

Information services for the engineering community: explorations in the hybrid environment

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Abstract:

Libraries are hybrid information environments which “draw together on-line and physical collections and services, presenting them to the user in a seamless and integrated manner (Currier, 2001). If we use the language of information architecture language to describe this hybrid environment:

- *Collections and information resources can be viewed as landmarks and nodes within the information space.*
- *Discovery tools such as pathfinders, citations and sitemaps are navigator tools and pathways linking collections and resources to users within the information landscape.*
- *Reference and information services become activity centres where information exchange happens, creating dynamic interstitial social spaces situated in this environment.*

The analogy is used to visualise libraries in transition from physical to hybrid collections and patterns in user behaviour which can guide librarians in creating responsive social and collaborative learning spaces. We also use this to organise discussion about explorations of hybrid information services at Nanyang Technological University (NTU) Libraries; these are working examples from past events and on-going projects by NTU Engineering Library (ENGL).

1. Collections and information resources

Thematic book exhibitions are regularly used to promote library print resources within the library but can also be an event in users’ community spaces. We describe an event accompanied by a hybrid book exhibition where e-books are ‘displayed’ alongside print books.

2. Discovery tools

ENGL uses the Wordpress blog platform to create virtual subject rooms where both print, electronic and other media collections can be accessed by NTU's engineering community. To improve content promotion and reach, ENGL is investigating the use of NTU Libraries Facebook platform.

3. Collaborative spaces

We are currently investigating creating specialised custom content for a specific group of users so as to extend library information services into a community hybrid network where librarians and users can collaborate, interact and learn using the Wordpress blogs platform.

Keywords: Hybrid library, information architecture, reference services, information services, case studies

1 INTRODUCTION

The changes in society, technology and education since the mid-1990s are said to have led to the development and implementation of the hybrid library (Currier, 2001). Since then libraries offer many of their resources and information services on-line; they also continue to develop their collections and services offered at their physical locations. Librarians have had more than a decade's practice in managing the merged 'information real estate' of physical and digital environments. They have played a mediating role in shaping and designing the information landscape where users create, consume and discover information content for their learning needs.

Literature defining the hybrid library, its development and implementation projects started from the mid-1990s. Hybrid libraries were seen as the mid-phase towards the complete digital library, although even in those earlier years of hybrid library implementation there was also "clear consensus that library in location will remain" (Oppenheim, 1998). In the UK, the Electronic Libraries Programme (eLib) was well documented as an important influence on the implementation of the hybrid library model and the future of libraries then.

In the past ten years, the term 'hybrid library' has been used less perhaps because hybrid libraries have become the 'new norm', with most libraries already functioning with some combination of location-based and electronic resources as well as virtual patron services. At the same time, the information environment has continued to remain fluid with even more changes in culture, disruptive technologies and education. Recent literature in library reference and information services discuss projects implemented to bring information services to users in the digital environment using social media tools, mobile technology and integration with e-learning management systems. Libraries have positioned themselves as competitors for content consumers' attention in the information landscape and seek to reinforce their relevance as a locational learning space.

Our motivation, as with early hybrid library implementation, is "for more than just seamless access to traditional and electronic information, with the aim of providing a richer information environment for users". Libraries physical environments have inherent information organisation attributes which may not be tangible to users and may not be translatable in the virtual dimension. We use landscape metaphors to map library space in relation to the whole hybrid information environment so that user interactions with library collections, tools and activities can be easier to visualise and explore.

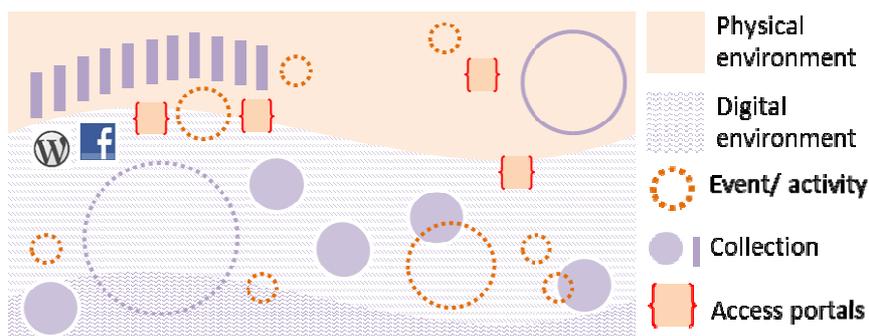


Fig. 1 Visualisation of information landscape is intended as a graphic exploratory tool of user behaviour in the hybrid environment

2 EXPLORING THE HYBRID ENVIRONMENT

Nanyang Technological University (NTU) is a single suburban campus of about 33,200 students and 3,600 faculty and research staff. NTU Library has 7 subject libraries with the Engineering Library (9 subject librarians) serving the largest user community of more than 10,000 students from 6 Engineering schools – Chemical and Biomedical, Civil and Environmental, Electrical and Electronic, Mechanical and Aerospace, Materials Science and Computer Engineering.

As the flagship subject library on campus, the Engineering Library regularly promote library resources and services for the engineering community via events, reference enquiries and emails to subject librarians and information literacy instruction workshops. In this section we discuss how we have begun to explore how to reach more users by layering virtual services onto existing locational contact services where feasible and sustainable.

2.1 Collections

Most of the library activities organised by Engineering Library usually brings the user to our library location or neighbouring areas. Thematic book exhibitions are used to promote library print collection within the library but can also be an event in users' community spaces. In the physical dimension, this may translate into events which take place outside the library at engineering schools or centralised university locations.

An example of an event outside the library is the integrated circuits-themed book exhibition held in conjunction with the launch of VIRTUS, Integrated Circuit Design Centre of Excellence. The thematic book exhibition allows faculty, students and librarians to interact around the subject collection resources and their use.



Figure 2. Thematic book exhibition held outside library at NTU event to launch VIRTUS, the Integrated Circuit Design Centre of Excellence research centre

In a recent library Lunchtime Talk event about waste management, the accompanying thematic book exhibition was organised to display print and e-books in the library collection where users would get to interact with both print and digital e-books in a ‘seamless and integrated manner’. To allow users the same ‘touch and feel’ interactive experience with e-books, the covers and portion of front matter of the selected titles were preloaded into 2 iPads on iBook ‘shelves’ so users can browse from e-content to print at the same time and in the same manner.



Figure 3. E-books exhibited alongside print book thematic collection accompanying Library Lunchtime Talk

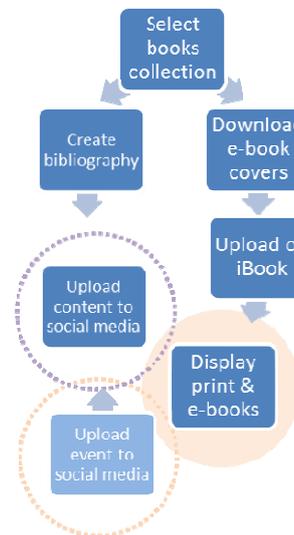


Figure 4. Schematic process for hybrid book exhibition



Figure 5. Users may need an introduction to the e-book access format which is usually unnecessary when handling print books

While access to electronic library resources has been enhanced, there is much room for improvement before users can perceive this as a fully integrated hybrid environment. User behavior at book exhibitions indicate topical browsing as an important part of information consumption. In the virtual environment, lack of organizational intellectual structures, display and presentation may contribute to low browsability while unfamiliarity with access and rights issues still present usability issues. As a user-library event, the exhibition as an event can be shared with library users in virtual social space when content is posted on library social media spaces. This process is easily repeatable and is a start to a more comprehensive approach to promote hybrid collections in future events.



Figure 6. Library post-event promotion marks out some virtual social space for Lunchtime Talk event and book exhibition content

2.2 Discovery tools

Creating pathfinders, subject guides and content promoting collections and resources are some of the ways of organising meaningful content for users in the growing information landscape. NTU Engineering Library has maintained and created customised content promoting library resources and services for NTU's engineering user community on the ENGL blog since 2009. Although the number of visit and visitors shows an increasing trend, ENGL is still looking at sustainable ways to improve the promotion of library content to users in the virtual environment.

A 2012 student survey showed that Facebook is still the most popular Web 2.0 application among NTU students with about 84% usage rate. It was a natural choice for Engineering Library to use the NTU Libraries Facebook platform as an additional content channel since it is a well-established and successful promotional channel which has been maintained by the NTU Library Promotion Division (LPD) since 2009. LPD provided administrative support and conducted basic training to subject librarians involved in the pilot on the posting use of Facebook.

One of the concerns with using social media tools was to have a stable and continuous source of content which was relevant to users. Another concern was users' receptivity to engineering subject content since Facebook seemed to favour event-based promotional activity with a linear chronological timeline.

The plan to generate content was to create an instance of reference enquiries received at the reference desk in the virtual library social media space. Enquiries received are systematically categorised using some common facets (tools, topics, user type and learning outcomes) and generic content is created without specific reference to any one user. Content sourced from users can be assumed to be relevant, timely, easily understood, is a consistent source and is suitable for re-purposing.

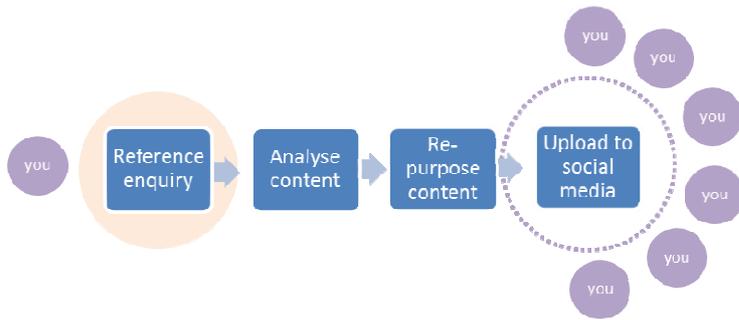


Figure 7. Schematic process for content re-use from reference enquiries to social media

The project started in September 2012 and the table below shows some facebook posting view statistics for the past 6 months with thumbnails showing the content of the postings with higher number of views. The median number of 469 is better than expected with no extreme lows. This may indicate this type of content, which is not directly related to a promotional event, is still appropriate on this platform. It is an effective and sustainable way for the library to extend information services into the virtual social space which users are familiar with. It is also a possible source of popular topics which can be developed into event themes or more comprehensive content.

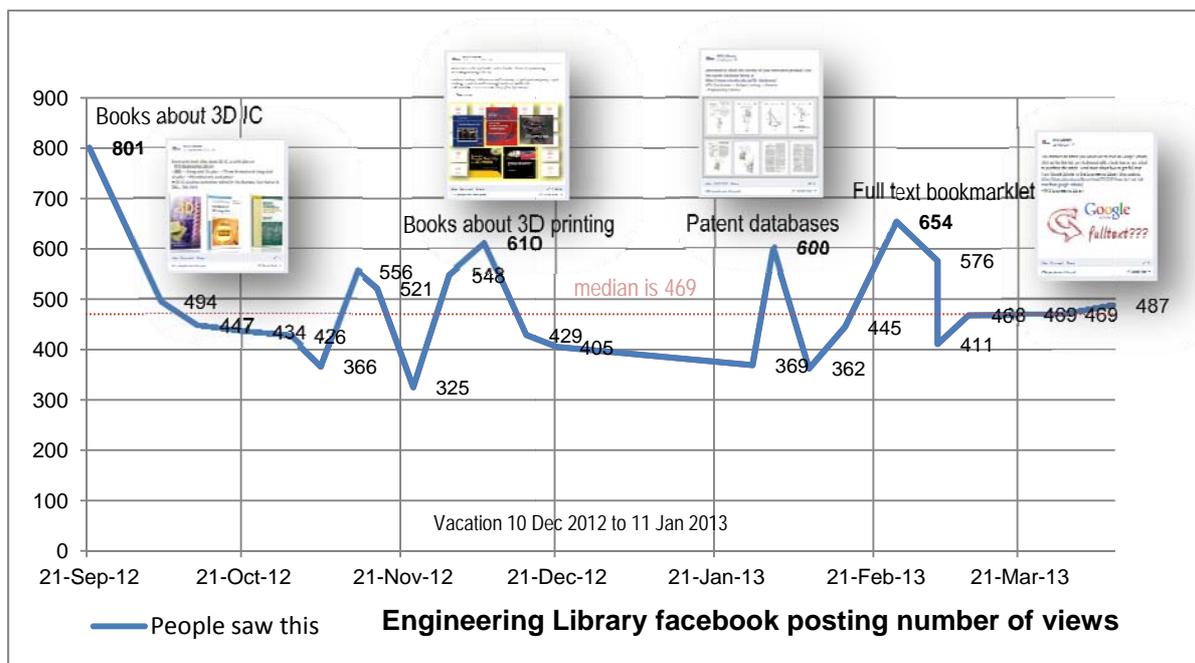


Figure 8. Engineering Library facebook number of views for postings

Another concern about the use of Facebook was the timeline organisation which may not favour users searching for content at a later time. We wanted to investigate if the facebook platform could be used as a promotional channel for content which is created on Engineering Library blogs. The intention was to use blogs better organisation structure so users could browse content categories easily and discover more relevant content.

This second part of the pilot started in January 2013 where content was created on blogs and then promoted on Facebook. Blog post view statistics collected indicate that there is marked improvement for 30% of the postings after promotion on Facebook and a small improvement for the others. Clearly it is as difficult to predict user behaviour and move users from one platform to another in the virtual environment as in the real world.

We are encouraged that overall user behaviour does indicate there is some space in their social environment for library virtual promotion of library resources and information services. There is now an additional point of contact in the virtual environment for users and librarians to interact which can be developed and fostered. We also recognise that user ease of use must remain the primary concern when exploring different social media platforms so we may use other approaches for users to browse and re-visit previously posted content.

2.3 Collaborative spaces

NTU libraries learning commons offer a variety of collaborative learning spaces in different configurations which are highly utilised by students who require discussion areas equipped with learning tools. The realisation of these spaces has articulated learning into a vibrant communal activity enriching all users experience within the physical library space. In the virtual environment, blogs are still popular amongst researchers as collaborative learning tools for sharing information, discussion of research, teaching, monitoring and documentation. Some suggested reasons for the ready adoption of blogs are the low entry level user training and the relatively low setup and maintenance costs. Although the search and retrieval capabilities of blogs is usually limited unless customised, this does not appear to dim the popularity of this platform as a collaborative medium.

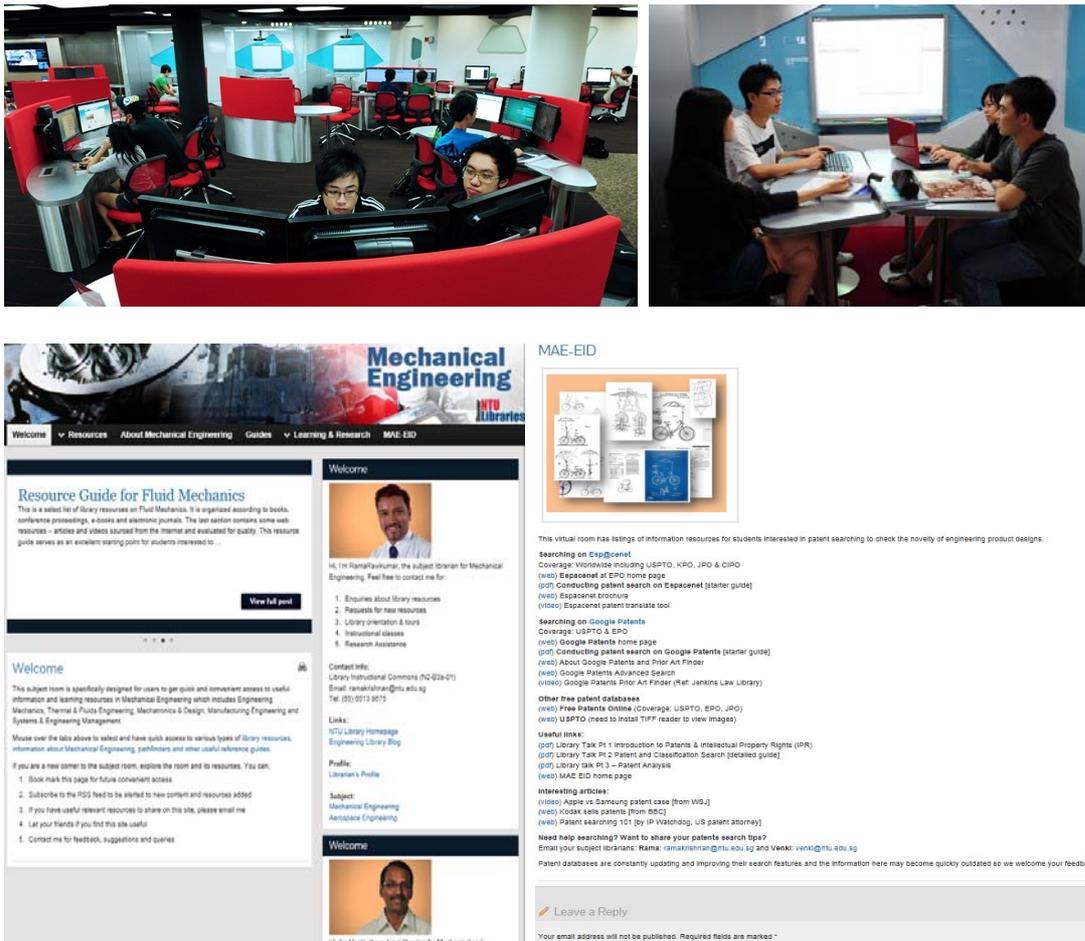


Figure 9. In the current environment, some users may prefer physical learning spaces to virtual rooms

Students from the School of Mechanical and Aerospace Engineering (MAE) work form one of the larger groups of students in NTU's engineering community. Subject librarians have worked closely with these students in information literacy library workshops, regular consultation sessions, via emails and also using campus networked message services for more than 5 years. Since these students were more familiar with library information services, they may be more interested in participating in creating a community learning network where librarians and users can collaborate and interact using the Wordpress blogs platform.

The preliminary framework for this project was a course guide for the MAE module entitled "Engineering and Innovation Design" (EID). A library workshop is integrated into this course module which is compulsory for all year 2 MAE undergraduate students (about 600 to 700 students). This course content is unique where students have the opportunity to research about innovative product design, patents, intellectual property and present a business and marketing plan for their prototype. An important focus of the learning outcomes is how to conduct research to check the innovativeness of their product design. The guide content for this module includes customised patent database search guides as well as resources about marketing and business plans.

In addition to pushing relevant content to students, we encouraged feedback and comments to add to the learning experience. So far, there is regular feedback via emails and face to face enquiries to subject librarians but few blog visits and no online comments. We observe that users may not be familiar with participating in online discussions or may not be interested to do so unless there is a clear motivation such as course requirements. Since this has only been in progress for half a semester, it may be necessary to explore for a longer term to further investigate user behaviour.

3. CONCLUSION

Library information services can have an expanded role in the hybrid environment by exploring changes in delivery models in the virtual environment. We used landscape metaphors and observations of user information seeking in the physical library environment to visualize user behaviour interacting with virtual library resources in the hybrid environment. In our 3 areas of exploration at NTU, the user experience of a seamless hybrid collection and virtual learning rooms still needs further development. Our users seem to be more receptive to library activities such as reference services using social media platforms. This area has potential for an integrated user experience and we are working on collaborative and sustainable workflows.

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