

Tracing and Mapping Children's Behaviour When Selecting Books to Browse or Borrow: A Malaysian Study

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Abstract

This paper described (a) the investigation undertaken to trace the methods used by children in selecting books to borrow or browse in two children's public library, and (b) the information seeking patterns adopted by the selected children. The sample comprised 43 children who used the Bayan Budiman Children's Library, Petaling Jaya and the Kuala Lumpur Children's Library. The children were randomly chosen, aged between 7 and 12 and comprised those who entered the library with the observed behaviour of selecting books to borrow or browse. Two methods were used to collect data; (a) observing the children as they enter the library to select books to browse or borrow for fifteen to twenty minutes and (b) interviewing those selected with a semi structure questionnaire. Belkin's information search strategy (ISS) dimensions was used to transcribe children's browsing and selecting behaviour and Hayden's behaviour mapping model was used to map the children's total choosing process. The findings indicated that (a) shelf browsing was the most popular method of choosing a book combined with various strategies such as looking for a book by an author or series, finding a book by subjects, visually or physically scanning and recognizing the physical composition of the book; (b) children based their selection on the storyline, illustrations, cover designs and typography of the books; and (c) the searching behaviour is likely to be non-linear in nature. The type of problems children faced include understanding the standard subject headings and mapping these to their needs, effectively verbalizing their needs due to their limited vocabulary and obtaining the librarian's advice to locate revision books they need. Children used visual cues rather than textual information when searching for books, inferring that children libraries need to support adequate and visually stimulating sources to make book searching fun and fruitful.

Keywords: Information seeking behaviour, Shelf browsing, Browsing among children, Children's libraries.

1. Introduction

Children require specific information and reference services and because of this they seek information in different ways than adults (Brown, 2004). The way children seek information and their skills in doing so is expected to affect their attitude in using or handling sources in public libraries. A number of studies equated information seeking with information-related actions taken to fulfill an information need. The stress was therefore on the action dimension of information seeking behaviour (Cooper, 2002; Fogget, 2003; Brown, 2004). Shenton and Dixon (2004a) observed that information seeking in children progressed from the macro to micro level actions. Macro actions involved locating information sources and in the children context they would approach a range of information resources such as the library, bookshops or home collections and would subsequently locate an information source they felt to be relevant. Micro actions involved examining the source closely, perusing chapters and relevant sections to satisfy their specific needs.

Others viewed information seeking as a cognitive state where one's knowledge states are changed due to the construction of sense and understanding of a certain topic. The concept of information seeking goes beyond simply finding materials and information within them

to satisfy a need. Dervin (1983), Marchionini (1985) and Kuhlthau (1999) maintained that information seeking is fundamentally a cognitive process, which involved the construction of the senses, understanding and a changing state of uncertainty to a state of certainty. This is exhibited by the studies of Bruner (1966) who observed that children would revisit the same area of interests many times to increase their understanding and enhance their knowledge state with each visit. This happened when they wanted to become more familiar with a favourite subject and when they need to understand content for school examinations (Shenton, 2004).

Whether it is an action process or a cognitive state, information seeking is activated by children through several strategies or methods. Kuhlthau herself (1992) indicated that in the various cognitive stages, children would adopt a combination of strategies. An important strategy is browsing and this is the most popular method in semi-structured situations in which the search is not completely defined. This is especially adopted by children when they are continuously examining unknown items of information that surrounds them. Browsing may be a well-defined goal such as finding a book by an author or semi-defined like finding a book on a subject or ill-defined such as finding something of interest (Chang, 1995; Cooper, 2002). The latter is usually performed when children select books to read for leisure, in which case they would be browsing and selecting books based on the blurb on the cover, genre, author, series (Wicks, 1995), print size, number of pictures and pages and colourful cover illustrations (De Angelo, et al., 1997).

✓ In an observation carried out by Fogget (2003) on primary school students' searching and locating skills in their school libraries, students were known to locate an information source by checking the front cover for relevant pictures on a topic, the title page, skimming through the books and scanning the index in order to judge the relevancy. In younger children ages between two to ten years old, their lack of experience with textual information searching makes browsing at the shelves a necessary alternative action. Hyman (1972) referred to this behaviour as "grazing" rather than browsing.

Another strategy, which librarians hope children would adopt is to use the library catalogue. The use of the library catalogue to locate information is usually beyond the ability of younger children (Broch, 2000). They would however, be able to utilize the catalogue when searches were framed against the search terms given by their teachers. Cooper (2002) found that 7 year olds could search a source when information is presented in a well structured format such as encyclopedias on CD-ROM where visual cues were well utilized. Children performed poorly when using library catalogues because they did not comprehend why subject headings were assigned to materials and therefore were unable to exploit catalogues when searching for information. This may be because they have not developed the ability to relate terms and concepts to the material sought after and their vocabulary pool and typing skills were limited (Everhart and Hatcher, 2005) to effectively use the library catalogue. As a result they compensate this lack by going directly to the shelves to find books or ask their friends or a librarian (Walter, 2003).

✓ People as a means to locate needed information is popularly used by children, especially among children in the pre-operational stage (2 to 7 years old) (Piaget, 1969), when they have minimum reading ability and rely on other people for audio and visual information source (Shenton and Dixon, 2003). Fogget (2003) observed that children would request help from other people such as their friends or librarians when they have exhausted their own information resource.

Recognizing the actions as well as the cognitive states in information seeking and the strategies adopted to locate and utilize the resource have resulted in the ability to map or model information seeking behaviour. Information seeking models were often derived while observing children or students search for information to fulfill their assignment

needs. One such model was Hayden's (2001) Information seeking process model (ISPM) which was adapted from Wilson (1981) and Krikelas (1983). The ISPM Model perceived the process in a given environment which led the user to search for information using various sources, such as the library information systems (OPACs), the human resources (librarians, peers) and other resources (home library, mass media, bookshops). This actions in turn would lead to either a success, which resulted in satisfying the original need or non-satisfaction or a failure. Non-satisfaction may result in the process being repeated. A model forwarded by Kuhlthau (1999) was the Information Search Process (ISP). The model was developed based on longitudinal investigations of high school students' information seeking behaviour and focused on the affective (feelings), cognitive (thoughts) and physical state (actions and strategies) which manifested during the seeking process (Lamb, 2003). Another instrumental model was the Big 6™ Skills developed by Eisenberg and Borkowitz (1990), which placed information seeking within six stages which people go through either consciously or not when searching for information to solve a problem, The stages comprised task definition, formulating seeking strategies, locating and accessing sources, using sources, synthesizing and evaluating sources (Eisenberg, 2001).

Previous studies on information seeking behaviour of children and young adults were focused on information seeking in a school media center or school library context, where the information needs were either pre-defined by the teachers given for their assignments or of their own interests. Very few studies were carried out in the context of children's public libraries. Children who visit public libraries have different reasons for doing so and therefore have varied needs, educational and for leisure. This paper attempts to relate the results of a study which traced and map children's behaviour when searching for books to borrow or use in two children's library in Kuala Lumpur and Petaling Jaya, Malaysia.

2. Methodology

This paper (a) describes the strategies used by Malaysian urban children in selecting books to borrow or use in two public libraries; (b) traces the information-seeking patterns adopted by the children; and (c) identifies the problems children faced when choosing books or searching for information in the children's libraries.

The study was conducted in two public libraries; the Kuala Lumpur Children's Library and the Bayan Budiman Children's Library in Petaling Jaya. Both libraries serve urban dwellers. The Kuala Lumpur Children's Library had 4,015 children registered as members, is housed in a two-storey building and managed by the Kuala Lumpur City Council. The Bayan Budiman Children Library is strategically located near residential areas, schools as well as a hospital and was opened in 2000. Both libraries are selected based on the following criteria; (a) both are located in an urban area and are accessible by the public; (b) both libraries have allocated a separate section for their children's collection and resources and provided basic lending and reference services; (c) both libraries hold substantial collection of both fiction and non-fiction books for children between the ages twelve and below; (d) the sections in the children's section were well signage and the layout facilitate easy observation of children as they use the library; and (e) the chief librarians of both libraries gave their consent to the study being conducted within these premises. This study was conducted during the opening hours of the libraries on every weekend for a period of one month between April to May 2006. The weekends was chosen because of the higher volume of children visiting the library either alone, with their friends or with their family members.

For this study, the population was library users who borrowed or read books from the children's section of the selected libraries. The children were aged between seven and twelve years old, who borrowed or read books from the children's section of the library. A

total of 43 children were randomly selected, with 25 children from the Kuala Lumpur Children’s Library and 18 from the Bayan Budiman Children’s Library. The respondents comprised 19 boys and 24 girls, 14 were aged between 7 to 9 and 29 were between 10 to 12 years old. A starting point was determined when the first child who entered the library with a purpose of selecting books to borrow or browse. The child was observed for fifteen to twenty minutes before being approached for the focus interview, which would take another five to ten minutes. After the session ended, the next child who entered the library was selected and the same procedure was repeated.

The instruments used to obtain data for this study were unobtrusive observation and structured interviews. To iron-out obscurity in the gathering process a few test cases were tried out to locate strategic points where the researcher could study respondents clearly. The structured questions to be used in the interviews were also tried out to eliminate misunderstandings with questions posed.

The unobtrusive observation was employed to collect data on the observable actions of the children when they entered the libraries until they have selected a book to borrow, read or browse. This movement was identified as the beginning of the information seeking process. The behaviour observed during the shelf searches were classified into four dimensions of the Information Search Strategies (ISS) adapted from Belkin et al (1993) (Table 1 and Table 2).

Table 1: Adapted ISS Dimensions Rating Sheet Used to Observe Children’s Behaviour

Behaviour	Strategies							
	Method		Goal		Mode		Resource	
	Scan	Search	Learn	Select	Recognize	Specify	Infor	Meta
Detail descriptions		X		X	X			X

Table 2: Belkin’s ISS Indicating 16 Possible Behavioural Combinations

Behaviour Type	Strategies							
	Method		Goal		Mode		Resource	
	Scan	Search	Learn	Select	Recognize	Specify	Infor	Meta
1	X		X		X		X	
2	X		X		X			X
3	X		X			X	X	
4	X		X			X		X
5	X			X	X		X	
6	X			X	X			X
7	X			X		X	X	
8	X			X		X		X
9		X	X		X		X	
10		X	X		X			X
11		X	X			X	X	
12		X	X			X		X
13		X		X	X		X	
14		X		X	X			X
15		X		X		X	X	
16		X		X		X		X

Method in this context refers to method of interactions children used such as:

- Scanning - looking around, browsing each book shelf, familiarizing themselves with the library and its collection while searching for something interesting.
- Searching - looking for a specific known item

The goal of interaction refers to:

- Learning - inspecting items and their contents or browsing among item descriptor.
- Selecting - identifying useful items

The Mode of retrieval refers to:

- Recognition - looking around within a group of items
- Specification - searching for items on an identifiable topic.

Resources in this context refer to:

- Information item - checking descriptors or organization scheme such as bibliographic lists, catalogues, tables of contents.
- Meta information creation - observable items from the books itself

This model was also used by Cooper (2002) in her study of the behaviour of 7-year old children in a semi-structured situation.

After being observed the children were approached and interviewed using a structured interview instrument. The interview sessions was personally administered by the researcher. The researcher reads out questions and choice of answers and the answers chosen would be ticked. The questionnaire elicit the following information; a) demographic data of the respondents (age and gender), (b) book selection criteria (method for choosing books, characteristics of the books selected; and (c) the types of problems frequently experienced when choosing a book or searching for information.

3. Results

(a) Observed Sequence of Behaviour Exhibited by Respondents

The information search strategies recorded in the rating sheet (Table 1) represented the behaviours that were exhibited at least once by the respondents during their searching process. Due to the large number of participants in the study, the number of times a strategy was used or repeatedly performed was recorded as a single tick. The ratings started with the respondents approaching the shelf to browse the collection. Browsing in this context refers to movements from one shelf to another or a direct approach to intended shelf. The children's searching behaviour could be grouped into four categories.

(i) Category 1, "Unfocused" Searching Behaviour

A total of 16 children (37.2%) showed sequences of these behaviours. This group of children browsed from one shelf to another, looking at items on tables, books on display and select books based on their cover which appeared interesting to them (Table 3).

Table 3: Unfocused Searching Behaviour for Children in Category 1

Behaviour	Strategies							
	Method		Goal		Mode		Resource	
CATEGORY 1	Scan	Search	Learn	Select	Recognize	Specify	Infor	Meta
Look at signage	X		X		X			X
Browse from one shelf, table to another, browse book displays	X		X		X		X	
Select book (by cover) which appears interesting	X			X	X		X	
Flip the pages to specify the content	X		X		X		X	
Closely examines pages and pictures	X			X	X		X	
Directly approach a shelf to select book based on specific characteristics from the cover (author/title/series)		X		X		X	X	

They tended to move around a lot while browsing. The sequence of behaviour adopted were *Scanning* available books in the library which involved picking any book which they perceived as being interesting, flipping the pages in order to gauge the content. Once they perceived the book to be of interest or relevant to their need they would *Select* the book and would examine the content more carefully, checking the pictures and pages. This would subsequently lead to *recognition* that the topic is of interest as a result of identifying the *Information* on the book. They would also choose different books with similar characteristics by *Searching* for a specific book, make a *selection*, *specify* characteristics and identify the relevant *information* on the book. In summary, children in this category commonly used scanning as a method, recognition as a goal, with the goal to learn and select the book of their choice. The most favoured resources were those which the children recognized directly as having relevant information when looking at books. The browsing behaviour for this group of children took a longer period of time and were more intense, reflecting that they were unfocused and was not looking for anything specific.

(ii) Category 2, “Semi-Focused” Searching Behaviour

A total of 8 children (18.6%) showed sequences of these behaviours. This group of children showed similar browsing behaviour of moving from one shelf to another, but when they select their books, they tend to focus on certain topic, subject or genre such as forensic science, airplanes and mystery novels (Table 4). They would focus their attention longer at certain shelves. The strategy sequence adopted were *scanning* the collection of books on the shelves, *selecting* a book, *specifying* certain topic, subject and identifying the *information* on the book. They scan the pages of the selected book, flip the pages to ensure the book contains the specified subject, adopt the word selection strategy, picking out words associated with the specified topic, genre and subsequently identify the information in the book. Additionally, they would check the front and back cover of books, look at table of contents, search for certain words on the topic, subject or genre, look for meta-information from the table of contents or index. For those who spent more time at certain shelves checking the contents of a book for a topic related to their interest, they would scan the shelf, select a book when they recognize the topic. Having done this the respondent might choose another book with similar characteristics be it similar titles, same authors or same series.

Table 4: Semi-Focused Searching Behaviour for Children in Category 2

Behaviour	Strategies							
	Method		Goal		Mode		Resource	
CATEGORY 2	Scan	Search	Learn	Select	Recognize	Specify	Infor	Meta
Look at signage	X		X		X			X
Browse from one shelf, table to another, brows book displays	X		X		X		X	
Select book (by cover) on specific subject, topic, genre	X			X		X	X	
Flip the pages, search for words representing topic of interest	X			X	X		X	
Check the table of contents, index, search for words associated with topic wanted		X		X		X		X
Directly approach a shelf to select book based on specific characteristics from the cover (author/title/series)		X		X		X	X	

For children in Category 2, the commonly used method is to *scan* with equal use of *recognition* and *specification* as the mode and *selection* is based mainly on *information* found on the book.

(iii) Category 3, "Focused" Searching Behaviour

There were 7 children (16.3%) who exhibit Category 3 searching behaviour. This group of children seemed to know what they want. They would search for books based on specific title, author, series, looking for this information as they scan the shelves (Table 5). As books were retrieved they would *scan* the contents by flipping the pages and reading the blurb, *select* an interesting storyline, chapter, *recognize* something of interest and looked for *information* from the book to decide whether they were relevant to their specific interests. This group of children used equal amount of *scanning* and *searching* as a method, with the main goal of *selecting* a book and used both mode of *recognition* and *specification* when deciding to choose a book and gauge relevance level of the book based on *information* directly obtained from the book's blurb or selected chapters.

Table 5: Focused Searching Behaviour for Children in Category 3

Behaviour	Strategies							
	Method		Goal		Mode		Resource	
	Scan	Search	Learn	Select	Recognize	Specify	Infor	Meta
CATEGORY 3								
Directly approach a shelf to select a book based on specific characteristics, author, title, series		X		X		X	X	
Check the content for relevancy by flipping the pages or read blurbs	X			X	X		X	

(iv) Category 4 "Very Focused" Searching Behaviour

There were 11 children (25.53%) who exhibited Category 4 searching behaviour. This group of children would approach a shelf directly and quickly browse the books on the shelf. In this instance, the book on the shelf they have chosen might be from the same series or written by an author (Table 6). The sequence of the strategy adopted were *searching* for specific title, *select* a book, *recognize* the book upon sight from information available on the book itself. As they retrieve the book they might examine the content to ascertain relevancy to their interest.

Table 6: Quick Searching Behaviour for Children in Category 3

Behaviour	Strategies							
	Method		Goal		Mode		Resource	
	Scan	Search	Learn	Select	Recognize	Specify	Infor	Meta
CATEGORY 3								
Browse the shelf quickly to select books of specific characteristics, author, title, series		X		X	x		X	
Check the content for relevancy by flipping the pages or read blurbs	X			X	X		X	

(b) Observed Emotional State Exhibited by Respondents

The respondents had expressed some emotions during the different stages of the book selection process. During the initial stage, they would exhibit excitement upon seeing the large collections of books to choose from. This could be observed from the way they explore one shelf to another and calling their companion (parents, sibling or friends) upon seeing something of interest to them. Some respondents would look at the signage to help them understand the location or organization of books. Those from group 1 and 2 would show signs of uncertainty or confusion in the midst of the scanning process and consult their companions frequently to help in focusing their search. Some confusion were also

displayed when making decisions on which book to borrow since they were allowed to borrow a maximum of 2 books (Bayan Budiman Library, Petaling Jaya) and 5 books (Kuala Lumpur Children's Library). On some occasions, they would approach the librarian behind the circulation computer or the researcher (thinking that the researcher is a staff) for information.

(c) Validating the Method Used to Locate Books through Interviews

Each of the observed respondents was interviewed as soon as they pick up a book to browse or borrow. The interview was conducted using a structured questionnaire and among the questions asked was the method they have used to locate their books. A total of 30 out of 43 children (69.8%) indicated that they located their books using the shelves browsing technique. They would decide which book to choose as they go along. Other methods used to choose books were through their companion's help (9, 20.9%) and only 2 (4.7%) children indicated looking for books by its call number. This usually occurred when the children would use a call number which they have used to locate books during previous visits. Other methods used include selecting any books left on the table by previous users or from the 'New book' display area.

(d) Validating the Characteristics of Selected Books

Six characteristics of the selected books which children preferred have been identified based on the interviews. A total of 24 (55.6%) out of 43 children have chosen books, because of their attractive covers. This was followed by the interesting storyline of the book which was discovered during the process of flipping through the pages of the books or reading the blurb at the back of the book (22, 51.2%). The children also have chosen books which they were familiar with, because the selected book covers their favourite subject such as mystery stories or written by their favourite author such as Enid Blyton or because they liked books published in a certain series such as "The Bookworm Club" and "Eyewitness Series". Six (14%) children prefer books with attractive illustrations, while three (7%) select books which they perceived to contain information needed for revision purposes. When responses were cross-tabulated with age of the respondents, it was found that the older group of children (ages between 10 to 12 years old) were more likely to choose books based on interesting storyline (18, 62.1%) than younger children (ages 7 to 9 years old) (4 (28.6%) ($\chi^2 = 4.240, p = 0.039$). There was also a significant difference between children's ages and the selection of books based on attractive illustrations, which tended to be used by younger children (ages 7 to 9 years old) ($\chi^2 = 11.095, p = 0.0001$).

(e) Problems faced by Children When Choosing Books

The majority of the children interviewed indicated that they have no problems in choosing books to borrow or read (34 out of 43, 79%). Those who indicated having problems mentioned the difficulty of choosing from such a huge collection and that the books were unorganized

(f) Mapping the Behaviour Using Hayden's Model

A non-linear model is used to map the observable strategies and actions taken when searching for information (Figure 1). The model suggests that children in this study perceived a need in two contextual situations that is searching for books for recreational reading and revision for examination. The children visiting the library for recreational reading materials will exhibit interest-driven actions (Category 4), since they will be looking for books based on their interest. Children who visited the library to do revision will be those searching for materials related to the topic of their school work (Category 3). The perceived need will lead the user to search for information, browsing, scanning and selecting a variety of information sources. These information sources include the information systems (in this case the children's libraries and the materials within it) and human resources (peers, parents and librarians). Information seeking strategies in the model suggests a non-linear approach by the children, accommodating branching in and

out of the normal sequence. This behaviour is similar to the Big 6 skills process (Eisenberg and Berkowitz, 1990) which indicated that as a subject's knowledge grow, different avenues and sources need to be investigated and through this action the gap in knowledge will be identified and actions will be geared towards closing the gap. The information seeking strategies selected would lead to a success or failure. If successful, the items is located and will be borrowed or use. This may result in satisfaction or non-satisfaction of the originally perceived need. When non-satisfaction occurred, the information seeking may be repeated until satisfaction occurred.

4. Conclusion

Shelve browsing seemed to be the most popular method of locating books for recreational reading. This observation is supported by the findings obtained from the structured interviews as well as previous studies conducted by Wicks (1995) and DeAngelo, et al. (1997). These imply that organization of books on the shelves, clear shelf signage, highlighting books of interest is an important strategy in children's library to encourage use. The Malaysian children studied also seemed to adopt a combination of strategies which were acted out from both macro to micro levels (Shenton and Dixon, 2004a).

The behavioural strategy exhibited by children in the present study correspond with the categorization proposed by Chang (1995) that children would browse with either a well-defined goal (to find a book by an author, title, series, behavioral strategy in Category 3 and 4) or semi-defined (to find a book on a subject or genre, behavioural strategy in Category 2), or an ill-defined goal (looking for something interesting but not sure what, behavioural strategy Category 1). The behavioural category strategies of the present study were also compared with Belkin's (1993) ISS strategy combinations (Table 7). The Category 3 and 4 of the present study is similar to Belkin's ISS-15, ISS-5 and ISS-13 which is associated with a concrete browsing approach rather than an abstract analytic approach. The children visually scan purposefully to recognize and physically select books. This is especially exhibited by older children (ages 10 to 12 years old) who would more likely select books by specific author (Machet, 2002; Wicks, 1995). However, children of all ages tended to choose books by certain series. This infers that children's strategies may be influenced by their previous reading experience and visits to the library. Those who have visited the library previously would be able to browse more effectively, wasting less time in the browsing process.

Children who browse for books by subject or genre were those categorized in Category 4. In this study these children were mainly between the ages 7 to 12 indicated preference for adventure and mystery books or non-fiction, especially books on forensic science, airplanes and world wars. In this context the organization of books on the shelves is importance. The children's browsing behaviour while looking for books on a particular subject could be utilize to place visually attractive books in the neighbouring shelves close to their subject of interest. The chances of books being picked and read without it necessarily being looked out for will more likely occur in this situation.

Ill-defined browsing was mainly indicated by younger children (ages between 7 to 9) and these children tended to read more diversely, since they were not looking for anything particular but would pickup books that they perceived to be interesting. Machet (2002) indicated this group of shelve browsers like to experiment and it is useful to expose them to larger genre of books to develop their reading habits and interests. Libraries could utilize this ill-defined behaviour by putting-up interesting book displays or purposely placing books on tables in the hope that they will be picked-up.

The use of call numbers to locate books was utilized by a very small number of children in this study who were older, between the ages of 10 to 12 year old and were frequent library users. Children in this middle childhood to pre-adolescent stage (Brown, 2004) were capable of assimilating logical thought processes and could receive instruction to locate items using the catalogue. This would help facilitate their transition to adult reading area where the use of the catalogue becomes quite necessary in a library with large collection.

The presence of special children's librarians is extremely important to resolve uncertainty and anxiety amongst children when visiting the library. A pleasant experience would likely result in library returnees. The experiences children have in the library between the ages of 7 and 12 years old would affect the way they use the libraries in adolescence and adulthood (Kuhlthau, 1986). Professional help is needed especially among younger children who lacked the experience and limited vocabulary to interact effectively with sources they are choosing. Library anxiety may occur when children become overwhelmed with the huge collection of books. Exhibitions, informal and impromptu information literacy instructions would help acquaint children with the organization of the library, the arrangement of the collection and the facilities in attempt to reduce anxiety and enable effective use.

References

- Belkin, N.J., Marchetti, P.G. and Cool, C. 1993. BRAQUE: design of an interface to support user interaction in information retrieval. *Information Processing & Management*, Vol.29, no.3: 325-334.
- Broch, Elena. 2000. Children's search engines from an information search process perspective. *School Library Media Research* 3. Available at: <http://www.ala/aaslpubsnajournals/slmrb/slmconens/volume32000/childrens.htm>
- Brown, Anita. 2004. Reference services for children: information needs and wants in the public library. *The Australian Library Journal*, Aug: 261-274.
- Bruner, J.S. 1966. *The process of education*. Cambridge: Harvard Univ. Press.
- Chang, S. 1995. Towards a multidimensional framework for understanding browsing. Ph.D thesis – State University, New Jersey.
- Cooper, Linda Z. 2002. A case study of information seeking behaviour in 7-year old in a semistructured situation. *Journal of the American Society of Information Science and Technology*, Vol.53, no. 11: 904-922.
- De Angelo, Nancy; Karyl Reents and Connie Zomboracz. 1997. Improving reading achievement through the use of parental involvement and paired reading. M.A. Dissertation – Saint Xavier University, Chicago.
- Dervin, B. 1983. An overview of sense-making: concepts, methods and results to date. *Annual Meeting of the International Communications Association*, May, Texas.
- Eisenberg, Michael. 2001. A Big6™ Skills; Overview. Available at, <http://www.big6.com/showarticle.php?id=16>.
- Eisenberg, Michael and Borkowitz, Robert E. 1990. *Information problem-solving: the Big Six Skills approach to library and information skills instruction*. Norwood, NJ.: Ablex Publishing.
- Everhart, Nancy and Hatcher, April M. 2005. How relevant are standardized subject headings to school curricula? *Knowledge Quest*, Vol.33, no.4: 17-39.
- Fogget, Tracy. 2003. Information literacy at the primary school level, *The Australian Library Journal*, Feb: 55-62.
- Hayden, K. Alix. 2001. Information seeking models. Available at, <http://www.ucalgary.ca/~hayden/seeking.html>.
- Hyman, R. 1972. *Access to library collections: an enquiry into the validity of the direct shelf approach, with special reference to browsing*. Metuchen: Scarecrow Press.

- Krikelas, James. 1983. Information seeking behaviour: patterns and concepts. *Drexel Library Quarterly*, Vol.19, no.2: 5-20.
- Kuhlthau, Carol. 1986. Stages in child and adolescent development and implications for library instructional programs. In: *Information seeking: basing services on user's behaviour*. Edited by J.Varlejs. North Carolina: McFarland.
- Kuhlthau, Carol. 1992. *Seeking meaning: a process approach to library and information services*. Norwood, N.J. : Ablex Publishing.
- Kuhlthau, Carol. 1999. Accommodating the user's information search process: challenges for information retrieval system designers. *Bulletin of the American for Information Science*, Vol.25, no.3: 12-16.
- Lamb, Annette. 2003. Information inquiry for teachers. Available at, <http://eduscapes.com/info/isp.html>.
- Machet, M.P. 2002. Young people's reading interests in South Africa, *Mousaion*, Vol.20, no. 1: 44-72.
- Marchionini, G. 1985. *Information seeking in electronic environment*. Cambridge: University of Cambridge University Press.
- Piaget, J. and Inhelder, B. 1969. *The psychology of the child*. New York: Basic Books.
- Shenton, A.K. and Dixon, P. 2003. Youngsters' use of other people as an information-seeking method. *Journal of Librarianship and Information Science*, 35 (4): 219-233
- Shenton, Andrew K. 2004. The application of information seeking concepts to the behaviour of young people. *Education Libraries Journal*, Vol.47, no.3: 5-10.
- Shenton, Andrew K. and Dixon, P. 2004a. Issues arising from youngsters information seeking behaviour. *Library & Information Science Research*, Vol.26: 177-200.
- Walter, Virginia A. 2003. Public library service to children and teens: a research agenda. *Library Trends*, Vol.51, no.4: 571-589.
- Wicks, Jonathan. 1995. Patterns of reading among teenage boys: the reading habits and book preferences of 13-15 year old boys. *New Library World*, Vol.96,no.1122: 10-16.
- Wilson, T. D. 1981. On user studies and information needs. *Journal of Librarianship*, Vol.37, no.1: 3-15.

Table 7: Comparison between Shelves Behaviours with Belkin's ISS

Behaviour	Strategies								Belkin's ISS Type
	Method		Goal		Mode		Resource		
CATEGORY 1	Scan	Search	Learn	Select	Infor	Meta	Infor	Meta	
Look at signage	X		X			X		X	ISS-2
Browse from one shelf, table to another, brows book displays	X		X		X		X		ISS-1
Select book (by cover) which appears interesting	X			X	X		X		ISS-5
Flip the pages to specify the content	X		X		X		X		ISS1
Closely examines pages and pictures	X			X	X		X		ISS-5
Directly approach a shelf to select book based on specific characteristics from the cover (author/title/series)		X		X	X		X		ISS-15
CATEGORY 2	Scan	Search	Learn	Select	Recognize	Specify	Infor	Meta	
Look at signage	X		X		X			X	ISS-2
Browse from one shelf, table to another, brows book displays	X		X		X		X		ISS-1
Select book (by cover) on specific subject, topic, genre	X			X		X	X		ISS-7
Flip the pages, search for words representing topic of interest	X		X	X	X		X		ISS-5
Check the table of contents, index, search for words associated with topic wanted		X		X		X		X	ISS-16
Directly approach a shelf to select book based on specific characteristics from the cover (author/title/series)		X		X		X	X		ISS-15
CATEGORY 3	Scan	Search	Learn	Select	Recognize	Specify	Infor	Meta	
Directly approach a shelf to select a book based on specific characteristics, author, title, series		X		X		X	X		ISS-15
Check the content for relevancy by flipping the pages or read blurbs	X			X	X		X		ISS-5
CATEGORY 4	Scan	Search	Learn	Select	Recognize	Specify	Infor	Meta	
Browse the shelf quickly to select books of specific characteristics, author, title, series		X		X	x		X		ISS-13
Check the content for relevancy by flipping the pages or read blurbs	X			X	X		X		ISS-5

Figure 1: The Non-Linear Information Strategy Model

