of the students of the two selected classes in "Zur Shalom School" regarding their private libraries (private collections) the researcher has gathered the following information on their reference books:

Type of reference book	5th class 1		5th class 2	
	Total	Average per student	Total	Average per student
Dictionary	30	1.0	30	1.0
Encyclopedia	44	1.46	39	1.3
Other reference books	34	1.13	27	0.9

From this table it is revealed, in truth, that in relation to the dictionary, they are expected to be covered by their own collections, in parallel to their friends in "Herzel School", but in relation to other reference books the average per student is even lower here.

Discussion

In "Zur Shalom School", as in "Herzel School", a very big question mark surrounds the whole area of locating information in books.

On the one hand, the students are surrounded with books and libraries and they are encouraged, according to their teachers' claims, to locate information in books, but on the other hand, these

students do not use their school library for their homework, all the more so because it is closed in the afternoons, nor do they use the public library, while their own collections are of a very limited nature. In addition to this, if we bear in mind the traditional nature of teaching in "Zur Shalom School", the question mark mentioned above is liable to be even bigger.

It seems that at this stage, the best move would be to study the real situation in regard to the students' performance in locating information in books in both of the schools, applying the measurement instrument and administering the treatment of the learning package program.

3.3.2 Procedures for the administration of the treatment and the test

3.3.2.1 Selecting the test and the control groups

It was decided in consultation with the class teachers that the fifth class 1 of each of the two schools would be selected as the test group, and that the fifth class 2 of each of the two schools would be selected as the control group.

3.3.2.2. Designing the collaboration between the teachers and the researcher

It was decided in consultation with the class teachers of the selected groups in each one of the two schools that the class teachers of the test groups would make some changes in their timetable in order to work side by side with the researcher in the implementation of the treatment.

In relation to the administration of the test, there was no need for any substantive involvement of the class teachers, and it was decided that the researcher should carry it out by himself. If some help of a technical nature were needed it was to be provided by the teacher who would happen to be present when a particular section of the test was being administered.

3.3.2.3 Testing administration

Reducing stress

It was decided that each of the four sections of the test (alphabetisation procedure, locating information in the dictionary, locating information in the encyclopedia and locating information in books by reference to the table of contents and the index) would be administered separately on a different day in order not to stress the students heavily by exposing them to more than one section.

Securing the testing procedures

Although Campbell and Stanley (1969, p. 14) say that "the pre test post test control group design" calls for "simultaneous experimental and control sessions", it was impossible under the circumstances to follow this recommendation, because the researcher preferred to administer each section of the test by himself, to secure its procedures to the possible maximum. As a result of this decision the researcher was obliged to carry out each section of the test in each of the test and control groups of each of the two schools in a different session. To reduce the gap between the two sessions to the minimum, it was decided that each of the test or control groups which was designed to be the second to be tested on a specific section, would be tested immediately in the next period. This solution was moreover useful in preventing the students of the test and the control groups in each of the two schools from discussing the test during the interval between the two sessions.

Linking the post test to the treatment

It was decided that each section of the post test should be carried out in the test and control groups of each of the two schools on the next day after the completion of the identical section of the treatment by the test group.

It is true that the closeness of the post test to the treatment prevents the measurement of retention of the skills in perspective of time. But the researcher's purpose was of a very basic nature. He intended to learn about the immediate practical impact of the learning package program in order to know if it was in principle possible, workable, relevant and efficient in real-life situations. Measuring the retention of skills in perspective of time involves an extra kind of study which is beyond the scope of the current one.

3.3.2.4 Designing the timetable of the study

Pre test

Based on the decisions mentioned above, it was agreed that each section of the pre test be carried out on a different day of the first week of the study in the two schools.

The complete timetable of the pre test in relation to each of the two schools is specified in Appendix 7.

Treatment and post test

It was decided that the treatment and the post test should start the week following the completion of the four sections of the pre test in the first week.

The complete timetable of the treatment and the post test in relation to each of the two schools is specified in Appendix 7.

3.3.3 The implementation of the treatment and the test

All the sections of the test and the treatment were carried out according to the timetable mentioned above.
Most of the information about the test and the treatment has already been specified earlier in this chapter and in the Appendixes. Henceforth the researcher intends to focus only on those areas which were derived from the implementation itself and have not yet been discussed elsewhere in this study.

3.3.3.1 Pre test

Section 1: Alphabetisation procedure

All the instructions in relation to this section of the pre test are included in both of the two tasks concerning this section, and there was no procedural problem in carrying out this section.
Most students in "Herzel School" completed this section in ten to fifteen minutes whilst some required even less time, whereas the majority of students in "Zur Shalom School" completed this section in fifteen minutes and some even asked to be allowed more time.

Section 2: Locating information in the dictionary

The pre test of this section was based on the location of information in the dictionary and it was important that each student should work individually with his own dictionary. In spite of the fact that each student was expected to possess the pocket dictionary

for school children, most students did not own a copy, and a few days before the administration of the pre test the researcher had to collect forty dictionaries from the selected sample and from other classes as well in both of the two schools to ensure that each student be tested individually, using his own dictionary.

It must be noted that the absence of pocket dictionaries, that is, the fact that most of the students had no dictionaries of their own, extended the question mark mentioned above in relation to the location of information in books by the students in both "Herzel School" and "Zur Shalom School".

Apart from this one problem there were no other difficulties. All the instructions were included at the beginning of this section of the pre test and in relation to each task specifically.

Most students in "Herzel School" completed this section in thirty to forty minutes, while many students of "Zur Shalom School" completed this section in thirty five to forty five minutes, and some even asked to be allowed more time.

Section 3: Locating information in the encyclopedia

In this section of the test the procedure was rather unusual. As the researcher pointed out above, the students in both "Herzel School" and "Zur Shalom School" were seated in front of the teacher in 4 rows of double seats (in "Herzel School" 5 double seats and in "Zur Shalom School" 4 double seats) which also make 8 rows of single seats (in "Herzel School" 5 single seats and in "Zur Shalom School" 4 single seats).

On each of the eight rows of single seats, copies of the same volume (if it was a one-volume encyclopedia), or, of the same set of volumes (if it was a multi-volume encyclopedia) were distributed according to the number of single seats in each row (in "Herzel School" 5 copies in each row and in "Zur Shalom School" 4 copies in each row).

On each row of single seats the copies were different from those of the other rows of single seats, and in total, 8 different volumes, or set of volumes, were used, in parallel to the 8 tasks of this section.

At the beginning of the session, each student found one copy of the 8 volumes or of the set of volumes on his desk, as well as a copy of this section of the test. The copies of the volumes were not distributed in correspondence with the order of their involvement in the tasks of the respective section of the test, and each student had first of all to match between the title of the specific volume or the specific set of volumes on his desk and the appropriate task which was represented by the same title, and if the task involved a multi-volume encyclopedia, by the same set of volumes as well.

Afterwards, he had to follow the directions relating to the task and to locate the appropriate information in the volume or the set of volumes on his desk in only 4 minutes.

After 4 minutes all the students were asked to stop working on their specific tasks, to take with them the copy of this section of the test and to move to the left seat of the row next to them, where they found another volume or set of volumes in front of them.

This procedure was repeated 8 times, in parallel to the number of tasks, and at the end of this "tour" each student was expected to have completed the whole section of the test.

Because of the unusual procedure, the test lasted 55 instead of only 32 minutes (8 tasks X 4 minutes).

It must be noted that most students in "Herzel School" completed many tasks of this section in two to three minutes while most students of "Zur Shalom School" completed many tasks in four minutes, and some even asked to be allowed more time.

Section 4: Locating information in books by reference to the table of contents and the index

The procedure governing this section of the test was very similar to the procedure outlined above in relation to locating information in the encyclopedia, apart from the differences which are related to the differences between the types of sources.

On each of the eight rows of single seats, copies of the same book, or, of the same set of books (if it was a series), were distributed, according to the number of single seats in each row.

On each row of single seats the copies were different from those of the other rows of single seats, and in total, 8 different books or sets of books were used, in parallel to the 8 tasks of this section.

At the beginning of this session each student found one of the 8 books or set of books on his desk, in addition to a copy of this section of the test.

The copies of the books were not distributed in correspondence with the order of their involvement in the tasks of this section of the test, and each student had first of all to match between the title of the specific book or the specific series which was in front of him and the appropriate task which was represented by the same title of the book or of the series.

Afterwards he had to follow the directions relating to the task and to locate the appropriate information in the book or in the series in only 4 minutes.

All the other procedures in relation to the "tour" were identical to those governing locating information in the encyclopedia.

This section of the test, too, lasted 55 minutes.

It must be noted that most of the students of "Herzel School" completed many tasks of this section in two to three minutes, while most of the students of "Zur Shalom School" completed many of these tasks in four minutes, and some students even asked to be allowed more time.

3.3.3.2 Treatment and post test

During the second through the fourth week of the study conducted in the two selected schools the treatment and the post test which followed were implemented according to the designed timetable.

3.3.3.2.1 Treatment

Generally speaking, most students had no procedural problems with the learning package program, and whenever a student

encountered difficulties in carrying out his or her tasks, the class teacher or the researcher answered his or her questions on an individual basis.

In addition to this the students were encouraged to ask for help whenever the need arose (Stinson, 1970, p. 51) and no problems of any kind whatsoever were allowed to stand (Stinson, 1970, p. 52).

Workbook 1: Alphabetisation procedure

(See "Workbook 1", Appendix 1 in English and Appendix 9 in Hebrew).

"Herzel School" (High socio-economic status)

Most students, in fact almost all of them, did not need any help with the treatment of this workbook, completing it in one hour, while the rest of the students completed it in one and a half hours maximum. When a student completed this section of the learning package program he submitted his workbook to the class teacher or to the researcher. If the last task of this section of the treatment, which was based on the same conceptual framework of this section of the test was correct, the class teacher and the researcher accepted his workbook as completed. If the class teacher and the researcher spotted mistakes, they discussed them with the student and then suggested that he or she should refer once more to the appropriate sub-section in the workbook, where the point on which he or she was wrong, was explained and illustrated. Most of those students, who were referred to the workbook once again in order to rectify the faulty tasks, completed this workbook successfully. Those who had

left mistakes without correcting them, discussed them once more with the class teacher or with the researcher until they, too, understood how to solve the problem, according to the principle: problems of any kind should not be allowed to stand.

"Zur Shalom School" (Low socio-economic status)

In "Zur Shalom School" the class teacher and the researcher had to spend more time with some students. In many cases the last task of the workbook, which reflected the conceptual framework of this section of the test, was not completed correctly, and the class teacher and the researcher had to make much more of an effort trying to help compared with the help which was given in "Herzel School", especially in relation to the "internal procedure".

But the class teacher and the researcher did not allow problems of any kind to stand.

In "Zur Shalom School" most students completed the workbook in one and a half hours, and some students were left with the researcher for an extra half hour.

Workbook 2: Locating information in the dictionary

(See also "Workbook 2", Appendix 1 in English and Appendix 9 in Hebrew).

"Herzel School" (High socio-economic status)

In "Herzel School" many students did not need help with the treatment of this workbook, completing it in two hours, while the

rest of the students completed it in two and a half hours. However, this workbook was more difficult for the students than the workbook of the alphabetisation procedure, and the last task of this section of the treatment which reflected here, too, the conceptual framework of this section of the test, was not completed correctly by a number of students, especially in relation to conjugated verbs and words having the same spelling and sound, but different meanings.

On the same basis as the previous section of the treatment, the class teacher and the researcher discussed the faulty tasks with each student individually and afterwards he or she was referred for extra practice to the appropriate sub-section in the workbook, where the point on which he or she was wrong was explained and illustrated. Most of those students, in fact almost all of them, who were asked to attempt once again their faulty task completed this workbook successfully. Those who had left mistakes without correcting them, discussed them once again with the class teacher or with the researcher until they, too, understood how to solve their problems.

"Zur Shalom School" (Low socio-economic status)

Many students in "Zur Shalom School" found this workbook more difficult than the workbook of the alphabetisation procedure, and some of them needed more help when completing it. In the last task too, which reflected the conceptual framework of this section of the test, there were many more mistakes, especially in relation to conjugated verbs, to words having the same spelling and sound, but

different meanings, and in relation to idioms which required much more of an effort on the part of the class teacher and the researcher. In some cases it was not enough to discuss with the students their mistakes, or to refer them to the appropriate sub-section in the workbook where the point on which they were wrong was explained and illustrated, and the class teacher and the researcher had to work more closely with each of them, together, until they, too, completed these tasks successfully.

Finally, most students completed the workbook in two and a half to three hours, and the rest in four hours at most.

Workbook 3: Locating information in the encyclopedia

(See also "Workbook 3", Appendix 1 in English and Appendix 9 in Hebrew).

"Herzel School" (High socio-economic status)

Most students did not need help with the creation of the self-made encyclopedia which they completed in two to two and a half hours.

Nevertheless, some students needed help when arranging the names of persons and the compound names according to the alphabetisation procedure.

In pursuance of the overall policy of not allowing any problems to stand, the class teacher and the researcher checked the alphabetisation procedure of the clipped photocopied articles of the encyclopedia in relation to each student, and they did not let anyone stick these clippings on the folio sheets of the self-made

encyclopedia unless the alphabetisation procedure of each entry word was perfectly correct. The class teacher and the researcher also paid special attention to the arrangement of the clippings in two columns on the folio sheets, as is done in many encyclopedias.

In relation to the second task of this section which followed the creation of the self-made encyclopedia and which was concerned with the location of information in the appropriate volume of the self-made encyclopedia with the help of the guide letters on the spine of volume, some students still had difficulties in locating names of persons and compound names.
At the end of this task, after individually practicing with each student in front of the class how to locate names of persons and compound names in the appropriate volumes of their self-made encyclopedias, it seemed that all the students had understood the conceptual arrangement of the encyclopedia for locating information in it.

"Zur Shalom School" (Low socio-economic status)
Many students in "Zur Shalom School" had problems with the arrangement of names of persons and with compound names using alphabetisation procedure. Some of them even had a major problem with the phenomenon of the multi-volume encyclopedia as a whole. In particular, they could not understand the connection between the letters on the spine and the entry words within the multi-volume encyclopedia.

After the creation of the self-made encyclopedia and practicing with the students the location of information in the appropriate volumes, the class teacher and the researcher worked with some students individually for an extra hour.

In total, this treatment took almost four hours.

Workbook 4: Locating information in books by reference to the table of contents and the index

(See also "Workbook 4", Appendix 1 in English and Appendix 9 in Hebrew)

"Herzel School" (High socio-economic status)

This section of the treatment was the most ambitious of all and moreover, the most creative. Each student had to perform many study activities in the creation of his self-made book, from the definition of the subject of the project through the completion of the final product.

All the students enjoyed this section of the treatment very much, and from time to time they would come up to the class teacher and the researcher, taking pride in their progress.

At the beginning of the first day, in relation to this section of the treatment, the students focused on the definition of their subjects for their projects, and after some hesitation, and having struggled with the problem for a few minutes, each student selected his own subject.

In the next two periods they located extracts in the newspapers and the magazines which had been collected some weeks before the implementation of this section of the treatment, and cut them out. It took an extra two periods for them to arrange these cuttings by subjects and sub-subjects and to stick them on the folio sheets, including the numeration of these sheets.

In the fifth period of the first day they created the table of contents.

The next day they focused on the creation of the index, and in two periods most of them completed the task. Many even succeeded in creating more than one general index by preparing "spin offs" with different aspects.

In the next two periods those who had not completed the creation of the index continued to create it while the others who had already completed creating their indexes started preparing the title page and the binding.

At the end of the fourth period of the second day each student had a self-made book of his own, and he or she with his or her neighbour, practiced locating information in it by reference to the table of contents and the index.

At the end of this section of the treatment the students wanted to take the self-made books home for extra decoration and in order to show them to their parents.

"Zur Shalom School" (Low socio-economic status)

In "Zur Shalom School" the students equally enjoyed this section of the treatment, wanting to share their enthusiasm with the class teacher and the researcher. They were very proud of their achievement in creating the self-made books.

Surprisingly, most of the students in this school, too, completed defining the subjects for their projects, locating extracts in newspapers and magazines, arranging them by subjects and sub-subjects, sticking them on the folio sheets and numerating the folio sheets in four hours only, the same as their friends in "Herzel School".

It seems that the students in "Zur Shalom School" were more used to independent work than the students of "Herzel School", and this fact helped them make up for their inferiority in some other areas of this section of the treatment.

Nevertheless, some students still had difficulties with the arrangement of the subjects and the sub-subjects including the numeration of the folio sheets and they needed extra treatment by the class teacher and by the researcher.

In the fifth period of the first day, those who completed the numeration of the folio sheets passed on to the creation of the table of contents while the rest continued to work on the earlier stages.

At these stages of creating the table of contents and the index the class teacher and the researcher moved from one student to the other in order to identify areas of difficulties, but it must be said that

no major problem arose. On the contrary, the motivation was very high and helped, in many cases, the students solve their problems more easily. The students who completed preparing the title page and the binding joined the class teacher and the researcher enthusiastically, helping them guide those who needed help.

At the end of the fifth period on the second day of this section of the treatment all the students completed their self-made books.

Here, too, as in "Herzel School" the students wanted to take the self-made books home for extra decoration, wishing to show them to their parents.

On the third day of this section of the treatment the students practiced the location of information in their self-made books by reference to the table of contents and the index.

The students in "Zur Shalom School" completed their self-made books nearly as fast as the students in "Herzel School". Nevertheless, it must be noted that the self-made books of "Herzel School" were more detailed and more structured than the self-made books of "Zur Shalom School", and especially the indexes of "Herzel School" included many aspects and "spin offs" while the indexes of "Zur Shalom School" consisted of few aspects only and not even one of them included a "spin off".

Discussion

Generally speaking, all the sections of the treatment were carried out by the class teachers and by the researcher in accordance with the designed timetable, and if someone had observed the class

teachers working with the students he would have thought that they were rooted in this work and had years of experience. And this is true, because the class teachers of "Herzel School" and "Zur Shalom School" knew how to work with the students, and the only innovation for them was the contents of the treatment. As was to be expected, the skills which were designed to be introduced to the students were quite easy for the class teachers, and once they knew how to work with the students this treatment was considered by them as only some additional treatment in their day-to-day work, and even an enjoyable one.

This finding leaves room for thought: not only is the fear of the "unsettling and radical procedure" of information skills teaching (Beswick, 1984, p. 17) exaggerated if not unfounded, but introducing these "new aspects" (Herring, 1981, p. 17) into the teaching-learning process may give satisfaction and even arouse enthusiasm among both the students and the teachers.

Nevertheless, it must be noted that throughout the implementation of the learning package program the researcher worked side by side with the class teacher and created some kind of artificial situation which was not correspondent with the real-life situation in which the burden of the work is not divided between two teachers, but is borne by each teacher by himself or herself. On the other hand, we must bear in mind that <u>all</u> the information of the treatment was included in the learning package program (White, 1981, p. 217), and in many cases help on an individual basis was limited to a very short kind of interaction, such as referring students to the

appropriate sub-section in the workbooks of the alphabetisation procedure and locating information in the dictionary, getting extra explanations and extra exemplification; correcting mistakes in the arrangement of the clippings in the self-made encyclopedia; illuminating explanations in the workbook of locating information in the encyclopedia regarding the division of the self-made encyclopedia into three volumes by the guide letters on the spine; illuminating explanations in the workbook of locating information in books by reference to the table of contents and the index, in respect of the arrangement of sub-sections in the self-made book or the interweaving of aspects into the index, and similar matters. The interaction between the students and the class teachers or the researcher was more a kind of a "first aid" to facilitate access to the fundamental information of the learning package program rather than the teaching of the skills themselves. In truth, some students in "Herzel School" and more students in "Zur Shalom School" needed much more help which demanded much more time from the class teachers and from the researcher, but such problems with the weaker students are not limited to the treatment of the learning package program only, and taken for granted in other circumstances in the traditional curriculum as well.

In fact, programmed learning which is not rigidly limited to one lesson or to one day, permits each student to complete his or her assignment on his or her own time, which leaves even more room for the teacher to help him or her.

At this stage, it can be concluded with satisfaction that the learning package program was a kind of "living spirit" in the "grey routine" of the day-to-day work in both of "Herzel School" and "Zur Shalom School". However, it would be useful, too, to learn to which extent this treatment improved the students ability to locate information in books independently without the attendance of a teacher ready to offer assistance. For this purpose the researcher administered the post test as follows.

3.3.3.2.2 Post test

The post test followed the treatment according to the designed timetable and according to the same procedures as the pre test.

It must be noted that in contrast to the pre test in which most students in both the test and the control groups frequently completed the information at the same time, there were many students in the test groups of the two schools who frequently completed the information location tasks of the post test more quickly than their friends in the control groups of the same school.

If the conclusions of Neville and Pugh (1977, p. 17) regarding the relationships between rapidity and accuracy in locating information in books are accepted, a new dimension can, perhaps, be added to our satisfaction with the teachers' and the students' enthusiasm, that is, some more optimistic feelings as to the efficiency of the learning package program.

The next chapter will test the validity of this view. However, a problem arose during the implementation of the program, and this must be treated first.

3.3.4 The problem of "experimental mortality"

The implementation of this field study took more than three weeks (see "The timetable of the study", Appendix 7), in each school; it was found that the more the implementation of the study was stretched the greater was the number of students who dropped out from at least one of the activities. In total, only very few students of the selected sample attended in all the activities consistently.

It must be noted that in order to secure a reliable measurement for "the pre test - post test control group design" it was necessary for each student of the selected sample to take part in all of the following relevant activities:

The students of the test groups had to take part in all the activities of the pre test, the treatment and the post test.

The students of the control group had to take part in all the activities of the pre test and the post test only.

Once a single student drops out, skipping one activity, the kind of population in relation to this activity is not identical to the kind of population in relation to the other activities, and the measurement which depends on this activity is not wholly reliable compared with the measurement of the other activities. The greater the number of the drop-outs from each of the activities, the less reliable is the measurement in relation to the study as a whole.

At this stage it was necessary to prevent the loss of so much information due to the drop-outs, and at the same time to secure, as far as possible, a reliable measurement.

In light of the fact that fewer students dropped out from the activities that were related to each of the four individual areas (alphabetisation procedure, locating information in the dictionary, locating information in the encyclopedia, and locating information in books by reference to the table of contents and the index), in contrast to the larger numbers who dropped out from the activities that were related to all four of these areas as a whole, the researcher decided to consider the population which took part in all the activities which were limited to each area as the representative population of the specific area only.

In truth, in this way each of the four original groups of the sample was split, according to the four areas mentioned above, into four sub-populations which consisted of only those who took part incidentally in the relevant activities in relation to each area, and there is room for suspicion that the newly selected populations on an incidental basis are not reliable to represent their "mother groups". But, on the other hand we must accept the fact that in real-life situations, on which this study focuses, not all the students take part in all the areas which are learned in the class and different kinds of populations represent the class in different learning situations, in addition to the fact that each of the sub-populations consisted of the bulk of its "mother group".

Moreover, it must be noted that this study is not of the kind of a "one shot", but is based on many activities which were designed to shed light on locating information in books from a variety of aspects. If we take into consideration that locating information in

books is divided into the four main areas which are tested on two levels of readiness (initial level of pre test and final level of post test) by four groups, we get at least thirty-two aspects from which locating information in books can be illuminated. And in addition, if we take into consideration that the four areas mentioned above consist of twenty-six tasks (two in alphabetisation procedure, seven in locating information in the dictionary, and eight in each one of locating information in the encyclopedia and locating information by reference to the table of contents and the index), then we get no less than two hundred and eight aspects from which locating information in books can be illuminated. In such a situation, it seems that it will not be exaggerated to assume that if a certain phenomenon arises, there will be a lot of opportunities to identify it.

The only dilemma in relation to the experimental mortality is to which extent the changes in the original populations of the test and the control groups of the two schools affected the overall ability of each of these populations. Unfortunately, this is a question which cannot be answered because neither before the changes nor afterwards did the researcher obtain any pieces of information concerning the abilities of the students in these schools. As mentioned above, the information concerning the abilities of the students was withheld from the researcher, and he did not know if the test and the control groups were equal in abilities before the

changes and to what extent these changes affected the original population.

The only thing to do is to analyze the scores of the new selected population in the pre test, which provides a basis for judging the effectiveness of the treatment (Turner, 1985, p. 122).

Chapter 4

Results of the test and analysis of the results

4.1 Introduction

The results will be sub-grouped under each of the four main sections of the test and will be analyzed using two approaches:

1. A general approach which deals with the results on the basis of the general mean, in relation to each of the four sections.
2. A specific approach which deals with the results on the basis of the specific mean, in relation to each of the tasks within each of the four sections.

Each of the specific means expresses the relative rate of failure in each task by the percentage of the failed population. The higher the mean, the higher the percentage of the failed population.

Each of the general means is the sum total of the specific means within each of the four sections.

In the framework of each of the two approaches, each of the test groups will be compared with the control group of the same socio-economic status in pre and post tests. When the difference between the means of the compared groups is significant, symbols will be added as follows:

** = $p < 0.01$ level of significance

* = $p < 0.05$ level of significance

Conclusions from each of the four sections are added, and implications for teachers and librarians are suggested.

The complete data in relation to these results are included in Appendix 8.

Abbreviations:

SES = Socio-Economic Status

LTG = Low Test Group = Test Group of the Low SES of "Zur Shalom School"

LCG = Low Control Group = Control Group of the Low SES of "Zur Shalom School".

HTG = High Test Group = Test Group of the High SES of "Herzel School".

HCG = High Control Group = Control Group of the High SES of "Herzel School".

4.2 Alphabetisation procedure

4.2.1 General approach

Time	Low SES		High SES	
	LTG Mean	LCG Mean	HTG Mean	HCG Mean
Pre test	3.1	3.0	1.0	1.4
Post test	1.2	* 2.9	0.5	** 1.7

There is no significant difference in the low SES between the LTG and the LCG in pre test.

There is no significant difference in the high SES between the HTG and HCG in pre test.

In post test the LTG achieved a significant difference at the $p < 0.05$ level over the LCG, and the HTG achieved a significant difference over the HCG at the $p < 0.01$ level.

It must also be noted that in contrast to the very impressive improvement of the HTG in post test, there is regression in the HCG in post test.

Conclusions of a general nature

1. There is not enough stimulation in the area of alphabetisation procedure in both of the two schools.
2. The lack of treatment may even cause further regression in this area.
3. The learning package program in the area of alphabetisation procedure is efficient for both the low and the high SES.

4.2.2 Specific approach

A reminder regarding the contents of this section

The specific approach of the alphabetisation procedure will be based on the the two tasks of which the test in this section consists. Each of these tasks similarly involves the three following phenomena:

1. External procedure, which means the procedure of the first letter.
2. Internal procedure, which means the procedure of the second letter through the next letter to the end of the word.
3. Confusion, which means more than one mistake in the external procedure, or more than two mistakes in the internal procedure.

Statistics

In order to simplify the analysis of the results in the specific approach of the alphabetisation procedure, the researcher decided to combine the mean of each one of the three phenomena - i.e. the external procedure, the internal procedure and the confusion area - in one of the two similar tasks of which this section consists, with the mean of its identical phenomenon in the other task, as though it were one unit (see Appendix 8).

This approach raises some problem because in the other specific approaches of the other sections of this chapter the means are presented by each task separately.

In order to adjust the nature of the presentation of the results of the specific approach of the alphabetisation procedure to the nature of the task by task approach in relation to the other sections of this chapter, the researcher has divided the sum total of the combined means by two as it appears in the following tables.

It must be noted that the solution of how to present the information of the specific approach in relation to the alphabetisation procedure does not contradict the statistical calculations as they are presented in Appendix 8, but only is an attempt to illuminate them using an easier way.

The Low SES: LTG vs. LCG

Pre test

Phenomenon	LTG Mean	LCG Mean
External procedure	0.22	0.29
Internal procedure	0.61	0.62
Confusion	0.15	0.25

There is no significant difference between the two groups in relation to the three phenomena.

The main problem in both of the two groups is concentrated in the internal procedure, but there are also students in both of the two groups who still fail in the external procedure and are totally confused about the alphabetisation procedure as a whole.

Post test

Phenomenon	LTG Mean		LCG Mean
External procedure	0.06	*	0.31
Internal procedure	0.36		0.57
Confusion	0.00	*	0.20

In post test there is a significant difference in favour of the LTG in the external procedure and the confusion area at the $p < 0.05$ level.

It must be noted that the LTG exhausted its potentials to the absolute maximum in the confusion area and achieved virtually the same in the external procedure as well.

The internal procedure in post test remained the main problem in both of the two groups and the LTG could not achieve significant difference over the LCG. Nevertheless, the LTG succeeded in narrowing very impressively the rate of failure from the pre test to the post test as follows:

Group	Pre test Mean	Post test Mean
LTG	0.61	0.36
LCG	0.62	0.57

The High SES: HTG vs. HCG

Pre test

Phenomenon	HTG Mean	HCG Mean
External procedure	0.04	0.08
Internal procedure	0.41	0.40
Confusion	0.00	0.02

There is no significant difference between the two groups in relation to the three phenomena of alphabetisation procedure.

In parallel to the low SES the main problem in the high SES is also in the internal procedure and the two groups both suffered from this in pre test.

In contrast to the low SES which suffered in pre test in both of its two groups from some confusion and from the external procedure, the two groups of the high SES succeeded in almost totally eliminating the problem in these two areas.

Post test

Phenomenon	HTG Mean		HCG Mean
External procedure	0.05		0.17
Internal procedure	0.17	*	0.37
Confusion	0.00	*	0.10

In post test the HTG was very impressively improved in the internal procedure and succeeded in achieving a significant difference at the $p < 0.05$ level over the HCG.

In relation to the external procedure and the confusion area, it is found that the HCG still suffers from instability. By instability the researcher means a regression in scores from pre test to post test in relation to a task of the same nature, or a weakness in one of two tasks of the same nature. In this case, a regression was identified on the part of the HCG from pre to post test in relation to the external procedure and the confusion area.

In the confusion area the regression is significant compared with the HTG. In the external procedure the regression is not significant compared with the HTG.

Conclusions of a specific nature

1. The lack of competence in pre test in both of the low and the high SES is concentrated, essentially, in the internal procedure, but also in the external procedure and the confusion area, especially in the low SES.
2. The treatment of this section is efficient in the low SES, essentially, in the external procedure and in the confusion area, but less efficient in the internal procedure which is perhaps too sophisticated for part of the students of the low SES.
3. The treatment of this section is efficient in the high SES, essentially, in the internal procedure, although here, too, not in relation to all the students of this SES, and also efficient in preventing symptoms of instability in the other two areas of the external procedure and the confusion area.

Implications for teachers and librarians

Low SES

In the low SES the treatment must cover all the kinds of tasks which are mentioned in this section of the learning package program, with special emphasis on the internal procedure, and if necessary by additional interaction between the teacher and the student.

High SES

In the high SES the treatment must very carefully cover all the tasks which are included in this section of the learning package program, but it is also suggested not to ignore the areas of the external procedure and the confusion area in order to prevent the students from being affected by symptoms of instability.

4.3 Locating information in the dictionary

4.3.1 General approach

Time	Low SES		High SES	
	LTG Mean	LCG Mean	HTG Mean	HCG Mean
Pre test	1.9	2.6	1.0	1.6
Post test	0.5 **	2.4	0.1 **	1.3

There is no significant difference in the low SES between the LTG and the LCG in pre test.

There is no significant difference in the high SES between the HTG and the HCG in pre test.

In post test the LTG was very impressively improved, achieving a significant difference at the $p < 0.01$ level over the LCG, with the HTG also achieving a significant difference over the HCG at the $p < 0.01$ level.

Conclusions of a general nature

1. There is not enough stimulation in the area of locating information in the dictionary in both of the two schools. This conclusion is correspondent with the finding that many students did not have a personal dictionary at hand in both of the two schools (Stinson, 1970, p. 82).
2. The learning package program in the area of locating information in the dictionary is efficient for both the low and the high SES.

4.3.2 Specific approach

A reminder regarding the contents of this section

The specific approach of locating information in the dictionary will be based on the following tasks of which the test in this section consists:

Tasks 1 and 2 involve words of a simple form ("root words").

Task 3 involves words in both "modern" and "grammatical" spelling.

Task 4 involves a word with affixes.

Task 5 involves a conjugated verb.

Task 6 involves words having the same spelling and sound, but different meanings.

Task 7 involves an idiom consisting of two words.

The Low SES: LTG vs. LCG

Pre test

Task	LTG Mean		LCG Mean
1	0.00		0.04
2	0.04		0.16
3	0.26		0.48
4	0.17		0.32
5	0.43		0.48
6	0.56		0.48
7	0.43	*	0.72

The main problem in both of the two groups is, generally, on the level above words of a simple form ("root words").

In spite of the significant difference between the two groups in task 7 in favour of the LTG, the LTG itself also suffers to a relatively considerable extent, from a high rate of failure.

Post test

Task	LTG Mean		LCG Mean
1	0.00		0.12
2	0.00	*	0.16
3	0.00	**	0.40
4	0.00	**	0.36
5	0.08	*	0.40
6	0.30		0.52
7	0.17	*	0.52

In cotrast to the very impressive improvement of the LTG in most of the tasks, the relatively high rate of failure of the LCG in pre test is very similar to the rate of failure in most of the tasks of the post test.

Moreover, by comparing the means of pre and post tests of task 1 in relation to the LCG we find that there are students in this group who are still not confident in locating words of a simple form in the dictionary. Even the extraordinary improvement of the LCG in task 7 from pre test to post test did not help this group to narrow the difference between the two groups, at least in this task.

Nevertheless, this section of the learning package program was not efficient enough for the LTG to achieve a significant difference over the LCG in task 6 - although in post test there was left plenty of room in the LCG (Mean = 0.52) to achieve it - and to be improved significatnly in task 7, beyond the level of $p < 0.05$ in the pre test.

The High SES: HTG vs. HCG

Pre test

Task	HTG Mean		HCG Mean
1	0.00		0.03
2	0.06		0.00
3	0.12	*	0.39
4	0.03		0.00
5	0.21	**	0.54
6	0.24		0.24
7	0.39		0.39

In the high SES, too, the main problem involves words above the level of a simple form, although not in relation to all the tasks and not always with the same intensity as it occurs in the low SES. In pre test there are two significant differences between the two groups in tasks 3 and 5 in favour of the HTG.

Post test

Task	HTG Mean		HCG Mean
1	0.00		0.00
2	0.00		0.00
3	0.00	**	0.42
4	0.00		0.03
5	0.03	**	0.45
6	0.09		0.27
7	0.06		0.12

In post test the differences between the two groups in tasks 3 and 5 were impressively deepened by the perfect performance of the HTG in task 3 and by the nearly perfect performance of this group in task 5.

In relation to task 6, the identical performance by both of the two groups in pre test was substituted by the superiority of the HTG over the HCG, but not significantly.

In relation to task 7, the HCG succeeded, essentially, in reducing the rate of failure similar to the HTG, without the help of the treatment.

Conclusions of a specific nature

1. The lack of competence in pre test in the Low SES covers most of the tasks, including symptoms of instability which is expressed by the fact that some students who succeeded in locating one of the two words of simple form demonstrated some weakness in relation to the second word of this type.
2. The lack of competence in pre test in the high SES is concentrated, essentially, in most of the tasks beyond those which involve words of a simple form.
3. The treatment of this section is efficient in the low SES in most of the tasks, excluding perhaps task 6 which involves words having the same spelling and sound, but different meanings and to some extent task 7, which involves an idiom, in which the LTG did not succeed in equalizing its achievements with those of the other tasks.
4. There is some evidence that the treatment of this section is efficient to some extent in the high SES too, in relation to tasks 3, 5 and 6, which involve "modern" and "grammatical" spelling, conjugated verbs and words having the same spelling and sound but different meanings.

   In relation to tasks 1,2 and 4 there is no need for the treatment in this SES, and in task 7, which involves an idiom, practice, it seems, is quite sufficient.

Implications for teachers and librarians

Low SES

In the low SES the treatment must cover all the kinds of tasks mentioned in this section of the learning package program, with special emphasis on the words having the same spelling and sound but different meanings. In light of the fact that this specific task is based to a very large extent on the contextual clues of the text in which the word occurs, it would also be useful to strengthen the area of reading comprehension in the low SES when such an opportunity arises.

High SES

It seems that the students of this SES are familiar with the tasks involving words of a simple form and words with affixes, and they can also improve themselves in the task involving idioms by practice only. In relation to "modern" and "grammatical" spelling, the conjugated verbs and the words having the same spelling and sound but different meanings, they need the treatment of the learning package program.

In contrast to the low SES they do not need any extra stimulation in the area of reading comprehension beyond the treatment of the learning package program.

4.4 Locating information in the encyclopedia

4.4.1 General approach

Time	Low SES		High SES	
	LTG Mean	LCG Mean	HTG Mean	HCG Mean
Pre test	2.4	3.1	1.2	0.7
Post test	1.3 (p=0.058)	2.8	0.3	0.4

(The general approach does not include the results of task 5 which are analysed separately in section 4.4.2.1).

There is no significant difference in the low SES between the LTG and the LCG in pre test.
There is no significant difference in the high SES between the HTG and the HCG in pre test.

In post test the LTG was very impressively improved, achieving near significant difference over the LCG (p=0.058) which hardly showed any improvement, and in the high SES the two groups both succeeded in narrowing their rate of failure to a relatively very low level.

Conclusions of a general nature

1. There is not enough stimulation in the area of locating information in the encyclopedia in the two schools.
2. There is some evidence that the learning package program in the area of locating information in the encyclopedia is efficient for the low SES.
3. The learning package program in the area of locating information in the encyclopedia is not necessary for the high SES which can manage by exposure to tasks, such as those included in this section of the test.

4.4.2 Specific approach

A reminder regarding the contents of this section

The specific approach of locating information in the encyclopedia will be based on the tasks of which the test in this section consists as follows:

Tasks 1 and 4 involve names of subjects of a simple form (like the "root words" of the dictionary) in multi-volume encyclopedias.

Tasks 2, 7 and 8 involve names of persons.

Tasks 2 and 7 are based on multi-volume encyclopedias while task 8 is based on a one-volume encyclopedia.

Tasks 3 and 6 involve compound names in multi-volume encyclopedias. The encyclopedia for task 3 is of a more professional nature than the others.

The specific approach does not include the results of task 5 which will be analyzed separately later in this section.

The Low SES: LTG vs. LCG

Pre test

Task	LTG Mean	LCG Mean
1	0.40	0.50
2	0.36	0.45
3	0.40	0.50
4	0.31	0.45
6	0.18	0.31
7	0.45	0.50
8	0.27	0.40

There is no significant difference between the two groups in pre test in relation to any one of the tasks of this section, and both of the two groups suffered from some kind of weakness in most of the tasks.

Post test

Task	LTG Mean		LCG Mean
1	0.13	*	0.40
2	0.22		0.50
3	0.27		0.54
4	0.18		0.36
6	0.27		0.45
7	0.13	*	0.45
8	0.13		0.13

In contrast to the very impressive improvement of the LTG in most of the tasks, the atmosphere in the LCG is stagnant except for task 8 which is the only one that is limited to the one-volume encyclopdeia. If we leave out this task and focus only on the other tasks which deal with the multi-volume encyclopedias, the gap between these two groups extends even farther and beyond the $p = 0.058$ level of significance.

It is, in truth, an achievement on the part of the LCG to have improved in the one-volume encyclopedia by only the exposure to this task in the test, but on the other hand it reinforces the overall feeling that there is insufficient stimulation in the day to day work in schools.

The LTG was especially better than the LCG in tasks 1 and 7 which involve the name of a subject of a simple form in a multi-volume encyclopedia, and the name of a person in a multi-volume encyclopedia.

Nevertheless, the inability of the LTG to achieve a significant difference in task 4, which is very similar to task 1, and in task 2, which is very similar to task 7 - although there was enough room for this due to the relatively high rate of failure in the LCG, like the room which was left in the LCG in tasks 1 and 7 - creates the impression that the achievements of the LTG, although impressive in themselves, are not dependable and need, eventually, more reinforcement.

In addition to this, the increase in the rate of failure in the LTG in task 6, compared with its performance in pre test, indicates some kind of instability in relation to the location of a compound name in a multi-volume encyclopedia.

The High SES: HTG vs. HCG

Pre test

Task	HTG Mean	HCG Mean
1	0.21	0.13
2	0.25	0.13
3	0.12	0.06
4	0.12	0.03
6	0.06	0.00
7	0.25	0.20
8	0.18	0.16

There is no significant difference between the two groups in any one of the tasks.

It is true that the rate of failure in these two groups is relatively low compared with the low SES, but there is some tendency in these two groups of the high SES to fail more often in relation to locating the name of a person.

Post test

Task	HTG Mean	HCG Mean
1	0.00	0.03
2	0.03	0.10
3	0.09	0.10
4	0.09	0.00
6	0.03	0.03
7	0.09	0.10
8	0.03	0.03

There is no significant difference between the two groups in post test and the overall feeling is one of competence.

4.4.2.1 Task 5

A reminder regarding the contents of this task

Task 5 involves the "modern spelling" in a multi-volume encyclopedia. It must be noted that the "modern spelling" in relation to task 5 is of a very unusual nature.

Pre test

Low SES		High SES		Inter - SES - Combinations							
LTG Mean	LCG Mean	HTG Mean	HCG Mean	LTG Mean	HTG Mean	LCG Mean	HTG Mean	LTG Mean	HCG Mean	LCG Mean	HCG Mean
0.86	0.86	1.0	0.9	0.86	* 1.0	0.86	* 1.0	0.86	0.90	0.86	0.90

The most striking findings which attract attention in this table are that both of the two groups of the low SES achieved a significant difference over the HTG at the $p < 0.05$ level, in addition to a better mean than the HCG. In total, the low SES as a whole is superior to the high SES in relation to task 5 in pre test.
It is the first and only time throughout all of the test the low SES succeeded in achieving such superiority over the high SES in pre test (see "The statistical data", Appendix 8).

In truth, this unique achievement by the low SES involves so high a rate of failure in both of the low and the high SES that it might even be considered as unimportant, but this kind of superiority in itself calls for a special examination of this phenomenon.

Although it might seem strange, this unique success of the low SES over the high SES is derived from the impact of two conflicting approaches: the more appropriate one of the high SES and the more incidental one of the low SES.

What happened was that while most of the competent students in the high SES could not find the appropriate entry word in its expected location in the encyclopedia by the appropriate strategy, i.e. the internal procedure of the alphabetisation procedure, because this "modern spelling" was of an unusual nature, they assumed that this entry word was not included in that encyclopedia.

In relation to the low SES, there were students with less competent habits in locating information and instead of searching the appropriate entry word by the internal procedure of the alphabetisation procedure, they browsed page by page until they found the right entry word by accident. And if we add the fact that the appropriate entry word of this unusual nature is located in the encyclopedia very close to the beginning of the section of a new letter which is identical with the first letter of this entry word, it might be understood that the possibility of finding this entry word by chance was even greater.

This analysis was assessed by the observations of the class teachers and by the researcher through the administration of the pre test, and by the discussions with the students after the administration of the post test.

Post test

Low SES		High SES		Inter - SES - Combinations							
LTG Mean	LCG Mean	HTG Mean	HCG Mean	LTG Mean	HTG Mean	LCG Mean	HTG Mean	LTG Mean	HCG Mean	LCG Mean	HCG Mean
0.63**	0.22	0.62	0.70	0.63	0.62	0.22**	0.62	0.63	0.70	0.22**	0.70

In post test the LCG "succeeded" in extending the difference over the high SES to the significant level at the $p < 0.01$ and in achieving the same achievement over the LTG as well. On the one hand we find that the LTG succeeded thanks to exposure to the learning package program in this section in improving its professional approach to the degree of the high SES, but on the other hand it will be seen that the lack of the treatment in the LCG pushed this group even more towards an incidental approach.

Nevertheless, it must be noted that not all the students in post test, who located the appropriate entry word used the incidental approach. By the observations of the class teachers and the researcher, and especially by his discussions with the students after the administration of the post test, the researcher realized that some of the students who located the appropriate entry word in post test did not rely on the incidental approach, but attempted other alternatives of the "modern" and the "grammatical" spellings, with the help of the internal procedure of the alphabetisation procedure, which finally enabled them to locate the entry word.

The researcher has been testing the new students in his last three courses of bibliographic instruction, in the last three years, in the Hebrew University of Jerusalem, in this task, under the very

similar conditions of this section of the test, and has been finding year by year that only very few students succeeded in locating the appropriate entry word in the encyclopedia in its unusual location. After their disappointment, being unable to find the entry word in its expected location, by using the internal procedure of the alphabetisation procedure, most of them decide that there is no information in the encyclopedia in relation to this entry word, and only very few attempt other alternatives including that of an unusual nature.

A comment regarding the separate analysis of task 5

Due to the fact that the success and failure of task 5 contradict the success and failure in the other tasks, it was necessary to separate task 5 from the other tasks in order not to spoil the meaning of the students' achievements in this section of the test.

Conclusions of a specific nature

1. The lack of competence in pre test in the low SES covers all the tasks of this section.
2. The lack of competence in pre test in the high SES is limited, essentially, to tasks 2, 7 and 8, which involve names of persons.
3. The treatment of this section is very efficient in the low SES in developing a more professional approach to locate information in a multi-volume encyclopedia by alphabetisation procedure. To a certain extent it is also efficient in relation to some of the locational processes in the multi-volume encyclopedia, which were the focus of this section, but at the same time there is still room for extra reinforcement in the same locational processes themselves.

   In relation to the locational process which is limited to the one-volume encyclopedia, it seems that the low SES can manage by practice only, without exposure to the learning package program.
4. In the high SES the students of the fifth grade do not need to be exposed to the learning package program in this section at all, and they can improve their weak spots by practice in the day-to-day work.

Implications for teachers and librarians

Low SES

The treatment must cover all the tasks mentioned in this section of the learning package program in relation to the multi-volume encyclopedia. In relation to the one-volume encyclopedia the treatment can be substituted by only practice during the day-to-day work.

High SES

The treatment of this section is not necessary in the high SES, but it is recommended to practice during the day-to-day work, especially the locational process which involves names of persons.

4.5 Locating information by reference to the table of contents and the index

4.5.1. General approach

Time	Low SES		High SES	
	LTG Mean	LCG Mean	HTG Mean	HCG Mean
Pre test	2.9 *	4.2	1.8	1.5
Post test	1.0 **	2.7	0.6	1.1

There is a significant difference at the $p < 0.05$ level in the low SES between the LTG and the LCG in pre test.
There is no significant difference in the high SES between the HTG and the HCG in pre test.

Due to the fact that the LTG is significantly stronger than the LCG in pre test in relation to this section, on the general approach basis, any kind of improvement of the LTG in post test compared with the LCG, on the general approach basis, will not be accepted without reservations.
Nevertheless, it must be noted that the LTG extended the significant level over the LCG in post test to the $p < 0.01$ level.
In relation to the high SES, the HTG extended also the difference over the HCG, although not significantly.

Conclusions of a general nature

1. There is not enough stimulation in the area of locating information in books by reference to the table of contents and the index in both of the two schools.
2. There is some evidence that the learning package program in the area of locating information in books by reference to the table of contents and the index is efficient to some extent in both of the low and the high SES, but it must be assessed by the specific approach in which areas this efficiency is really significant.

4.5.2. Specific approach

A reminder regarding the contents of this section

The specific approach of locating information by reference to the table of contents and the index will be based on the tasks of which the test in this section consists, as follows:

Tasks 1,2,4,6 focus on locating information by reference to the index. Each of the tasks 1,2,6 involves a general index of a simple nature consisting of main entries and page numbers only.

Task 4 consists, in truth, also of a general index of a simple nature, but it involves some extra "spin offs" of this general index to illuminate specific aspects (Katz, 1982, vol. 1, p. 82).

Tasks 3,7,8 focus on locating information by reference to the table of contents.

Task 5 involves both the table of contents and the index.

The Low SES: LTG vs. LCG

Pre test

Task	LTG Mean		LCG Mean
1	0.47		0.62
2	0.52		0.66
3	0.04	*	0.25
4	0.61		0.85
5	0.09	*	0.37
6	0.61		0.55
7	0.33		0.59
8	0.23		0.29

Both groups suffer substantially from a relatively high rate of failure in the index domain, but also from a weakness in the table of contents domain.

In truth there are only two significant differences in favour of the LTG but it seems that the relatively greater weakness of the LCG compared with the LTG through most of the tasks explains the overall significant difference which was found through analysis of the general approach of this section.

Post test

Task	LTG Mean		LCG Mean
1	0.04	**	0.33
2	0.09	*	0.37
3	0.00		0.07
4	0.57		0.70
5	0.09		0.22
6	0.09	**	0.48
7	0.09		0.25
8	0.04	*	0.25

In post test the LTG succeeded in achieving a consistent, significant superiority over the LCG in most of the tasks involving the index; these were not significantly different in pre test.

In addition to this, there is a significant difference at the $p < 0.05$ level in favour of the LTG in relation to task 8, which involves the table of contents, and which was not significantly different in pre test.

In light of the general significant difference between the two groups in pre test, which has given rise to suspicion regarding the improvement of the LTG compared with the LCG in post test, these findings are of special importance for assessing the improvement of the LTG in post test as meaningful and real, due to its exposure to the learning package program in this section. Moreover, this assessment can even be supported with the help of a comparison

between the two groups in task 6, in which the LCG had even a better mean in pre test than the LTG, as follows:

Time	LTG Mean		LCG Mean
Pre test	0.61		0.55
Post test	0.09	**	0.48

We find that in spite of the better position of the LCG in this task in pre test, the LTG succeeded in post test in achieving a significant difference over the LCG at the $p < 0.01$ level.

In relation to task 4, which involves an index of a more sophisticated nature, it was also too difficult for the LTG, in spite of its exposure to the learning package program.

In the area of the table of contents the LCG succeeded in improving itself merely by practicing the tasks of this section in the test which involve the location of information in books by reference to the table of contents.

The High SES: HTG vs. HCG

Pre test

Task	HTG Mean		HCG Mean
1	0.20		0.09
2	0.32		0.34
3	0.00		0.00
4	0.44		0.62
5	0.05		0.03
6	0.55		0.43
7	0.14		0.03
8	0.11	*	0.00

It is true that there is a significant difference between the two groups in favour of the HCG in task 8, but in light of the very low rate of failure in the HTG in relation to this task in particular, and in relation to the other tasks which involve the table of contents in general, this difference does not seem to indicate any substantive problem in the HTG, compared with the HCG.

The main problem in both of the two groups is limited to the index domain.

Post test

Task	HTG Mean		HCG Mean
1	0.05		0.06
2	0.11		0.12
3	0.00		0.00
4	0.32	**	0.68
5	0.02		0.06
6	0.05		0.15
7	0.08		0.06
8	0.00		0.00

Although the HCG was not exposed to this section of the learning package program, it succeeded in post test in narrowing its rate of failure in most of the tasks which involve the index, very similar to the HTG, and only by practicing this section of the test in post test.

However, this practice was not sufficient for task 4, which involves the more sophisticated index, in which the HTG achieved significant difference over the HCG at the $p < 0.01$.

Conclusions of a specific nature

1. The lack of competence in the low SES before the treatment covered the tasks which involved the table of contents and especially the index.
2. The lack of competence in the high SES before the treatment was limited only to the tasks which involved the index.
3. The treatment of this section is efficient in the low SES in the tasks which involve the index excluding the more sophisticated one (task 4).

   In relation to the tasks which involve the table of contents, there is a tendency in the low SES to be improved to some extent by only practice, and to a greater extent by exposure to the learning package program.
4. The efficiency of the treatment of this section is limited in the high SES to the task which involves the more sophisticated index (task 4).

   In relation to the more "ordinary" tasks which involve the index, the high SES can manage them by only practice.

Implications for teachers and librarians

Low SES

The treatment must cover all the tasks mentioned in this section of the learning package program, with extra emphasis on the more sophisticated index.

High SES

The treatment of this section of the learning package program can be limited to the more sophisticated index only, and in the high SES with special emphasis as well.

In relation to the indexes of a more simple nature, practice is enough.

Chapter 5

Final Evaluation

Skill gaps of the students

By carrying out this study this researcher has identified some areas in locating information in books in which students frequently lack competence, such as alphabetisation procedure, locating information in the dictionary, locating information in the encyclopedia and locating information in books by reference to the table of contents and the index.

These findings are correspondent with many research studies which focus on information skills (Brake, 1979, p. 46; Brake, 1980-B, p. 2,10; Paterson, 1981, p. 13-14; Avann, 1983, p. 53-54; Heather, 1984-A, p. 33; Heather, 1984-B, p. 90-91; Heather, 1984-C, p. 218).

The lack of competence in relation to all the skills mentioned above was revealed in both of the low SES and the high SES, although in the low SES the lack of competence covered most of the tasks of each skill or the majority of skills, while in the high SES lack of competence was often limited to the harder or extremely difficult tasks only.

It must be emphasized that the measurement tool was based on tasks of a very closed nature and even the tasks which were regarded as more sophisticated and difficult by many students can be considered as basic, and any error in these tasks indicates lack of competence of an elementary nature.

Bridging the gaps of the students

This study revealed, moreover, that it is possible to significantly improve the students in many areas in both of the low and the high SES with the help of the learning package program.

In the low SES the learning package program is often useful in both the easier tasks and the more difficult ones, although in some cases, in which extra stimulation was needed, it would be very helpful to make some alterations in the learning package program such as expanding the exercises of the internal procedure of the alphabetisation procedure; expanding the dictionary exercises of words having the same spelling and sound, but different meanings; emphasizing compound names and the names of persons when students suggest topics to each other in order to locate them in their self-made encyclopedias; emphasizing the importance of the more sophisticated indexes through the creation of self-made books. In some other cases only practicing information location tasks, like the ones which are included in the measurement tool, without exposure to the learning package program is equally useful.

In the high SES the learning package program is often useful when the harder or extremely difficult tasks are attempted.

In the high SES, there are even more cases than in the low SES in which the students do not need to be exposed to the learning package program and can be improved by only practicing information location tasks like the ones included in the measurement tool.

Nevertheless, even the students in the high SES should not ignore the easier and the easiest tasks in which a lack of treatment may cause a regression.

The lack of stimulation in schools

In many cases, the efficiency of the learning package program in improving the students indicates a fundamental lack of stimulation in the area of locating information in books.

The improvement achieved by only practicing the information location tasks of the measurement tool indicates a lack of practice in the day-to-day work in schools.

This study assesses once again the findings from the literature that to be surrounded with books is not sufficient (Avann, 1983, p. 79-80), to take part in "library periods" is not always useful (see "Library lessons syndrome", section 2.2.2.2), and even to be told by the teacher how to use books is unlikely to be effective (Neville and Pugh, 1977, p. 14).

The need for a systematic program

What is needed in most cases in the area of locating information in books for fifth graders in elementary school is a systematic program which will expose these students to plentiful experiences in real-life situations (Neville and Pugh, 1975, p. 30; Heather, 1984-A, p. 39-41). The learning package program is one such systematic program.

Co-operation between teachers and librarians

It has also been assessed that by a well organized and systematic program which is easy to implement and readily accessible, it is possible to come closer to the teachers and even to arouse their enthusiasm for the development of locating information in books. If we take into consideration that the present researcher is a librarian by profession, then the possibility of bridging the gaps between the teachers and the librarians has been proved.

The possibility of bridging the gap between teachers and librarians is also correspondent with the action research by Brake (1981, p. 23), and by Avann (1983).

Bridging the gap between information and education

Based on the students' achievements in the learning package program and on the teachers' enthusiasm in developing these skills it would not be a mistake to assess the fact that the happening of this study revealed the possibility to bridge the gap between education and information as a whole.

Chapter 6

Recommendations for further research

Larger scale research study

Although the learning package program was assessed as a very effective treatment in many cases, it must be borne in mind that this study was of a small-scale nature and it would be a very useful move to re-assess the efficiency of the learning package program by an extra study on a larger scale before publishing it in mass-production for schools.

It is also suggested to interweave two additional aspects in the new study: observations and an independent implementation of the study by the teachers.

1. Observations

   Each of the tasks included in the measurement tool consists of many sub-processes which are hidden from us in the final answer of the paper and pencil test behind the page number of a book, or behind a more specific answer from the text, or behind a list of words arranged by alphabetisation procedure.

   If one wants to get more insight into students' behaviour in locating information in books, it would be very useful to add observations to the new study, side by side with the paper and pencil test.

2. Independent implementation of the study by the teachers

It is suggested that in the new study the class teachers will implement the learning package program by themselves, without the involvement of the researcher, in order to identify new areas in which they may find problems that are perhaps hidden behind the exclusive co-operation between the class teachers and the researcher in the current study.

Longitudinal study

The current study was limited to the very immediate influence of the treatment on students' achievements, and it would be equally useful to learn about the long-term influence of this study on students' achievements with the help of a longitudinal research (Yarling, 1968; Neville and Pugh 1975, 1977; Neville, 1977).

Alternative methods

The learning package program is only one method using systematic approach, and it is suggested to try other methods as well.

Starting the development earlier

Based on the recommendations of the literature (Walker and Montgomery, 1983, p. 32-40; Wehmeyer, 1984, p. 324-327; Seaver, 1984, p. 18-28) and based on the current study, it would be better not to delay the treatment of the learning package program until the fifth grade, but to start it much earlier, even in the kindergarten. Consequently, it is suggested to study the efficiency of a modified

learning package program which will be suitalbe to the students in the kindergarten through the first years of schooling.

Opening the nature of the test

The current test is limited to tasks of a very closed nature, and it is suggested that the efficiency of the learning package program by a measurement tool consisting of tasks of a more open nature (Marland, 1981, p. 13) be studied in the future.

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