

Working Paper Series

ISSN 1177-777X

**Browsing and book selection in the physical library shelves**

**Sally Jo Cunningham, Hayat Alqurashi, Annika Hinze,  
Nicholas Vanderschantz, Claire Timpany, Ralf Heese**

Working Paper: 02/2013

February 2013

© 2013 Sally Jo Cunningham, Hayat Alqurashi, Annika Hinze,  
Nicholas Vanderschantz, Claire Timpany, Ralf Heese

Department of Computer Science

The University of Waikato

Private Bag 3105

Hamilton, New Zealand

# Browsing and book selection in the physical library shelves

Sally Jo Cunningham<sup>1</sup>, Hayat Alqurashi<sup>1</sup>, Annika Hinze<sup>1</sup>,  
Nicholas Vanderschantz<sup>1</sup>, Claire Timpany<sup>1</sup>, Ralf Heese<sup>2</sup>

<sup>1</sup>University of Waikato, New Zealand

<sup>2</sup>Freie Universitaet Berlin, Germany

## Abstract

Library users should be conveniently interact with collections and be able to easily choose books of interest as they explore and browse a physical book collection. While there exists a growing body of naturalistic studies of browsing and book selection in digital collections, the corresponding literature on behaviour in the physical stacks is surprisingly sparse. We add to this literature in this paper, by conducting observations of patrons in a university library as they selected books from the shelves. Our aim is to further our understanding of patterns of behaviour in browsing and selection in physical collections.

**Keywords:** participant observation, book selection behaviour, information seeking behaviour.

## Introduction

Taking out a physical book from the library typically consists of the following steps: searching the catalogue for books of interest, physically retrieving the books from the shelves, and reading the book for the desired content. The first and third steps have been well studied; the step of retrieving the book from the shelves has not been sufficiently explored as it is typically assumed to contribute little to the book selection process.

In this paper, we argue that during the retrieval of books from the physical shelves readers verify if the book (generally identified through catalogue search) is actually relevant to their information needs. Further, during physical retrieval of the book, a reader typically also browses the adjoining shelf space for other interesting books and, again, uses physical cues to decide which books to take home. Surprisingly, which cues readers use has not been extensively investigated.

## **Related work**

We focus on ethnographic, observational studies of book selection (rather than research based on post-hoc interviews, lab-based or otherwise artificial search experiments, survey or questionnaires, etc.). Surprisingly few primarily observational studies have been conducted in libraries or bookstores, and for the majority of these studies the selection process has not been the primary focus: for example, the comprehensive ethnography of the Loughborough University Library examines how library users work, study, and interact socially within the library's open-plan environment, where interactions with books are primarily considered *after* they have been chosen from the shelves (Bryant, 2009; Bryant et al, 2009); Stein (1984) examines customer behaviour in an 'adult' bookstore, but the focus is on eliciting norms of behaviour in this special environment rather than selection strategies; and studies of browsing, reading, and social behaviour in the Singapore Borders bookstore also primarily examine customer information behaviour after the point at which a book or magazine has been selected (Trager, 2005; Bohley, 2011).

Of the few existing studies of book selection practices, most focus on children. One early study involving observations of children locating and selecting books for later reading in a physical library (Reuzel and Gali, 1998) identified that selection was often based on ease of sight (e.g., the children preferred books on shelves at eye level), that the children preferred books with covers in colours that they found attractive, and that content played a lesser role

in their selection decisions (even when the children flipped through the books, presumably to gain insights into the content). Like adults, children tend to “satisfice”—that is, to choose the first book(s) that seem likely to be relevant, rather than to engage in more extensive search / browsing to clearly identify the most relevant book to their information needs (Moore, 1995).

One of the very few published studies that observed adults selecting books in a library is the work by Stelmaszewska and Blandford (2004), looking at the book selection behavior of computer scientists in a physical, academic library. Here, the participants appeared to take content into account in selecting documents. They also were guided by a book’s appearance: they looked at the cover to gauge the age of the book and its degree of wear (for example, whether the book was dusty) as a proxy for how likely the book was to have been consulted by others. Our earlier study of a broader range of adults seeking books in libraries found many of the same things: that covers are perceived by readers to convey important information in book selection, and that the apparent age of the book is significant when making a selection decision (Hinze et al., 2012). In contrast, a bookshop study by Buchanan and McKay (2011) found that the most observed shoppers purchased books without first flipping through or otherwise examining their contents; however, these shoppers were primarily purchasing books on behalf of another person (and so presumably the criteria for purchase are externally set by the recipient of the book, rather than by the purchaser).

## **Study Method**

We observed how physical books are assessed when a patron approaches the shelves in a university library: specifically, we noted patron actions in viewing, examining, and browsing shelves of books. In an earlier study (Hinze et al, 2012), patrons were observed only briefly (about 2-3 minutes) and then interviewed by the researcher; the interviews offered the opportunity for the patrons to retrospectively summarize searching and browsing behaviours from the un-observed portion of their visit to the library. The majority of those observations

occurred during the initial period of the patrons' excursions to the stacks (that is, the patrons frequently continued to browse after the observation / interview concluded).

In this present study, we conducted anonymous participant observations in which we observed patrons over longer periods (5 to 45 minutes for each patron, with a mean of 10 minutes). These lengthier observations allowed us to view complete interactions--from the initial approach to the stacks through to the final selection of books to check out (or alternatively, the decision to leave the library bookless)--and so to build richer descriptions of the patrons' book retrieval 'journeys' that are not dependent on the patrons' recollections of their own behaviour. However, with these anonymous observations we no longer have insights into the patrons' motivations, information needs, or search activities prior to the visit to the physical library.

We adapted the taxonomy of Reutzell, & Gali (1998) as introduced in (Hinze et al., 2012) to record and analyse the observational data. The following coding categories were used for our anonymous participant observations:

- 1. sampled book geography:** the areas of the library or bookshop that were examined to find books, e.g., section or shelf.
- 2. book location behaviour:** how readers locate a desired book within the physical library or bookshop, e.g., looking at the spine or taking a book off the shelf.
- 3. book sampling behaviour:** the parts of a book readers examine to determine if a book is interesting, e.g., front cover, index or illustrations

## **Participant Sample**

We observed 40 visitors at the central library of Anonymous University (AU). We here compare our results with 45 library patrons observed in a previous study executed at the same library (AU) and the Philological Library of the Freie Universitaet Berlin (FUB), previously

reported in (Hinze et al., 2012). The criterion for choosing a patron for observation (for both this present study and the previous study) was that the patron was actively browsing the bookshelves (that is, people socializing, reading, or napping in the aisles were not considered for observation).

We estimated the age of each visitor (see Figure 1). Naturally, at a university library most patrons are young students. The differences in age distributions across the two studies are not statistically significant.

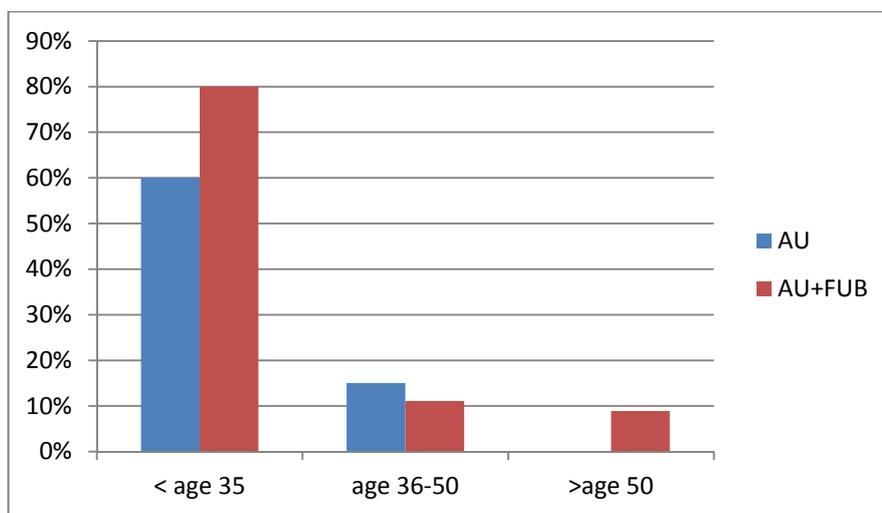


Figure 1: Age distribution of observed library patrons (percentage of the number of observed patrons in each study)

In this present study, the gender of the observed patrons was nearly evenly divided (21 female, 19 male); the gender ratio in the earlier study was marginally skewed to female participants (19 female, 16 male). 10 of the 40 library patrons in this present study were observed to be browsing in pairs or in small groups, where all of the observed patrons in the previous study had browsed solo.

## **Results & Discussion**

We discuss here our observations regarding the three parts of our taxonomy (sampled book geography, book location behaviour, book sampling behaviour). Conclusions from our observations are drawn in the next section.

### **Sampled Book Geography**

Figure 2 shows that patrons on both studies exhibited similar behaviour when approaching the shelves: most looked preferentially at books that were at eye level, then books below eye level, and then above eye level. Note that the (Hinze et al., 2012) encodings for eye gaze are incomplete; 3 of the patrons examined display books (which are presented apart from the ‘normal’ spine-out shelves), and for an additional 24 patrons the eye gaze patterns were not recorded.

Not surprisingly, most patrons in the briefer (Hinze et al., 2012) observations only focussed on one of the shelf locations (that is, eye level, above eye level, or below eye level). In the lengthier observations for this present study, most patrons extended their browsing to include other shelf areas: 3 people were seen to focus on only one area, 15 examined two, and 21 used all three search areas (one patron’s eye gaze was not recorded). By contrast, in the (Hinze et al., 2012) study, of the 18 patrons whose eye gazes locations, 8 focused on one area, 7 on two areas, and 3 examined all three areas.

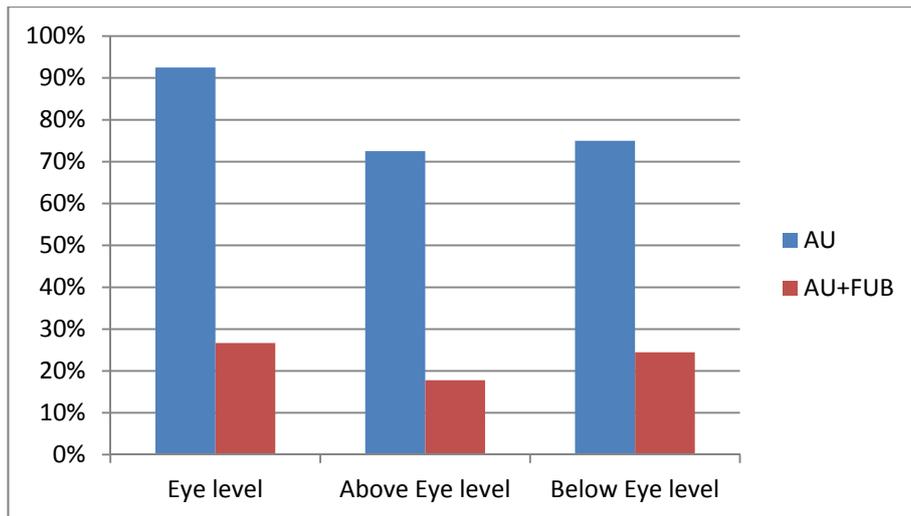


Figure 2: Patrons' eye gaze  
(percentage of the number of observed patrons in each study)

### Book Location Behaviour

One can see from Figure 3 that the longer observation periods from this present study capture a wider *range* of behaviours for individual patrons--that is, the longer observations indicate that a given patron is likely to exhibit a greater number of the listed behaviours, as well as more instances of a particular behaviour.

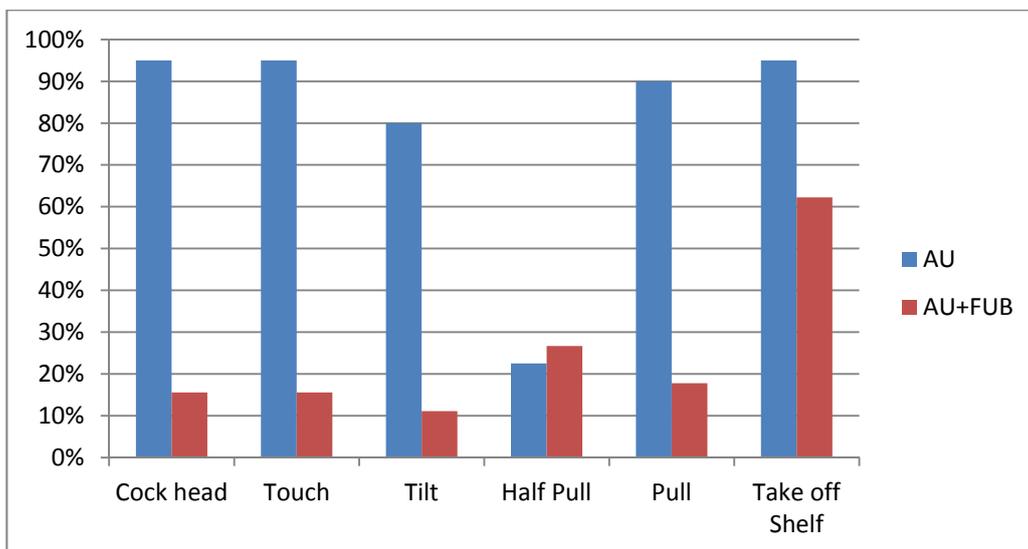


Figure 3: Book location behaviour  
(percentage of the number of observed patrons in each study)

Figure 3 does not capture the timing of the behaviours in an individual session. For this present study, a typical observation begins with the patron locating a set of shelves of potential interest, standing a few feet back from the shelves, and then spending a short period (from a few seconds to a few minutes) intensely looking at the spines of a few books. The patron then begins to physically interact with the books (tilting, pulling, *etc*), occasionally stepping back to scan an adjacent portion of the shelves. The number and nature of the physical interactions is striking: it is not clear how much more is learned about a book by touching, tilting, or half-pulling rather than by simply examining the spine, but the patrons obviously felt a need for physical as well as visual engagement.

Most importantly, overall a higher proportion of people in this present study removed a book from the shelves for closer examination during the observation period (95% vs. 62% in the previous study).

### **Book Sampling Behaviour**

As with the book selection behaviour, an examination of book sampling behaviour (see Figure 4) indicates that patrons seem to *interact more* with the books over time. Of particular interest are the outliers to this general observation: the back cover, table of contents and illustrations seemed to be of less interest when spending a longer time at the library. Instead, patrons start reading and flipping through books more.

The longer that a patron interacted with a specific book, the less clear the distinction became between behaviour aimed at book sampling with the goal of decision making, or the actual ‘consumption’ of the book there and then. We note the relatively low proportion of patrons consulting back cover and table of contents: these seem to be aspects that are most useful for initial decisions about the potential usefulness of a book, but are less useful when actually reading or focusing on portions of a book. In our most extreme observed outlier of

on-the-spot book consumption, one patron manually copied elaborate manga drawings into her art notebook. The patron did not seem to intend to borrow the book, but instead stood in the aisle to ‘read’ the book and copy the images of interest to her.

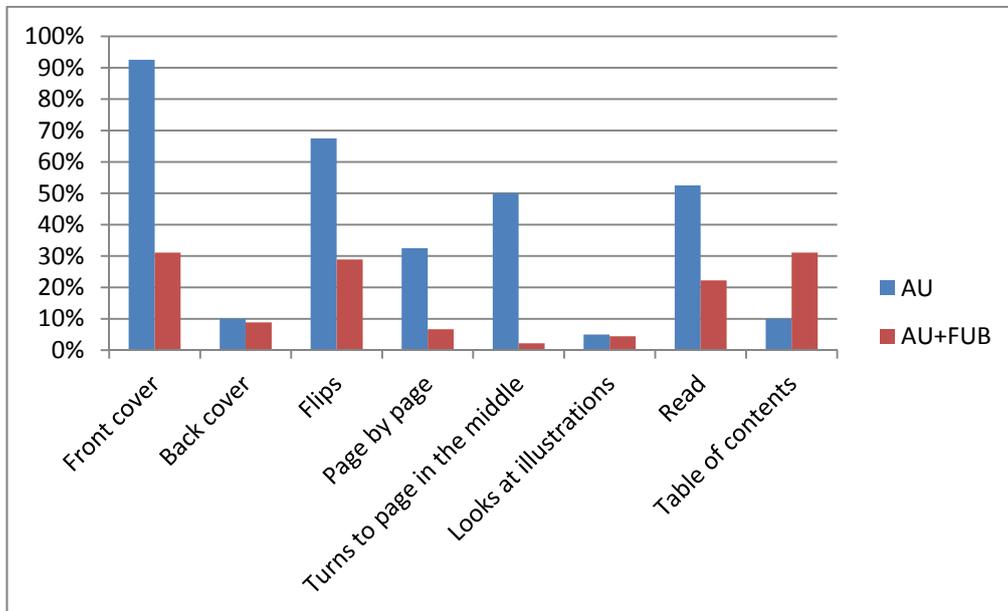


Figure 4: Book sampling behaviour (percentage of the number of observed patrons in each study)

27 of the 40 patrons observed (67%) did borrow at least one book that they pulled off the shelf to examine. 16 of these 27 had previously read a portion of the book while standing in the stacks, 18 had flipped through the book, and 9 had turned page by page through a portion of the book. All patrons who examined the table of contents (4 of 40) borrowed that book, and 3 of the 4 people who examined the back-cover borrowed that book (where 2 of these 4 also examined the table of contents). The remaining significant relationship between book sampling behaviour and the decision to borrow that particular book seems to be the reading of the book in the stacks: 38% of the patrons who did not borrow the book they were sampling read portions of the book (5 of 13), while 59% of the patrons who did borrow the book they were sampling had read portions of the book (16 of 27). Reading is clearly a better predictor of a decision to borrow the book than the more rapid scanning techniques (flipping,

looking at illustrations, rapid page turns, skipping to the middle of a book). It is not clear, for the patrons who have read portions of the book but then not borrowed it, whether they have decided that the book is not relevant, or whether they have in that reading time gained the desired information from the book (and so do not need to borrow the book for further consultation).

There does not seem to be a relationship between the length of time spent at the library and the borrowing of books. Books were borrowed both by patrons staying for one minute and for 46 minutes.

## **Conclusions**

This study captures observable behaviour when browsing a physical (non-fiction) book collection, partially replicating an earlier browsing study (Hinze et al, 2012). The lengthier observations of this present study revealed that patron behaviour in a library changes over time: more areas in a shelf (and more shelves in the stacks) are examined, and a wider variety of book interaction techniques (flipping, reading, etc.) come into play. It is unclear why these behaviour patterns vary as the patron browses: did the browsing / scanning techniques first employed fail to identify a useful book (and so the patron adopts a different technique)? Or are there techniques best suited for gaining a 'feeling' for a portion of the shelves, with other techniques useful to finer grained inspection?

We will seek to address these questions in a further examination of these observational data. In this study both quantitative and qualitative data were recorded. Parts of the quantitative data and selected interpretations have been presented here. We conclude that from observing patrons for a longer time without interruption (i.e., no interview) we gained a richer picture of their book retrieval journeys. On the other hand, the concrete data that was previously obtained by interviews is no longer available: patron motivation and decisions can only be speculated about. We therefore believe it will be beneficial to additionally analyse

the qualitative data obtained to gain insight into the patrons' motivation and decisions. We are planning to analyse next the notes on patron activities (such as the copying of the Manga book art), movements (e.g., between shelves and sitting areas) and interactions (e.g., showing a book to another patron).

Additionally, insights from patterns of engagement with physical book collections as gained in this study may be transferable to e-books to create more effective display and search systems. Little is known about why readers are choosing one reading medium over another. One study found that readers primarily ask for physical books in libraries (less than 1% of requests are for e-books) but no details about the readers' preference and motivation are given (Reynolds et al, 2010). The astonishing degree of observed tactile interactions with the physical collection may be one clue as to the motivations behind this expressed preference for physical books--suggesting the expansion of ebook collection browsing facilities to include the ability to 'touch' and manipulate the ebooks in a more natural manner than is currently possible.

## References

- Bohley, K.T.: 2011. "Browsing madness" and global sponsors of literacy: The politics and discourse of deterritorialized reading practices and space in Singapore. *Journal of Audience and Reception Studies*, 8(2), 85-119.
- Bryant, J.: 2009. What are students doing in our library? Ethnography as a method of exploring library user behaviour. *Library and Information Research*, vol 33(10) 3 - 9.
- Bryant, J.E., Matthews, G., and Walton, G. 2009. Academic libraries and social learning space: A case study of Loughborough University Library, UK. *Journal of Librarianship and Information Science*, 41(1), 7-18.
- Buchanan, G. and McKay, D.: 2011. In the Bookshop: Examining Popular Search Strategies. In *Proceedings of JCDL 2011* Ottawa, Canada, June 14-17. ACM, New York, NY, USA.
- Hinze, A. D. McKay, N. Vanderschantz, C. Timpany, SJ Cunningham: 2012. "Book selection behavior in the physical library: implications for ebook collections". *JCDL*: 305-314.

Dana McKay, Annika Hinze, Ralf Heese, Nicholas Vanderschantz, Claire Timpany, Sally Jo Cunningham: 2012. An Exploration of ebook Selection Behavior in Academic Library Collections. The Proceedings of *Theory and Practice of Digital Libraries 2012*: 13-24

Moore, P.: 1995. Information Problem Solving: A Wider View of Library Skills. *Contemporary Educational Psychology*, 20, 1, 1-31

Reynolds, L.J. Pickett, C., van Duinkerken, W. , Smith, J. , Harrell, J. And Tucker, S.: 2010. User-Driven Acquisitions: Allowing Patron Requests to Drive Collection Development in an Academic Library. *Collection Management*, 35(3) 244-254.

Reutzel, D. R. and Gali, K.: 1998. The Art of Children's Book Selection: A Labyrinth Unexplored. *Reading Psychology*, 19, 1, 3-50.

Stein, Michael Carl. 1984. *Private Scenes, Public Places: An Ethnography of an Adult Bookstore*. PhD thesis, The University of Nebraska-Lincoln.

Stelmaszewska, H. and Blandford, A.: 2004. From physical to digital: a case study of computer scientists' behavior in physical libraries. *Journal on Digital Libraries*, 4, 2, 82-92.

Trager, K. D. (2005). Reading in the borderland: An ethnographic study of serious readers in a mega-bookstore café. *The Communication Review*, 8(2), 185-236.