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ABSTRACT

Users' search tactics often appear naïve. Much research has endeavored to understand the rudimentary query typically seen in log analyses and user studies. Researchers have tested a number of approaches to supporting query development, including information literacy training and interaction design; these have tried and often failed to induce users to use more complex search strategies. To further investigate this phenomenon, we combined established HCI methods with models from cultural studies, and observed customers' mediated searches for books in bookstores. Our results suggest that sophisticated search techniques demand mental models that many users lack.

Categories and Subject Descriptors
H.3.7 [Digital Libraries]: User Issues.

General Terms
Design, Human Factors

Keywords
Query formulation, bookstores, observation, material culture

1. INTRODUCTION

Users' formulation of queries is a key contributor to success or failure in searching for information. Researchers have repeatedly noted or criticized the simple strategies adopted by many users [16, 22]. These criticisms have often identified particular patterns of simplistic searching: limited number of query terms (words); minimal use of search modifiers (phrase search, compulsory terms); poor understanding of Boolean and logical techniques.

The literature suggests that while topic expertise influences the quality of search results [8, 23, 34], the defining factor in locating the greatest number of highly relevant documents is using refined search strategies (e.g. Boolean and phrase searching) [17]. A common benchmark for effective searching is the skill of trained librarians [16, 35], who use systematic approaches and subtle combinations of query controls. This stands in stark contrast with the minimal sophistication observed in typical end users [17].

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One approach to understanding the differences between the ways in which information professionals and end users search has been to scrutinize reference interviews between librarians and patrons [9, 15]. While this research showed some initial hope for improvements to digital library interfaces [9], the strategies it suggested have not yet successfully transferred out of the interpersonal domain, and have had little impact on digital library design. A further approach to understanding the differences between information professionals and casual searchers has been to study the search behavior of domain experts [8, 23, 34]. These studies have illustrated the significance of discipline norms, knowledge and practices on the formation of search strategies and the selection of information sources. Domain specialist knowledge does not imply that searchers will use complex query formulations, however; typically domain experts use other strategies to target the information they need [32].

Technology, and its users, do not exist separately from society; digital library researchers have investigated the impact of broader cultural factors on information seeking [1, 2, 4, 14]. This work notes cultural influences on the selection of information sources and genres, the acceptability of library interfaces and the organizational factors that impact on library use. Given the demonstrated impact of academic discipline and culture on information seeking strategies and information source selection, it seems reasonable to propose that cultural factors may also affect query formulation. This paper starts to investigate the nature of cultural context and expectations on the queries that users create.

Libraries, whether physical or digital, academic or public, are clearly not readers’ only source of literature; bookstores have also played a key role in the acquisition of reading materials [20]. Intriguingly, our research revealed little work had been undertaken regarding the queries presented at bookstores. Indeed, a comparison of bookstore and library culture was nearly all we could discover [25]. Given the importance of bookstores to reading, this seems a surprising omission, though they have been used as venues for at least one other study [26].

Information seeking is central to the role of bookshops, and for many library users, as regular a part of their reading lives. It is likely that these other experiences help shape their expectations in libraries (and, indeed vice versa). In bookstores, readers may well use strategies not found in an academic context, and this could help explain some of the problems that have been observed with search in library catalogs. What search tactics, knowledge and methods occur in bookstores? To begin to answer this question, we observed customers’ enquiries in bookshops.

This paper will commence with a review of the analytical and cultural background for our work, followed by a description of our research methodology. The paper then reports the results of a
long series of observations in bookshops, followed by a detailed analysis. The impact of these findings on our understanding of information seekers’ query formulation strategies is then discussed; finally the paper presents our conclusions and suggests avenues for future work.

2. BACKGROUND & FOUNDATIONS
In this section we will give the background to our analysis in two parts: first, we discuss the human-computer interaction (HCI) method used in the work, and how it was tailored for the goals of this study; secondly, we discuss demographics and data that characterize book buying in the United Kingdom, which was used to provide a context for the design of the observation and analysis.

2.1 Cultural studies framework
In HCI, observations are used to inform the design of systems [12]. In this study, we have used this approach to elicit users’ mental models, tasks, and goals, in a context where culture may have a particularly strong influence. While ethnography is the dominant tool for understanding culture, we are not ethnographers and we do not claim to have done an ethnographic study.

In the analysis of our observation data, we drew on three concepts used in cultural studies: discourse and mental models, physical material culture, and cultural diversity theory. It is worth noting that practices in this discipline vary markedly between America and Europe [19, 27]; given the origin of the researchers, and the country of the study, we followed European practice, which is more influenced by history and the humanities, and emphasizes how groups distinguish themselves from each other.

2.1.1 Discourse and Users’ Mental Models
Our observations involved booksellers and their customers. In each enquiry that we observed, we needed to identify the information that the customers provided, and how that was used towards achieving their goals. However, in the case of this study, we particularly needed to discriminate between degrees of quality and various uses of the same information (e.g. title), a challenge that standard HCI methods leave to the individual researcher.

We turned to Harvey’s model of discourse [19], which synthesizes methods from the history of technology. Historic witness texts show differing approaches to objects: writers may dismiss items as ‘curios’ when they are not understood, or demonstrate their knowledge with nuanced description. Implied in these texts is a shared understanding between writer and reader; items that are understood but seen as mundane receive little attention whereas items considered to be of interest are described in great detail. Applying this framework to observed exchanges between two people reveals where cultural understandings are shared or differ.

2.1.2 Physical interactions and Mental Models
Historic understandings of culture [19] and observations of living cultures [10], [24] demonstrate that the use of objects reveals much about their roles in people’s lives. Books are standardized objects: they are described in library catalogs using metadata (such as title and author) which are, by convention, located in specific places on the book (e.g. title and author on the front cover and the spine). In our study, readers’ physical interactions with books (e.g. whether they opened them, or viewed the cover) could shed light on their mental models of books and how to search for them. Again, this is an area not covered by traditional HCI, but where material cultural studies can offer a framework for analysis [3].

2.1.3 Cultural Diversity and Hierarchies
Finally, in analyzing users’ interactions and capturing their mental models, we must group users who approach a task in similar ways, a further task for which there is no standard method in HCI. Given our interest in cultural influences, we could not set aside the issue of cultural classes, which are often used to explain individual differences in cultural knowledge [3] and group differences in cultural practice [6]. The two main models of diversity are: ‘elitist’—a single hierarchy from high to low [6]; and ‘democratic’ - many parallel cultures of equal status [3, 19]. When we apply these models to books, we can see that how an individual views books, in general is affected by the role of both books and that individual in their society, for example, someone with little interest in sport may find a book on soccer meaningless, and a highly literate person may find a particular novel a sign of their own good taste and status or an unpleasant and tawdry tome of no merit [6].

2.2 Book Culture in the United Kingdom
The United Kingdom is a prolific producer and consumer of books. In 2008, UK publishers exported £1.14billion worth of books (at the then exchange rate, approx. US $2b), with a further £1.85b (c. US $3b) of domestic sales for the same period. In total, some 120,947 new or revised works were released in the year, with the top selling 10 titles selling an average of 600,000 copies (in comparison the U.S. released 275,232 titles [30]).

Statistics about reading, library lending and book purchasing can tell us something about how these books are read. In 2007, a major government survey reported that 28% of adults had not read a book in the past year, while 44% had read five or more. For the 2007/2008 year 264 million issues of library stock were reported for a population of 61.4 million—about four books per person—though repeat loans may be a high proportion of this total [28]. In any given year, 33% of the population buy no books, 40% buy fewer than five, and 14% more than ten [5]. Perhaps surprisingly, the latest book buying data from Book Marketing Limited, from 2009, indicates that internet sales account for only 14% of the U.K. market by volume. For the ‘typical’ active purchaser of five books, this represents less than one book per year.

Buying behavior is heavily correlated with socio-economic status: over half of the two lowest socio-economic groups buy no books, while 39% of those in professional and management sectors purchase more than ten; these patterns are reflected in purchasing patterns for children’s books and buying books as gifts. Book buying behavior is correlated with attitudes to bookstores (as we may expect, given the research on cultural diversities presented above): 97% of those who frequently purchase books are comfortable in bookshops, while only 48% of those who never buy books feel the same. Along with book buying, the use of libraries also rises with increased wealth, meaning that prolific readers are more likely to be found in higher socio-economic brackets [5]. Hence, the highest density of practiced book acquisition strategies will likely be found in the most affluent neighborhoods.
This statistical data identifies at least two book cultures within United Kingdom: one of prolific readers who are comfortable with books and bookshops, and another of “non-readers” who have limited or no place for books and reading in their lives. For most people, the acquisition of a book, by purchase, or loan from a library or friend, is an infrequent activity—once a month would place them in the top quartile of readers.

2.3 Summary
Observation is a commonly used technique in HCI, but in this study of how culture affects query formation, we have also drawn on some concepts from cultural studies, including Harvey’s model of discourse, material culture and cultural hierarchies. We have also investigated the cultural background to our study, the book culture in the UK, to provide further insight into our findings.

3. OBSERVATIONAL METHOD
During this study, we used observation to document readers’ enquiries about books (see Section 3.1). Our choice of bookstores was specifically designed to target those book seekers with the most experience; the stores chosen are described in section 3.2

3.1 Observational Method
Our basic method largely mirrors the approach reported by Cunningham et al to observing the purchase of music in record stores [9]. The researcher visited several bookstores and anonymously observed customers making enquiries. Particular attention was paid to how shoppers described the book that they requested from staff, including the bibliographic details that they gave to explain their requirements. Observations were recorded with a notebook and pen.

To satisfy ethics requirements, only those observations which could be taken unobtrusively were considered in this study (larger bookstores posed particular problems in this regard, as question points are relatively removed from book stacks). Similarly, all queries of a personal nature (e.g. for a book about a specific medical problem) and all enquiries involving the presence of minors are excluded from our analysis.

To understand what users were looking for we endeavored to record the detail of any book that was identified and ordered or purchased. We used online bookstores, such as Amazon, to enhance our understanding of the material sought.

The study took place between September 2009 and January 2010. In total, 51 visits were made to the stores, grossing approximately 114 hours of observation. Individual visits varied from 40 minutes to four hours. Altogether, 431 distinct book enquiries were observed. The data collected was coded by hand, using a spreadsheet for tabulations and summaries.

3.2 Selection of Stores
As outlined in Section 2.2, those in professional and managerial sectors are the most frequent purchasers of books, this group is therefore likely to have the most developed practices surrounding book searching and acquisition. Each store chosen represents one avenue to observing this informed type of customer. The stores in which the observations took place were:

Prosperus Books: a local bookshop in Crouch End, a popular area with the young professional class in North London. It has a broad range of books, many stacked on the floor due to limited space.

Muswell Hill Bookshop: a sister-shop of Prospero’s in nearby Muswell Hill, another wealthy North London suburb. A mid-sized store, this bookshop has a wide range of stock, particularly in literature and the arts.

Foyles: a large central London shop. Made famous for its role in the publication of ‘Lady Chatterley’s Lover’ by D.H. Lawrence, it has a large selection of technical, science and professional books in addition to literature. It also has a well-stocked section of sheet and recorded music.

London Review Bookshop: the store of the bi-weekly ‘London Review of Books’, one of Britain’s two major literary periodicals. Medium sized, it has a bias towards literature and cultural topics, and lies on a small side-street 100m from the British Museum in Central London. It contains a small café (seating about 25 people) and has regular events featuring major literary figures.

Daunt Books: Daunt’s is well known in central London for its extensive collection of travel books and stock of international literature and culture. Unusually, almost all stock is organized by country and language, including the majority of the fiction stock.

Topping and Company: A mid-sized bookshop in Bath, popular in literary circles for its in-store readings by major writers and poets. Like the London Review of Books bookshop it is an established venue on the literary circuit, and also hosts a range of presentations from writers of history and geography. In addition to a comprehensive literary and cultural stock, its holdings in science, travel and geography are very strong.

Waterstones, Belfast: A major national chain’s flagship store in Northern Ireland, similar to a large state capitol Barnes and Noble. This store was used for a pilot of this study only.

3.3 Summary
This section described the methodology for this study. The next will report the main findings of the study, referring to and drawing from the framework set out here and in Section 2.

4. FINDINGS
An initial coding of the 431 enquiries we observed identified some 92 different codes, from which eight major themes emerged. The five most salient activity codes frame the body of this section.

Of the 431 enquiries, 257 were materially successful, and resulted in the purchase of a matching book. This reflects a very high success rate compared to online searching [31], despite searches largely being as simple as those typically seen online.

The following sections present discoveries that increase our understanding of query formation. They do not cover all the strategies we saw—e.g. we will only briefly discuss the use of title metadata, which was common, but does not add anything new to digital library knowledge. Similarly, these sections are not ordered by frequency or importance, but to build a picture of information seeking strategies we observed. Finally, and importantly, we are not endeavoring to capture the ‘culture’ of the bookshop in a (say) ethnographic sense, but rather to identify patterns and problems that can inform the design of more usable digital libraries. Throughout, statements from customers are preceded by a “C”, booksellers by an “S”, and numbers are appended for clarity when more than one person of either type was involved.
4.1 Enquiry Content

The first element of the enquiries that we analyzed was the use of bibliographic data. Nearly half (206) of our enquiries comprised only a book title (or part thereof). Additional bibliographic details were scarce, and often even less complete. We report here on commonly used non-title bibliographic data.

4.1.1 Author

After title, author was the most common bibliographic detail (mentioned in 129 initial requests) though only 41 of these were using the author as the key to the query (for example “the new Umberto Eco?”). This means that the author was specified in some way in only about a quarter of initial requests. In addition to the initial request, a further 53 enquiries involved a later mention of author. Even among these, the name was frequently incomplete, as exemplified by this request at Daunt’s:

C: The authors name? It was unusual. ‘Ishky’, I think it finished with ‘ishky’? It may have been Russian?

In many enquiries (104), only contextual information about the author was given (e.g. “a very well known crime writer—very popular right now”). Another strategy, used in 28 enquiries, was to identify a previous book by the same author. While this clearly did not identify authors by name, the role of authorship is central to making this type of request. This strategy was also used in nine initial enquiries that did include the author’s name. A further indirect means of identifying authors was to identify their roles in popular culture (for example their presence on television). This issue will be further discussed in section 4.2.

4.1.2 Publisher

Only 38 enquiries (fewer than 10%) referred to publisher at all. In nine cases publisher was identified by the mention of a series, such as the “For Dummies” books or “Lett’s Notes” (a series of revision guides for schoolchildren). Another, related, situation was where a specialist publisher was requested: e.g. “have you the Lonely Planet on Thailand?” or “I’m looking for a book on alpine plants – does the RHS [Royal Horticultural Society] do one?”

The role of publisher in customer requests was limited to enquiries about reference and factual material; moreover publisher was only mentioned in the initial request for a book in two cases. In contrast, booksellers frequently referred to the publisher, mentioning it in some 119 enquiries.

4.1.3 Time

In total, some 87 enquiries used some form of reference to time. 56 of those included a reference to the book’s publication (“I think it’s quite new—it came out sometime in the last couple of years”), and 45 contained information about recent media activity about the text, such as a television production or recent review (“I saw a review in the Telegraph last month”). The recency of a particular publication was used 19 times to distinguish between books, or eliminate a possible match.

Information about time was almost always given relative to the present, e.g. “about three or four years ago, I think” or “last weekend”. A specific year, in contrast, was mentioned in only five enquiries; meaning searchers understanding of time is quite different to the way time is presented in bibliographic metadata.

4.1.4 Visual metadata

In 17% of enquiries, customers identified some visual property of a book—making visual metadata the third most-frequently used metadata type, after title and author.

One commonly referenced visual property was color, for example:

C: “I’m after the book by Andrew Marr – the thick blue one?”
S: “Oh, the History of Modern Britain?”
C: “That sounds right”
S: “The paperback?”

In this case the hardback edition of the book is a cream color, the cover of the paperback is blue. In fifteen cases, color was used to determine between two books, either different editions of the same work, or distinct works on related topics.

Size was another property used when visually searching for a book: in this case, the customer and bookseller were hunting for a Stephen King book in Foyles:

S: “Yes, it’s a very thick book, isn’t it? There should be thirteen copies here – how can I be missing it?”
C: “(looking down) “Oh, the pile is here right by my feet!”
Visual cues may even have been remembered from a review or recommendation. In this case, a customer was trying to recall a description for a novel they’d read a review of:

C: “The book is a written as someone’s life story, and it has pictures of needlework in each chapter”.

Finally, whilst customers seldom recalled publishers’ names, they could sometimes identify familiar visual patterns. In this case, a hunter for a gardening book, on being shown a possible book said:

C: “Oh, no, not that one, but it looked just the same. I’ve got a number like that already. They’re really good.”

This turned out to be a companion book to the one they sought, both from a series by the Royal Horticultural Society. This suggests that, while the exterior of a book is often the limit of an initial “reading”, it also helps recall a half-remembered book.

Given that visual information is readily scanned in a physical space, but less so in digital libraries, this is a valuable finding.

4.1.5 Summary

Though the use of bibliographic information was scarce, most enquiries were successful. Thus, the common experience of the customer is that this sparse detail is sufficient to find “the right book”. Some bibliographic detail was given in unconventional forms: e.g. approximate dates, an author’s prior work.

In the next two parts of this section, we will examine the interactions between culture and book enquiries.

4.2 Multiple Cultures

In the section on cultural diversity (section 2.1.3), attention was drawn to the different conceptions of hierarchical (high/low) versus democratic (plural diversity) culture. The study took place in bookshops in demographically similar locations. Whilst this may minimize the degree of hierarchical cultural separation, it was a striking feature of the observations that both democratic and hierarchical cultural phenomena were repeatedly present. These differences affect the form and content of enquiries, and suggest different user goals and strategies.
4.2.1 Popular Media
A number of observations indicated that readers were often being led to books from other forms of popular culture—e.g. films and TV programmes—and that this often uncovered discrepancies between the literary culture that focuses on the bookshop, and other forms of media. Popular media were mentioned in 88 different enquiries—over 20% of the whole. One example appears in a conversation between a shopper and bookseller at Prospero’s books, (an earlier part of the exchange appears in section 4.3):

C: “I was wondering where you got the name of the shop from—it’s rather unusual”
S: “It’s from ‘The Tempest’”
Silence
S: “The play by Shakespeare?”
C: “Oh, wasn’t there a Peter Greenaway movie with the same name?”
S: “No, that was Derek Jarman”
The irony here is that, in fact, the customer’s grasp of film culture was more acute than the seller’s: there is indeed a Peter Greenaway work called “Prospero’s Books”; the Jarman movie was simply called “The Tempest”. Not one, but two booksellers seem to have made the same error, whereas the “naïve” customers were aware of a work that is viewed as a pinnacle of art-house cinema. On thirteen occasions we detected that a customer had cultural knowledge that exceeded the bookseller’s.

A much more common jump between cultures, however, was when customers requested books such as “the latest Jamie Oliver, you know, the American one” or “the new book on Tommy Cooper” (the former being a popular TV chef, the latter a popular TV comedian, now deceased). In the latter enquiry, an older bookseller assisted by interrupting a younger colleague who did not know who Tommy Cooper was, leading to a conversation about the comedian’s career between both booksellers and the customer.

The significance of cultural cues from other media even invaded requests for well-known texts. For example, a customer at Foyles asked for “the book of the current Jane Austen BBC series” (i.e. Emma) or a Prospero’s customer who requested “the second episode of Harry Potter” (using the common usage for TV and film serials, rather than that used for books in the U.K.). By volume, media-focused enquiries constituted the single largest group of request types after “title only” queries (173 cases).

4.2.2 Literary Culture
Literary events also triggered customers’ requests for books; during the study, the annual Booker Prize was announced. In the week following, at least one request mentioning the prize was noted in each of five observation sessions (in total, 9 separate enquiries). One particularly telling exchange follows:

C: “Have you received the Booker winner?”
S: “We’ve not had our delivery from the publisher yet, this morning. We’re expecting it in any moment. Would you like to reserve a copy?”
C: [Explains that they have actually already reserved a copy].
“I do hope that you get enough in: we are so looking forward to reading it together. How many are you expecting?”
This suggests that the customer was part of a group that intended to read the “Booker winner” together. This conversation included five references by the customer to “the Booker Winner” without mentioning either author or title. Indeed, out of the nine requests during the week for the “Booker winner”, not one mentioned either the author (Hilary Mantel) or the title (“Wolf Hall”) making it possible that for many readers, the book that won the prize was being read with little knowledge of the author or subject. Perhaps the media coverage of the event was the main influence in this reading decision?

4.2.3 Books and cultures
These references to various elements of culture demonstrates that for many readers books are not primarily located in literary culture, but are extensions of other cultural forms, such as film and television. This affects how readers search for books; for many of the readers we studied the main signposts to books were not title and author, but media events and personalities. In this environment, standard bibliographic information was largely invisible (as in the case of the “Booker Winner”), hence it is hard to produce a concrete argument that standard digital library search techniques would directly and easily serve the requirements of a user with this type of knowledge.

4.3 Academic Requests
Only a few customers approached the bookstores seeking academic texts. In total, 51 enquiries were coded as belonging to this group. Despite this modest share of the enquiries, these incidents shared a clear pattern, seen in the following enquiry, from Prospero’s books in London:

Customer: Male, smart-casual dress, with an “O’Reilly” computer textbook under his arm; Victorinox computer backpack on his back; late 30s/early 40s

S: “We’ve not had our delivery from the publisher yet, this morning. We’re expecting it in any moment. Would you like to reserve a copy?”
C: “I’m looking for a book. It’s about teenagers – and its title has something about 30 years of culture or something in it. It was in the Guardian or Observer at the weekend.”
S: Oh, right. Let me see what I can do.
C: Recognizes one of the author’s names “Yes, that’s him”
S: “I think I can see two books that might be the one you’re after.”
S: Reads out two titles and authors
C: Recognizes one of the author’s names “Yes, that’s him”
S: “I’ll see if we’ve got it. No, I’m afraid we don’t. If you want it, we’d have to order it—I’d be eighteen ninety nine.”
S: “It’s an academic imprint.”
C: “What’s the price of the paperback?”
S: “That is the paperback price.”
C: “How can a paperback be that much?”
S: “It’s an academic imprint.”
C: “They don’t sell or make so many, so they have to charge more.”
S: “Oh, I see”
C: “Would you like us to order it anyway?”
S: (hesitates) “Oh, yes”

This customer doesn’t seem to have been aware of the existence of academic publishers, and the economic differences between publishers, despite having a paperback technical manual under his arm that was more expensive than the book he sought. The similarity between his technical computer text and the academic work he sought seems not to have struck him.

Contrast his search behavior with that of a customer, in the Philosophy section of Foyles, male, wearing a blazer and tie, who carefully gave all the bibliographic details of the book including
the ISBN. This second customer was the exception rather than the rule, though, and a more common exchange is reflected in the following example from Waterstones in Belfast:

Customer: Female, wearing professional business suit, privileged accent, approximately 40 to 50 years of age:

C: My daughter is starting university – studying Spanish – this year, and I wonder if you have a Spanish language copy of “Like Water for Chocolate” – I believe it was made into a film recently?
S: Do you want just the text, or do you need notes for her to interpret the text?
C: Is it possible to have both?
S: Yes – shall I see if we’ve got one? [types at the computer]
C: We don’t have it in stock; it would take – what – a week to get it in?
C: Oh, couldn’t you get it sooner?
S: It’s not something we normally stock; you could look in an academic bookshop.
C: Where would I find one of those?
S: Queen’s Bookshop – straight opposite the university?
C: Oh, I don’t know where that is, really
Seller draws a map to explain where
C: Would they have it?
S: They keep books for students – they are the bookshop for the university, they’re most likely to have a copy
C: What is it called? Do you have the details?
Seller writes down the details next to the map.
C: So, this is a bookshop for the university?
S: Yes, they specialize in books for students
C: I didn’t know those existed. Would I be better buying it online?

It is surprising to note that this customer, who was clearly a local from an educated background, did not know where the main building of Queen’s was as it is a major Belfast landmark. Queens is a prestige, research-centered university and attracts the most academic students in the province. The customer’s lack of awareness of such a major academic institution dovetails with her failure to make the distinction between academic and non-academic literate books.

A third exchange occurs at Muswell Hill bookshop:

Customer: Female, wearing a business dress, late 30s/early 40s, with handbag and one shopping bag from a nearby fashion shop

Customer: I’m looking for a book on “The Merchant of Venice” for my daughter.

S: Is this for school, or university?
C: School – GCSEs? [Major school exams for 16 year olds]
S: Ah, right now, in that case you’ll probably want a Cambridge or York Notes edition.
C: What are they? Are they good?
S: They’re series that cover all the main plays – and they have notes and other things to help; they’re specially for school reading.
C: So, they would be useful for her GCSE then?
S: Yes – even ‘A’ level [major exams sat by 18 year olds] perhaps. They wouldn’t be enough for university though.
In this case, the genre of a particular series for schools appeared to be unknown to the customer—she asks what the editions are, and their utility—despite the fact that these series have been around since the 1950s, and therefore existed during the school years of the enquirer. It is relevant that these parents were enquiring at the very beginning of the academic year, and were likely taking steps in advance of receiving reading advice from their children’s schools. Five similar incidents were recorded including two of regarding science topics. It is clear from these examples that for most people, the subtleties of more directly educational or academic texts are at best imperfectly understood: the man with the programming book was surprised by the price of an academic book; the parent of the schoolchild seemed unaware of the genre of study notes, and the parent of the university freshman appeared unaware of academic bookshops. In the 51 academic enquiries, 42 included dialogue that indicated uncertainties such as the existence of the genre (12), price (23), or purpose (29). This suggests that for most enquirers, academic texts were a particularly fraught topic, and that acquiring educational reading seems to be a poorly understood and relatively infrequent activity.

One may well expect such difficulties in the case of specialized, and technical, texts. However, a similar pattern emerges when we turn to fictional works, particularly when buying for others (as two of the “readers” mentioned in this section were).

4.4 Searching for Books for Others

Many buyers were not shopping for themselves, but rather on behalf of, or for the benefit of, someone else, accounting for a total 78 enquiries. In this domain, social issues and contexts were particularly present in the enquiry.

4.4.1 Signposting: Comparing and Contrasting

One common tactic was to suggest a known book that was familiar to the customer, and intended also to be identifiable by the bookseller, to help describe the need. Whilst we did observe this in requests for the inquirer’s own needs, it mostly arose in requests for others (33 occasions). Here are two examples:

“I’m looking for a detective book for my mother. She’s German, and her English isn’t that good, but she likes reading, and wants to learn more English. She’s read Agatha Christie, and perhaps something like that would be good, but not another Agatha Christie. I was thinking of Ngaio Marsh, perhaps?”

“Have you got something like Harry Potter, but not so scary? My daughter finds the films too frightening, but likes the idea of that sort of book. Is there something more, umm, ‘friendly’?”

In both cases, titles of other books are supplemented by information on the intended recipient of the book—partly social (e.g. ‘too frightening’), partly task-based (‘learn more English’).

4.4.2 “This isn’t for me”

One particularly striking pattern were the occasions where the enquirer made clear that the book was not for them, in ways that clearly distanced themselves from the book. For example:

“That is easy to read, isn’t it? I wouldn’t read it myself, but it’s for my mother-in-law; she doesn’t really read at all.” and “It’s one of those terrible autobiographies by ‘personalities’ – I’d never touch it, but my sister loves them. They’re…not real books at all”. These are two of 17 cases where enquirers distanced themselves from the target text in a manner that is critical of the book.

Negative tones are, however, not the only cause of an enquirer distinguishing between their own interest and the contents of the
book. There are a number of other circumstances (some 28 in total) where the distance was more task-oriented, revealing insufficient expertise or understand of the needed text (e.g. the parents looking for study materials in the previous section).

These two sorts of distancing can be expected from Bourdieu’s observations of the role of ‘taste’ in distinguishing elites [6], and the interest of historians in the consequences of differing knowledge of domains of interest [19].

4.5 Handling books

We observed how customers handled the books they found when making an enquiry, and when browsing. Three major patterns emerged: “grab and go”, closed book and open book.

4.5.1 “Grab-and-go”

When a reader was after a specific text and had made an enquiry, and the book was found, this pattern was observed half the time (142 of 257 successful enquiries); the customer simply retrieved the book from the shelf, and took it without any more than the briefest glance (most likely to confirm that it was the right book).

4.5.2 “The Closed Book”

In an alternative pattern to the minimal engagement of “grab-and-go” some readers would spend extended periods of time a single text without ever opening it. Indeed, this was a very common pattern in both browsing and as a result of direct enquiries about a volume. This pattern was noted for some 49 enquiries in total. Consider the woman shopping in Muswell Hill for a copy of The Merchant of Venice. When handed two alternative texts, she initially put both down on a table. She then lifted one from the table, and attempted rather awkwardly to open it, before flicking very rapidly through the whole length, back-to-front. She then simply read the front and back of each, without ever having opened the second book, before saying “I guess either will do – let’s try that one”, choosing the one that she had not opened. A further example was seen in the military history section at Muswell Hill where a woman handled books with considerable awkwardness, keeping them at arms’ length and holding them stiffly, despite no obvious physical infirmity, suggesting at least unfamiliarity with and possible distaste for books of this genre.

4.5.3 “The Open Book”

On about one occasion in four (66 of 257 successful enquiries), the customer would open the book. In this group, seven customers opened the majority of books that they touched during their search. We noted five customers who showed an easy competency in their work. One example of this was the philosopher in Foyles who asked for a book by ISBN: The seller found and handed the book to him. Whereupon he deftly examined the front and back covers of the hardback, before reading in turn the front and rear inner leaf, and then proceeding to examine the front matter and a selection from the main text in turn. This was all accomplished with an effortless and swift grace. When reading his chosen extract, he read slowly from front to back for perhaps ten pages, over a period of several minutes.

4.5.4 Summary.

Like query content, readers’ physical interactions with books demonstrates their mastery not just of the book as a medium, but also of the subject matter and type of book at hand. Physical mastery and comfort tended to follow informed questions, whereas those who were shopping in unfamiliar territory or for others demonstrated less physical ease with books.

5. DISCUSSION

The primary motivation for undertaking this research was to understand the expectations of search that users may carry from established ‘literate’ cultures into the digital world. In this section, we commence by examining related work that helps provide further context for our own findings, emphasizing known patterns of book search and previous academic research on bookshops. We then progress to revise and refine our own findings in the light of that knowledge.

5.1 Related Work

There is a variety of work that has been undertaken to understand the patterns of readers. We will commence with reviewing some of the statistical data from government and book trade research that can give context to the results of our observation, before turning to academic research.

The ONS Omnibus survey [29] investigated the factors that lead to a person “want to read” a book. 67% of participants said they were motivated by the subject matter, 35% included the author as being a factor; 40% of respondents were influenced by a friend’s recommendation; 16% recommendations from work colleagues; 24% book reviews, 13% talking with others. Whilst the other factors were contextual—e.g. “for information” (52%) or being bored (28%), this data reflects our observation that selection of reading material is strongly influenced by social bonds. The breadth of the term “subject matter” is unhelpful, and it is unfortunate that this issue was not dissected in more detail, as it would be helpful to understand the different influences of (say) novel genres versus instructional literature (e.g. gardening).

This data is usefully supplemented, however, by the information from BML [5], who discriminate in reported purchase motivations by the number of books bought. They identify three groups: “Light” buyers (1-5 books a year); “medium” (6-10) and “heavy” (11 or more). As the average number purchased is 5 per annum, this means that the first group are at or below that mean, while the latter two groups form those at or above the mean. The most important data for our purpose is reported only from light and medium groups. Giving mean subjective scores out of 10 for different factors in the buying decision reports: author (7.0); recommendation by family/friends (6.6) cover description (6.5); cover content (5.3) familiar series (6.5); requests from other people (6.2); best seller (4.2); associated with film (4.1), review in press (4.0); TV tie-in (3.8); review on TV/radio (3.8); prize list & winners (3.8). This confirms some of the ONS data, and also shows the influence of media links, both from reviews and tie-ins.

As we noted in the introduction, there is a relative dearth of research literature on enquiri es at bookshops as opposed to enquiries at academic or public libraries. There is, however, a rising volume of research that compares public libraries to “superbookstores” as public places. The work of McKechnie et al [25] is probably the closest to our own work from that genre. That research investigated the different behaviors observed in libraries, when compared to large, chain bookstores. The chain bookshop is a somewhat different environment than the smaller, independent bookstores that we focused on. Only two bookshops in our sample, Foyles and Waterstones (where we piloted this study), included coffee stalls, which were a major element of the
differences noted by McKechnie et al. Earlier work from Dixon et al [13] identified searching for a particular title as a common behavior in bookstores, (this included store staff searching for titles in response to phone calls from customers, where only half of the conversation was heard, though details of these exchanges are omitted from the paper). Dixon also noted that customers seemed uncertain how to use terminals that provided search facilities, and how to interpret the results. These findings echo our own observations of title-driven enquiries, and relative confusion over other bibliographic information.

The interaction between bookseller and customer certainly mirrors previous observations of the role of the librarian as intermediary (e.g. [35]). However, the role of recency appears to be more marked in the bookshop, and sellers’ knowledge of popular culture seems more akin to the public, than academic or librarian.

The book buying behaviors we report are probably “best practice” for many communities outside academia (and even some within it [8]), and indeed are also representative of university freshmen with the highest “cultural capital”. In this light, we can at least in part explain the short-term effectiveness of training in search reported by Lucas and Topi [22], who noted that even naïve automatic methods matched the performance of recently trained individuals. Is it possible that information seekers, in general, lack the abstract understandings of how literature is catalogued that would underpin the maximal effectiveness of search tactics? It seems to us that this point has not been directly investigated, and urgently needs a definitive answer. It is worth noting, however, that great success can be achieved with limited metadata, even in cultures (such as the humanities) where information needs are often complex [8]—it is possible, therefore, that engaging with this abstract understanding is not worthwhile for very many users. Conversely, in both our work and other work on the subject (for example [24]) it is evident that non-traditional metadata such as visual information are widely used, and as such must be key to users’ conceptions of information.

### 5.2 Mental Models

In HCI, as noted earlier, we aim to understand the manner in which users think about both their tasks and the technology that they use to achieve them. Bibliographic metadata is the common currency of search in both digital libraries and the catalogs of physical libraries.

One distinct feature of the enquiries we observed is that most customers were searching for books about which they had only minimal information. While it is possible that customers only made the vague requests in bookshops that they could not fulfil online, it is unlikely that this is the case, given the relatively low proportion of books that are bought online (see section 2.2). Even with these unconventional forms of enquiry the requests were for specific books, the majority of which are readily available on Amazon.co.uk. We tested all queries which had title information on Amazon.co.uk; in over half of them the sought item was in the top five results making it unlikely that we are merely observing the ‘long tail’ where online search has failed.

A second conjecture could be that our enquirers lacked technical proficiency for online searching, however given the affluent demographic location of bookshops studied, this is unlikely. Neither did we observe many older customers, who some might assume lack confidence and ability with computer technologies (this under-representation of over 65s in our data is consistent with the low book-buying rate amongst the retired [29]).

We therefore can set aside issues of technology access or knowledge as the primary drivers of bookshop use—though they doubtless are contributing factors. The incomplete information supplied demonstrates that most users’ mental models are not built on bibliographic metadata; while some enquirers grasp this firmly, they are not the majority. Rather, users’ conceptions of enquiry are more embedded in cultural and social references (reading with friends, media reviews and tie-ins).

Bookshop staff were able to find books with partial information, and this may mean that there is little reason for readers to exert the extra effort to provide more complete information. It is at this point that we apply concepts from the history of technology to pick apart the behavior of customer and bookseller.

### 5.3 Cultural factors in query formation

Broadly an individual can be an ‘observer’ or a ‘participant’ in the use of any give technology. Observers need participants to articulate their knowledge into action. In both roles, a range of literacy in the domain exists, from naïve to sophisticated. Some of our observations demonstrate the customer in the position of the naïve observer – e.g. the parents buying academic books for their children. This contrasts with the woman criticizing the ‘awful’ book she was buying for her sister, who positions herself alongside the bookseller as a participant in the literary domain.

Clearly, customers of bookshops are capable readers, and are in no way unfamiliar with books in general, but details of publisher and ISBN, for example, were handled with confidence and precision by only a few. This suggests that in the issue of procuring books and discriminating between them, the majority act primarily as observers.

Observers and participants do not simply fulfill different roles: they carry different mental models, task skills and capabilities. Many of the customers we observed were well-informed; the concepts of author and title were certainly well understood (a finding reflected studies of libraries, e.g. [24]), and they were not surprised by the fact that books had a publisher. Rather, the meaning that the name of the publisher, or series, could carry was obscure to them, whether it was about the intended audience or the price of a book. Conversely booksellers, immersed in many enquiries, have developed numerous skills to uncover the right text (as we confirmed in a later series of interviews, not reported here). HCI and cultural studies both inform us that training in a task will not in itself lead to changed performance, as indeed has been demonstrated in the case of bibliographic search [8, 22].

Given the small number of times per year we would expect most readers to purchase or borrow a book, we should not be surprised that most of them have simple bibliographic skills, particularly when social recommendation, media tie-ins and other factors shape the choice of many of even that small number of books. Neither of those two types of introduction in any way suggests bibliographic enquiry as a primary activity. This in turn, would explain an apparently conservative approach to the acquisition of detailed knowledge — it is very likely an exceptional occurrence when there is any demand for or significance to the additional data.
This conclusion is further supported when we look at the physical interactions customers had with books. The majority of customers had limited contact with most of the books that they lifted from the shelf. Whilst picture books, illustrated popular science books and travel guides were often browsed extensively, text-heavy materials, including both technical literature and novels, were seldom opened at all. When books were opened, systematic evaluation of the text was rare, rather browsing appeared haphazard and opportunistic, which, coupled with readers’ continued emphasis of title and their use of non-traditional metadata, does rather suggest that whilst these readers engage with books individually, their understanding of the body of literature is more in the form of “informed observation” or “novice participation” [19].

Often booksellers would often explain the importance of particular information (as with the confusion over the pricing of academic books) as an enquiry progressed suggesting an assumption that the customer will not understand such subtleties. Similar feedback was given regarding the type of book a given publisher produced (as with the enquiry about Shakespeare), the use of ISBN numbers, delivery times, etc. This again suggests that customer knowledge is expected to be incomplete, but also may serve to communicate that the bookseller is “in control”, and to show the progress of the search.

We can further identify cultural influences when we return to customers’ enquiries to consider what would the extra effort cost of providing fuller information would be to readers (as they are likely to have to do in a digital library) We observed that readers frequently provided information to booksellers that was socially located, and designed to create cultural understanding. Consider the customer who mentioned art-house cinema, the woman buying an ‘awful’ book for her sister, or the parents buying for adult or young children: each of these exchanges results (or is hoped to result) in a cultural understanding between seller and customer, and could not be performed in a digital library. Perhaps providing more concrete information would not just be an effect cost, but also a social cost in terms of the lost ability to form a relationship with the seller through cultural positioning. This question seems to be an area ripe for investigation.

5.4 Implications for Digital Libraries
Effective discovery in library systems that use bibliographic metadata requires the users to have a firm grasp of both the terminology involved, and how it can be exploited to encode their information needs. Given the rather different models that users appear to have of enquiry, HCI would predict that users find digital libraries somewhat unusable, as indeed previous HCI work on DLs confirms [8, 11].

The pattern of gaps in enquirers knowledge and mental models, and the mismatch with bibliographic forms can predict and explain known problems. The different structures (the user’s versus the system’s) oblige the user to translate their needs into the system’s language, then interpret any results. Where expertise is limited—as we see here—this translation process is a major barrier to effective use. Users with little or no knowledge of the mapping required will fail, and even those with good understanding will find the task cognitively demanding.

In the past, HCI research has identified the usability of digital libraries as a problem. Researchers (including us) have sought to improve usability through interface, (including the addition of on-screen tips & training) while retaining features such as bibliographic search, with mixed success at best [22, 33]. From this research, we can better explain this failure: in short, as a community we have been attending to assisting the user in existing search interactions, rather than taking the user’s understanding of the search task, and constructing new interactions “from scratch”.

6. CONCLUSIONS
It was noted at the beginning of this paper that researchers have repeatedly observed relatively simple information seeking strategies and rudimentary query formulations by users of digital libraries and search engines. The observational data from our study gives some insight into why query expressions should have remained relatively simple despite an increasing volume of digital information work and electronic texts.

Bibliographic metadata is an “elliptical” search strategy, compared to users’ actual needs and intentions. The mapping between publication metadata and a user’s own requirements are indirect. In a bookshop, naïve expressions of need are often sufficient—in no small part because customers demonstrated a search technique commonly used by domain experts; that is, limiting their search space (for example by time). In this context, the development of sophisticated strategies that use metadata in subtle ways is unlikely, suggesting that we should orient our technologies to use information and concepts that are closer to the terms and concepts readers actually use. Bibliographic metadata, as commonly used in library catalogs, lacks information that seems to be commonly remembered by enquirers.

For those enquiries where a reader had bibliographic metadata for the book that they wanted, success was commonplace, but knowledge of the domain or current publications becomes necessary when bibliographic metadata is incomplete. Our observations indicate, though, that being sufficiently informed to create a title-and-author query demonstrates a relatively high, and apparently rare, level of preparedness for the search.

Cultural and social cues emerged as being important—references being made to recent reviews and recommendations from friends. Often, this is related to some form of recency effect (e.g. seeking the latest book by a TV personality). In principle, technologies can support a prioritization around currency. Information may come from activity records, publication dates, or data mining recent reviews. If ranking considers such information, then results for a simple query comprising critical cultural label (e.g. the name of a personality) could be improved over traditional mechanisms, and the most recent title associated with the person is likely to arrive at the top of the result list. Bookstores give priority to new books in terms of both volume and visibility of space.

The majority of searches that bookstore customers engaged in were relatively simple. These searches represent the likely “best” standard for amateur information seekers, who, after all do not need to interact with information in the complex ways practiced by academics and librarians. The bookstores were located in wealthy and highly educated areas of a society that is a relatively prolific consumer of general literature.

The design of digital libraries often fails to take into consideration elements that are important in the world of readers—cultural cross-referencing, visual information (e.g. cover color) and time
relative to the present, moreover their literal term matching maps poorly to the approximate knowledge of many enquirers. In the bookshop, as in the library, the role of staff members as intermediaries is a critical element of the seeking process. Given that digital libraries have neither booksellers nor librarians, it is critical to their usability that they begin to more-accurately reflect the needs of their users.

7. FUTURE WORK
This research is a first step in observing the forms of information seeking found in bookshops. This paper reports one set of our findings, but this one study has already revealed some topics for further research. Whilst the focus of our work was requests made to booksellers, we observed in passing that the popular activity of browsing has many nuances that we have not seen reported in the literature. Similarly, the process of selecting books, especially when they are socially shared activities, demonstrates a potential to contribute to our understanding of information triage. The broader subject of information “work” in the bookshop would seem to be fertile ground for a fully ethnographic approach, which we would expect to uncover further domains for enquiry, and a better understanding of the social and cultural backdrop to individual’s activity.

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9. REFERENCES


