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‘Too Much Serendipity’: The Tension between Information Seeking and Encountering at the Library Shelves

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ABSTRACT

The physical library shelves are regularly the site of serendipitous information discoveries, and are often sought out for this purpose. However, while some drawbacks to the shelves as information gateways have been documented, none to our knowledge relate to their capacity for facilitating serendipity. We present findings from a qualitative study of serendipity at the shelves, in which we identified a new drawback that we term the ‘seeking-encountering tension’. On one hand, this tension entices people towards the relatively high-risk, high-reward activity of exploring new information avenues discovered serendipitously and, on the other, draws them back towards the relative safety of goal-directed information-seeking. We discuss the factors that contribute to this tension, and provide design suggestions for mitigating it. Understanding this tension can inform the design of physical and digital information environments that give users agency to switch between more and less focused information-seeking at will.

1. INTRODUCTION

Overabundance of information is a known issue in information-seeking, and providing searchers with too many search results can be as detrimental to finding useful information as providing them with none [2; 9]. It can result in a ‘paradox of choice’ [2], where obtaining lots of potentially useful results can both facilitate, but also hamper searches—giving rise to ‘information pathologies’ including information overload, anxiety and avoidance [2].

However, sometimes an overabundance of information can be useful, providing the rich environment of triggers necessary for browsing [1] and serendipitous discovery [17]. Both of these approaches are important to information seekers and the human information-seeking process in general [12; 18; 21]. The library is an interesting (and common [10]) site of study of serendipity in the context of information acquisition (termed ‘information encountering’ by Erdelez [4]). Our study continues in this tradition by examining encountering at the library shelves.

Information encountering is a source of delight to both public [23] and academic [16] library users. The draw is so strong that many readers cite it as a reason for avoiding ebooks [8]. The library shelves form a type of serendipity engine [11]; semantic arrangement of the shelves facilitates the encountering of related information [24]. Displays and endcaps further allow users to find items of unexpected interest [8; 23]. Savvy users actively leverage the shelves for serendipity, but in early and recent studies (e.g. [7; 11]) around half of participants used the shelves as part of their information seeking, primarily on the understanding that they were likely to find information they had not actively searched for.

The shelves are not without their drawbacks, however. Due to the vagaries of classification schemes, books on a single topic can be spread throughout the library [14]. In addition, the shelves only display physical items, which—with the rise of ebooks—represent a decreasing proportion of what libraries have to offer [22]. While these drawbacks may be opaque to readers, there are others that they understand: readers are aware of (and annoyed by) the number of physical books that go missing, are mis-shelved or merely checked out of the library when they need them [3].

Many of the difficulties of physical shelves could be ameliorated by digital information tools designed to support browsing and information encountering. However, until recently there were very few such tools. While the availability of these tools has increased (e.g.[11; 26]), few have been designed based on an empirical understanding of user needs or behaviour. Studies of library users’ behaviour can therefore provide an empirical basis for informing the design of both physical libraries (in terms of how books are classified and showcased) and digital information tools.

We report on an observational study of information encountering in a physical library. We identify a tension information seekers face when browsing the shelves that we term the ‘seeking-encountering tension’. This tension, on one hand, entices people towards the relatively high-risk, high-reward activity of exploring new information avenues encountered and, on the other, draws them back towards the relative safety of goal-directed information-seeking. We identify and discuss some of the factors that contribute to the seeking-encountering tension, and provide design suggestions for mitigating it. Throughout this paper, when we refer to ‘information-seeking’ it is this goal-directed activity we address, rather than the broader human information-seeking process [12; 18]. The broader process often incorporates information encountering [21], and savvy information seekers deliberately pursue encounters when actively searching/browsing [17].

The remainder of this paper consists of our approach, discussed in Section 2; findings in Section 3; discussion and design recommendations in Section 4, and conclusions in Section 5.

2. METHOD

This paper is based on findings from an empirical study of information encountering in physical and digital libraries. While the original study involved both a combined observation and interview component and a survey, we focus only on the observational interviews here, and only in the physical library.

Observation-based approaches have been widely used to investigate information behaviour [3; 10; 16], and demonstrated to be valuable, even with a small number of participants [13; 25]. We recruited five participants (four female, one male) from a Library and Information Science Masters student mailing list at City, University of London. LIS students are not typical information seekers [6]: they seek more deeply and reflect more thoughtfully on their information experiences. They are also more familiar with the layout of the library. We sought to specifically exploit these differences to investigate serendipity. We observed these participants conducting an open-ended, naturalistic information task—‘find something that appeals to you’—with

both the physical and digital versions of the university library. Participants were specifically told to take all the time they needed, and that it didn't matter whether they had a specific or vague idea of what they sought. While we could have opted to observe people already at the shelves, since most students used the library to find specific known items, observing information encounters ad-hoc would have been too time-consuming. Observations were followed by a critical incident-style interview, focusing on participants' recent experiences of serendipity in libraries.

Results were initially analysed using a bottom-up grounded analytical approach based on Grounded Theory methodology, but—due to scheduling constraints—without a cyclic process of data gathering and analysis. The data was then examined by a second researcher who noted the seeking-encountering tension and re-analysed it with this particular theoretical lens. This second analysis was partly inductive and partly deductive, as once the tension was identified, the remainder of the analysis involved looking specifically for findings related to it—how often it occurs, where it occurs and whether there were any common factors in its occurrence. The findings from this analysis are presented here.

3. FINDINGS

This section consists of a description of the seeking-encountering tension and when it occurs, and a discussion of the factors that contribute to this tension.

3.1 The Seeking-Encountering Tension

Participants experienced a tension between information-seeking and encountering when browsing the library shelves; Encountering potentially useful information unexpectedly enticed them to explore the new directions that had presented themselves. This presented both opportunity for new insights, but also the risk of wasting time and effort. Weighing up perceived risk vs. benefits is not straightforward, as the nature and magnitude of the benefits remain unknown until resources have been invested in harvesting them. Therefore, sometimes encounters also drew participants back to the lower-risk activity of goal-directed information-seeking.

On one hand, participants were tempted by the draw and excitement of serendipitous discovery, but on the other felt constrained to focus on goal-directed information-seeking. This is unlikely to have been merely a factor of our task design; 'find something that appeals to you' is particularly broad and non-goal-directed. Indeed, in most cases, participants had a rough idea of a topical area they wanted to browse around, but refrained from looking for specific titles.

Of five participants, four mentioned (either directly or obliquely) that the shelves provided more avenues for exploration than they could pursue. These mentions occurred in a variety of contexts.

P3 stated upfront that they were goal-focused and avoided looking at, much less browsing the library shelves:

'I tend not to interact as much with the physical library space… I find a book that I want...and reserve it or just quickly find out where it is and retrieve it; check it out.'

'I'd go for specific items instead of just wander and browse.'

There was one exception to this—looking for fiction in a public library, when P3 would *'go in and just browse'*.

P1 mentioned disliking *'having too many things thrust on [them] at once'* and noted that they avoid a range of digital information tools (e.g. Twitter) as a result of this. When browsing the shelves, they repeatedly mentioned becoming distracted by encountering information not directly related to their information-seeking goal:

'There's so many things that appeal to me at the same time, but I already put something as my priority...' 'I'm kind of looking for what I want but I keep getting distracted'.

These descriptions are not of information overload (IO)—a negative experience where a person is overwhelmed by the volume of potentially useful information [2], but rather of a seeking-encountering tension—where the 'distraction' may be deemed by people as negative, positive or somewhere in-between. P5, for example, gave a fairly negative description of the tension:

'Having too much serendipity when you have a topic in mind, it can be distracting. It can get you off track'.

Similarly, P2 described a specific incident of being distracted by the shelves during a goal-driven search for a known item:

'I searched...and went to go and find the area, and I realised next to it was the thing I had walked past a couple of days earlier.'

While such an encounter might not always be negative, P2 said it was counter to their information-seeking goal at the time:

'I felt I had to be quite efficient with "okay I found this book and I need to use this book to work with"'... 'it was a minibreak in the wrong environment.'

3.2 Factors Contributing to the Tension

All five participants described situations where they would have liked to investigate promising new information, but felt constrained in some way. These factors contribute to the seeking-encountering tension and provide insight into the underlying reasons for it.

Unsurprisingly, a key factor mentioned was **time**; participants were tempted to explore further, but lacked the time to do so:

'If I really had time I'd flip to whatever sections.' (P5)

'Do you like the experience or the option for getting lost?' (Interviewer) *'Not where there is a time limit.'* (P5)

Having a **specific information goal** was a key driver for participants steering themselves back towards goal-directed information-seeking. P5 stated *'I always have a concrete goal'* when asked if they would take the time to wander around. This sentiment was echoed by P1, who commented *'I browse very rarely. I like having a goal'.*

Another factor that contributed to the tension was **self-consciousness** when browsing the shelves. P2 noted the university library was *'a place of study where everyone was working very hard and I should be working hard right now'*; this prevented her from examining a book she had encountered in more detail. This was echoed by P5, who commented that they limit their browsing in the library because *'the 4th floor in particular feels very shhh. Even wearing flip flops makes me self-conscious.'*

The need to avoid making noise was also echoed by P1 and P4:

'I think there when you're walking you're making sound and everyone is glaring at you...if you browse willy-nilly in these I think that everyone is looking at me or waiting for you to like "just sit yourself down and not make any noise".' (P1)

'I know I'm making noise by swishing around or pulling books out or when they fall over.' (P4)

The space between the shelves was also mentioned as a factor leading to self-consciousness, as P3 noted:

'The rows are very tight, so if someone else is in that row you don't want to bump into them.'

While these descriptions do not speak to the seeking-encountering tension specifically, they do highlight circumstances where participants noticed information or a section of the library they would have liked to have examined in more detail, but felt constrained - whether by the ingrained need to have a pre-defined goal, space limitations, or the fear of disturbing others.

Another factor that contributed to the tension was **visual distraction**. P5, for example commented *'what's with the pictures? What the f*** is this?'* when attempting to assess a shelf of books on writing skills and noticing a cover depicting blueberries. P4 noted that *'it was hard to get a picture of what it was about'* from the cover. The perceived contradiction between the imagery used on the cover and the book's content were at odds to an extent that posed a distraction to the task at hand.

The **physicality** of books was also noted by one participant as a factor limiting the examination of encountered information:

'I often get books out but because they're so heavy I can only take a few out at a time. I have to stagger it.' (P4)

The **wide availability of information sources** was also noted. For example, P1 stated that, in the past, fewer digital sources were available and it was more difficult to explore them than it is today:

*'Searching…browsing… changed a lot since I was younger. When I was younger we didn't have a lot of online resources we just had a library and the browsing system was the ****tiest.'*

Wider availability of sources can provide more potential information avenues to explore and easier browsing can facilitate their exploration. However, sometimes participants did not actually want to explore information sources, but instead wanted to go right to a small set of useful items – as explained by P1:

'In the back of my head I know what I really want to look at, but I don't really know how to get there in terms of topic areas or what I'm supposed to search...'

This is not simply an example of a preference for directed seeking over encountering, but an instance of the seeking-encountering tension—where the participant felt they needed to be more goal-directed, but only had a vague idea of what they were looking for.

The same participant, when asked how serendipity might be facilitated online, stated *'you might [be] forced into it'*. This highlights that while serendipity itself is an inherently positive phenomenon [17], there are some negative implications of serendipitous information encounters, for example particular, being 'forced' into exploration to the detriment of an existing information-seeking goal. Whether a serendipitous information encounter is seen as positive or negative overall may be dependent on the perceived value of the 'distraction' in comparison with the perceived value of pursing the existing goal.

The factors that contribute to the seeking-encountering tension are varied. How to ameliorate it is discussed in the next section.

4. DISCUSSION AND DESIGN ISSUES

The seeking-encountering tension is, in many ways, the negative (or 'dark') side of serendipity. Serendipity requires an open mind, time to reflect, and a trigger-rich environment [17]—features which can all contribute to the seeking-encountering tension. Information encountering can be seen as a mixed blessing for exploratory search and browse in general: on one hand, it can tempt people to explore, on the other it can create a degree of chaos, encouraging information avoidance—where potentially useful information sources are ignored due to overload [2].

We know browsing the shelves is more likely to occur when readers have more time [19], and our study demonstrates tension when readers feel time poor. The necessity to invest time to create value from potentially serendipitous experiences and the risk of this investment not paying off has been previously noted [15], but not in the specific context of information acquisition.

Some of the factors contributing to the seeking-encountering tension offer lessons for physical library design: browsing is clearly limited in silent environments and those where shelves are close together (this latter has been noted in retail environments [27], but not libraries before). Some factors, such as book weight (also observed before [8]), noise and self-consciousness could be immediately ameliorated by moving browsing online. We have not yet developed technology, though, that offers a browsing experience that is comparable to the physical, particularly for serendipitous discovery [5; 8; 16]. Thus at present it would be more useful to design physical library spaces in light of these factors, e.g. by separating reading and browsing areas to reduce noise-related **self-consciousness** and offering digital check-out of physical books to counter weight and other **physicality** issues.

The main challenge posed by our findings, is how best to provide users of both physical and digital information environments with just the right amount of opportunity for information encountering. For some, this will be zero—they will know what they want and not be open to other options [22]. For others this might include a huge variety of material [20]. For all, the 'right' amount is likely to vary based on many internal and external factors—including information goals, attitudes and time pressures. In digital environments, design options include ways to zoom in and out over collections, and ways to provide users with agency to expand search result sets at will to related and partly-related items (e.g. a 'serendipity slider'). Designers might also make pursuing new information avenues less risky by providing ways to facilitate rapid and efficient scanning and information extraction from the **wide variety of information sources** available – e.g. integrated reading support, content overviews and ways to move between summary and detailed information. These interventions also aim to counter the **time** barrier faced by our participants. It is also possible to employ positive **visual distraction** (e.g. by providing image-based previews of visual content). Offering timely opportunities for deviation from an existing **specific information goal** may also be useful—either once the goal has been successfully achieved, or when the information-seeker has reached a dead end. Supporting the easy postponement of the examination of encountered information may help in this regard. While potentially useful, these ideas are early and unformed and require further investigation.

5. CONCLUSION

We have presented a new drawback to the library shelves as information gateways: a tension between information-seeking and encountering, characterised by the temptation to explore information beyond an original goal versus the urge to return to this goal. We have also presented several factors that contribute to the seeking-encountering tension, such as perceived time pressure, self-consciousness and visual overload. An understanding of this tension can inform the design of physical and digital information environments that provide opportunity for serendipity without causing negative distraction. We have made some general design suggestions for achieving this, including providing dynamic support for switching between seeking and encountering. How

best to integrate these suggestions into physical and digital environments remains an issue for future work.

6. REFERENCES

[1] Bates, M.J., 2007. What is browsing--really? A model drawing from behavioural science research. *Inform Res 12*.

[2] Bawden, D. and Robinson, L., 2009. The dark side of information: overload, anxiety and other paradoxes and pathologies. *J Inf Sci 35*, 2 (April 1, 2009), 180-191. DOI= http://dx.doi.org/10.1177/0165551508095781.

[3] Blandford, A., Rimmer, J., and Warwick, C., 2006. Experiences of the Library in the Digital Age. In *Proc CCCDT 06* (Tavros, Greece), FOHW.

[4] Erdelez, S., 2005. Information Encountering. In *Theories of information behavior*, K.E. Fisher and L. Mckechnie Eds. Information Today, Inc., Medford NJ, 179-184.

[5] Foster, A. and Ford, N., 2003. Serendipity and information seeking: An empirical study. *J Doc 59*, 3, 321-340. DOI= http://dx.doi.org/10.1108/00220410310472518.

[6] Gross, J. and Sheridan, L., 2011. Web scale discovery: the user experience. *New Library World 112*, 5, 236-247. DOI= http://dx.doi.org/10.1108/03074801111136275.

[7] Hancock-Beaulieu, M., 1993. Evaluating the impact of an online library catalogue on subject searching at the catalogue and at the shelves. *J Doc 46*, 4, 318-338. DOI= http://dx.doi.org/10.1108/eb026863.

[8] Hinze, A., Mckay, D., Vanderschantz, N., Timpany, C., and Cunningham, S.J., 2012. Book selection behavior in the physical library: implications for ebook collections. In *Proc JCDL '12* (Washington, DC), ACM, 305-314. DOI= http://dx.doi.org/10.1145/2232817.2232874.

[9] Khoo, M. and Hall, C., 2012. What would 'Google' Do? Users' Mental Models of a Digital Library Search Engine. In *Proc TPDL 12* (Paphos, Cyprus), Springer, 1-12. DOI= http://dx.doi.org/10.1007/978-3-642-33290-6_1.

[10] Khoo, M., Rozaklis, L., and Hall, C., 2012. A survey of the use of ethnographic methods in the study of libraries and library users. *Libr. Inf. Sci. Res. 34*, 2 (4//), 82-91. DOI= http://dx.doi.org/10.1016/j.lisr.2011.07.010.

[11] Kleiner, E., Rädle, R., and Reiterer, H., 2013. Blended shelf: reality-based presentation and exploration of library collections. In *Proc CHI 13* (Paris, France), ACM, 577-582. DOI= http://dx.doi.org/10.1145/2468356.2468458.

[12] Kuhlthau, C.C., 1991. Inside the Search Process: Information Seeking from the User's Perspective. *JASIST 42*, 5, 361-371. DOI= http://dx.doi.org/10.1002/(SICI)1097-4571(199106)42:5<361::AID-ASI6>3.0.CO;2-#.

[13] Kuhlthau, C.C., 1999. The role of experience in the information search process of an early career information worker: Perceptions of uncertainty, complexity, construction, and sources. *JASIST 50*, 5, 399-412. DOI= http://dx.doi.org/10.1002/(SICI)1097-4571(1999)50:5<399::AID-ASI3>3.0.CO;2-L.

[14] Losee, R.M., 1993. The relative shelf location of circulated books: A study of classification, users, and browsing. *Libr Resour Tech Serv 37*, 2, 197-209.

[15] Makri, S. and Blandford, A., 2012. Coming across information serendipitously: Part 1 – A process model. *J Doc 68*, 5, 685-704. DOI= http://dx.doi.org/10.1108/00220411211256030.

[16] Makri, S., Blandford, A., Gow, J., Rimmer, J., Warwick, C., and Buchanan, G., 2007. A library or just another information resource? A case study of users' mental models of traditional and digital libraries. *JASIST 58*, 3, 433-445. DOI= http://dx.doi.org/10.1002/asi.20510.

[17] Makri, S., Blandford, A., Woods, M., Sharples, S., and Maxwell, D., 2014. "Making my own luck": Serendipity strategies and how to support them in digital information environments. *JASIST 65*, 11, 2179-2194. DOI= http://dx.doi.org/10.1002/asi.23200.

[18] Marchionini, G., 1997. *Information Seeking in Electronic Environments*. Cambridge University Press, Cambridge, UK.

[19] Mckay, D., Buchanan, G., and Chang, S., 2015. Tyranny of Distance: Understanding Academic Library Browsing by Refining the Neighbour Effect. In *Proc TPDL 15* (Poznan, Poland), Springer, 280-294. DOI= http://dx.doi.org/10.1007/978-3-319-24592-8_21.

[20] Mckay, D. and Conyers, B., 2010. Where the streets have no name: how library users get lost in the stacks. In *Proc CHINZ 10* (Auckland, New Zealand), ACM, 77-80. DOI= http://dx.doi.org/10.1145/1832838.1832852.

[21] Mckenzie, P.J., 2003. A model of information practices in accounts of everyday-life information seeking. *J Doc 59*, 1, 19-40. DOI= http://dx.doi.org/10.1108/00220410310457993.

[22] Rowlands, I. and Nicholas, D., 2008. Understanding Information Behaviour: How Do Students and Faculty Find Books? *J Acad Libr 34*, 1, 3-15. DOI= http://dx.doi.org/10.1016/j.acalib.2007.11.005.

[23] Saarinen, K. and Vakkari, P., 2013. A sign of a good book: readers' methods of accessing fiction in the public library. *J Doc. 69*, 5, 736-754. DOI= http://dx.doi.org/10.1108/JD-04-2012-0041.

[24] Svenonius, E., 2000. *The Intellectual Foundation of Information Organization*. MIT Press, Boston, MA.

[25] Tang, R. and Solomon, P., 1998. Toward an understanding of the dynamics of relevance judgment: An analysis of one person's search behavior. *IP&M 34*, 2 (1998/03/01), 237-256. DOI= http://dx.doi.org/http://dx.doi.org/10.1016/S0306-4573(97)00081-2.

[26] Thudt, A., Hinrichs, U., and Carpendale, S., 2012. The bohemian bookshelf: supporting serendipitous book discoveries through information visualization. In *Proc CHI 12* (Austin, TX), ACM, 1461-1470. DOI= http://dx.doi.org/10.1145/2207676.2208607.

[27] Underhill, P., 1999. *Why We Buy: The Science of Shopping*. Simon and Schuster, New York.