



Research Proposal: Personalisation and Recommender Systems for Public Libraries in Singapore to Engage Adults

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INTRODUCTION

The COVID-19 global pandemic has caused unprecedented disruption to industries and organisations, including libraries, since it emerged at the end of 2019. Many libraries around the world were forced to close temporarily. The physical aspect of library use and patronage abruptly disappeared as libraries expanded their scope of activities to maintain their relevance in a changing environment (Dobreva & Anghelescu, 2022). But libraries did not cease serving their patrons. They had to pivot quickly to redefine and re-evaluate the range of services that could be provided remotely. Library programmes were conducted online, and libraries had to ensure that their digital collections could meet the needs of their patrons.

The pandemic accelerated the adoption and use of technology among library professionals and users in tandem with a similar trend observed worldwide, across all industries. The pandemic provided the impetus for many libraries to devise digital transformation strategies and accelerate their development (Garcia-Febo, 2021). The rate of digitalisation since the pandemic started has reshaped traditional notions of work and play and introduced new ways of learning and studying. Patrons could now expect to access services and collections from the convenience of their home, and with so many industries pivoting to at-home services, such as telehealth and cinema-on-demand, libraries find themselves with two problems in the post-pandemic period: 1) With so many competing services vying for their patrons' limited attention, how can libraries regain, maintain or increase patrons' interests in their collections and programmes? And 2) Now that libraries are once again open for physical visitors, but many patrons have lost the habit of visiting the library, how can libraries reengage and coax them back to the library?

The International Federation of Library Associations and Institutions (IFLA) released a report in 2022 to highlight the shift of focus for libraries emerging from the pandemic and entering the “new normal.” The IFLA Trend Reports emphasised the transformation of the role of libraries from institutional planning to trend-seeking within the whole library sector, and advocated for libraries to “bring together political, economic, social, cultural and technological trends to shape the future of our field and the communities we serve, as identified by emerging library leaders” (IFLA, 2022). Libraries that understand trends in the communities they serve and harness the insights can emerge as adaptive, resilient, relevant, and enterprising institutions in the post-pandemic era.

Many studies about libraries in relation to the COVID-19 pandemic highlight the long-term impacts on digital resources and technology. Firstly, the technology within libraries is placed in the spotlight as “many library activities have moved online” (Orcutt et al., 2022), as seen by the increasing popularity of eBooks and streaming media. Other technological changes in libraries include “increased collaborating and aggressive adoption of new technologies” and “asynchronous learning” (Orcutt et al., 2022). Likewise, another study greatly emphasized how the pandemic has “accelerated the use of technology and virtual operations” (Boltaeva, 2021). This shows how the technology in libraries has become more prominent and serves as the context to further study this aspect of libraries.

AIMS OF THE RESEARCH

This project aims to study and identify a feasible personalisation and recommender system solution for Singapore's public libraries to the problem of engaging the adult demographic in the post-pandemic era.

OBJECTIVES OF THE RESEARCH

1. To identify and understand the personalisation and recommender systems adopted by public libraries and leading commercial organisations to engage the adult demographic with their libraries and programmes, and products/brands respectively and distil key insights of successful strategies.
2. To propose a solution based on personalisation and recommender systems for the problem of reengaging adults in Singapore from the perspective of the National Library Board with a network of public libraries in Singapore.

LITERATURE REVIEW

There are many studies on how user behaviour has evolved post-pandemic. Users show “a clear preference for resources which are easy to access, use and are in one place – a one-stop-shop; therefore, a good resource discovery tool is essential” (Brenton & Tury, 2021). One study presents a “Here to Stay” effect that re-defines the function of libraries to ensure “staff and materials are accessible and responsive to patrons digitally” (Orcutt et al., 2022). This reflects a preference for increased flexibility and accessibility in users’ engagement with libraries. Libraries are expected to “unpack the user profiles in order to customize and make personalized quick services that meet the direct needs of the user” which “particularly influenced the creation and arrangement of thematic or targeted services, events and access to given resource” (Boltaeva, 2021). The increased technological adoption has changed users’ expectations of the library’s function and service; specifically, greater accessibility and convenience through personalization according to user needs. In our research, we will use these user behaviours as a guide to recommend suitable and effective technological changes libraries can adopt.

While there are studies that look at improving technology in libraries according to user needs, the focus is largely on surface-level interactions and disparate IT tools such as introducing virtual or hybrid formats of programmes (Orcutt et al., 2022), integrating technology into operations such as electronic library cards and Wi-Fi access (Goek, 2022) and checking the usability of the library’s website (Verma & Verma, 2022). There is a lack of research that does a deep dive into how technology can be integrated into the library’s overall content offering and crafting of the entire user journey. Our study hence aims to harness the opportunities granted by the rise in technological adoption by users to redefine how libraries can become an effective hub for knowledge and learning that is personalized to users’ specific needs and wants.

Personalization and recommender services in libraries are not brand-new concepts as past research has explored the fundamental background of what it means to personalise and the reasons why personalisation is a necessary and effective tool. One reason for personalization is as “contents and services become more varied, and as their patrons become more experienced with computer technology, people expect more sophisticated services from their digital libraries” (Smeaton & Callan, 2005). Hence, libraries “must move from being passive, with little adaptation to individual users, to being more proactive in offering and tailoring information to individuals” (Smeaton & Callan, 2005). This study suggests that “future digital libraries need to feature broad user models, including a person’s background, knowledge, tasks, social activity, and preferences” (Smeaton & Callan, 2005). This study outlines a generic picture of personalisation and recommender systems across libraries and is synchronous with our research objective and recommendation of a personalised library user experience.

There is a similar study which talks about personalised library experience. This study briefly explores three methodologies of providing a personalised experience – usage-based, knowledge-based and content-based (Giannaros et al., 2020). It also outlines three features – “rates and reviews”, “clustering algorithms” and “wish list” (Giannaros et al., 2020) – of personalisation software systems that libraries can adopt. The methodologies and features explored in this study are useful entry points for us to further refine and craft our recommendations.

In our literature review on post-pandemic library trends, we have observed that a large focus is placed on academic libraries (Ashiq et al., 2022; Appleton, 2022). The pandemic has impacted society at large and greatly changed content consumption behaviour at all libraries. Therefore, we will be focusing on public libraries. Specifically in Singapore, the public libraries position themselves as hubs to “promote reading, learning, information literacy and an interest in Singapore’s history and heritage” (National Library Board, 2023a) through multiple knowledge mediums – programmes, books, eBooks and eResources. At the same time, the existing technological infrastructure such as library-wide Wi-Fi access, multimedia stations and a mobile application shows potential for greater development; which further reinforces the relevance of looking at the post-pandemic technological trend in public libraries.

Lastly, when we look at the research on libraries in Singapore, there seems to be a research gap for adults, defined by the Singapore Department of Statistics as those aged 20 – 64 (Department of Statistics Singapore, 2022). Studies generally focus on library user behaviours of young people (Lin et al., 2015) and the elderly (Ann, 2011). According to the 2021 National Reading Habits Study on Adults conducted by the National Library Board, “more adult and teenage residents in Singapore are reading for leisure compared with 2018. Digital content, such as videos and e-books, has also become popular formats” (National Library Board, 2023b). This means our recommendations based on post-COVID technological trends would have a significant effect in the user experience of adults, hence making them the prime choice for our target audience. In addition, adults typically form a smaller percentage of library visitors due to competing priorities such as work and access to other information sources such as the internet and social media platforms. With the closure of libraries during the pandemic, there is also a smaller chance of adults being motivated to visit libraries after their re-opening. As such, our research chooses to target this segment to gain further insights into their user perception of the library and with that, propose a suitable and effective technological solution that adapts to their post-pandemic information seeking behaviour.

METHODOLOGY

The methodology includes:

- Surveys conducted with 20 librarians and 40 adults to gather their opinions on library services, programmes and content delivery targeted at adults
- An analysis of journal articles on endemic COVID technological trends affecting adults in the areas of personalisation and recommender systems
- A study of library trends and marketing reports on omnichannel marketing and personalisation

RESEARCH SCHEDULE

No.	Task	30 Jan	5 Feb	13 Feb	20 Feb	27 Feb	6 Mar	13 Mar	20 Mar	27 Mar	3 Apr	10 Apr	17 Apr	24 Apr
Phase 1: Research proposal														
1	Sign up for CITI Certification and complete it													
2	Prepare documents for IRB application and submit by 17 Feb													
2	Begin work on survey, read relevant journal articles, and trend reports													
3	Receive IRB approval													
4	Pilot test survey, refine it													
Phase 2: Data Collection														
5	Conduct surveys													
Phase 3: Data analysis and report writing														
8	Analyse data													
9	Write report and submit final report by 26 Apr													

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