A User Needs Assessment of a Cultural Heritage Portal: The Singapore Infopedia

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ABSTRACT

For cultural heritage institutions, e.g. museums, archives, and libraries, portals and digital libraries have become an important means of giving access to rare and vulnerable materials such as fragile documents. However, the cost of developing and maintaining a cultural heritage portal remains exorbitant, and it includes the costs of the design and development of the platform, of the digitization of printed materials, and of the format refreshment, preservation, and storage of the digital resources. Although these processes are costly, they are critical if the cultural heritage portal is to be viable in the long run.

In addition, the design and contents of the portal are also crucial if they are to attract the number of users that they so deserve. Digital products should meet actual user needs in a user-friendly format. Unfortunately, in the case of cultural heritage portals, actual user needs are frequently ignored. An example of this can be found in the study of seven non-profit cultural and heritage organizations in Canada by Wall (2003), which found that many of the institutions had only a cursory understanding of their user's needs and demands. Wall attributed this to the absence of an automatic "market-driven" mechanism to link service providers and users. For non-profit cultural institutions, the user needs assessment serves as the link between them and their users.

INTRODUCTION

This paper reports the findings of a user needs assessment of Singapore Infopedia, a cultural heritage portal of Singapore history, from the perspective of history teachers. Singapore Infopedia is a repository of approximately 1,000 short articles on topics that have helped to shape Singapore's history, culture, landscape and thinking. Each article in Singapore Infopedia provides an overview of a topic (e.g. "Chinese New Year Taboos") and is accompanied by references (in the form of citations) that can be used to research the topic further. Related images in selected articles and cross-referencing between related articles help to create a fuller understanding of a particular topic. The contents, both text and images, are searchable, this being enabled by the use of both the Library of Congress Subject Headings, and the Dublin Core metadata standard. The users of Singapore Infopedia are expected to be mainly upper primary, secondary, and junior college level teachers, and academics studying Malaysia and Singapore history. The articles are also expected to be useful for students doing the National Education module.

The survey, which was based on Leckie, Pettigrew and Sylvain's (1996) model of user needs assessment, was conducted in February 2004. The key questions asked in the survey sought to answer the following questions: (a) Who were the users of Singapore Infopedia? (b) What resources did they frequently use? and (c) How were history teachers using resources in their teaching of local (i.e. Singapore) history? The user needs assessments of established digital libraries on cultural heritage, namely the American Memory project, the Perseus Digital Library, and the Singapore National Library Board's InfoXpress (the precursor to Singapore Infopedia), were used as models for the study. The study was conducted with the purpose of obtaining an understanding of user needs beyond that provided by the counts obtained from the server log, and was timed so that it could inform the redesign of the portal ahead of the migration of Singapore Infopedia, originally hosted on Lotus Notes, to a Microsoft SQL server.

In January 2004, a National Education programme, Today-in-History, which was organised by the Singapore Ministry of Education, and supported by the National Library Board (NLB), was launched. In February, training sessions were conducted by the NLB for teachers to acquaint them with the resources and features of Singapore Infopedia. The event saw a large turnout of 193 teachers from 166 primary and secondary schools. This presented an opportunity to conduct the survey, as these were the very teachers who were expected to use Singapore Infopedia extensively. A total of 135 returns were received with 117 found to be valid. 18 were discarded as they were found to have a low level of completion. The results of the survey are summarised below.

USER PROFILE

Leckie, Pettigrew and Sylvain (1996) suggested that the user profile should include factors such as age, experience, and area of specialisation. The respondents comprised 81% women and 18% men (1% did not respond). The breakdown of the ages according to the level at which they taught is summarised in Table 1. The majority of the respondents (70%) were from the "40 and below".

Table 2 summarises the teaching experience of the respondents. Two "bands" of experience levels were found to dominate the respondents, namely, the "1-3 year" and "> 10 year" band. Two-thirds of the respondents belonged to these bands.

Table 1. Age profile of the respondents

Age	Levels Taught (%)					Total
	Pri 1–4	Pri 5–6	Sec 1–2	Sec 3–4	Sec 1–4	
< 25	9.5	3.9	0.0	6.7	10.0	6.0
25–30	42.9	21.6	40.0	13.3	45.0	29.9
31–40	23.8	29.4	40.0	53.3	25.0	31.6
41–50	9.5	25.5	10.0	20.0	20.0	19.7
> 50	14.3	19.6	10.0	6.7	0.0	12.8
Total	100.0	100.0	100.0	100.0	100.0	100.0

Table 2. Summary of the teaching experience of the respondents

Experience	% of Respondents
Just graduated	9.4
1–3 years	35.9
4–6 years	11.1
7–10 years	13.7
> 10 years	29.9
Total	100.0

Table 3. Summary of the information sources used in the teaching of Singapore history (the top three sources in each level is highlighted)

Information Source	Pri 1–4	Pri 5–6	Sec 1–2	Sec 3–4	Sec 1–4	Total
Assigned textbooks	71.4	94.1	80.0	73.3	90.0	85.5
History aids	66.7	58.8	80.0	60.0	80.0	65.8
Books	38.1	49.0	70.0	60.0	75.0	54.7
Magazine articles	66.7	80.4	60.0	73.3	75.0	74.4
Newspaper articles	33.3	58.8	50.0	66.7	75.0	57.3
Photographs & images	42.9	62.7	70.0	53.3	65.0	59.0
Items & artefacts	42.9	62.7	50.0	46.7	80.0	59.0
Websites	19.0	54.9	40.0	6.7	50.0	40.2
Multimedia resources	38.1	64.7	60.0	53.3	60.0	57.3
Heritage tours	57.1	72.5	70.0	60.0	75.0	68.4
Exhibitions & displays	42.9	54.9	60.0	40.0	45.0	49.6
Dramas & games	38.1	58.8	70.0	46.7	40.0	51.3

INFORMATION SOURCES USED

Twelve information sources were used in the teaching of Singapore history, and they were categorised into three groups, namely, traditional materials, non-traditional materials, and activities. Traditional materials include the assigned textbooks, history aids, books, newspaper articles and magazine articles. Non-traditional materials include photographs and images (personal photographs), items and artefacts (letters, postcards, pamphlets, and maps), websites, and multimedia resources (CD-ROMs, videocassettes, and audiocassettes). Activities include heritage tours, visits to exhibitions and displays on history, and drama and games. The aim here was to ascertain which were the top three information sources used for teaching, in order to determine user priorities to guide the digitization effort. The resources used are summarised in Table 3.Table 3. Summary of the information sources used in the teaching of Singapore history (the top three sources in each level is highlighted)

The results show that for the traditional materials category, besides the expected heavy reliance on the assigned textbooks, teachers require magazine articles and history aids. For the non-traditional materials category, the top resources are photographs and images, and items and artefacts. For the activities category, heritage tours were found to be important. This may be due to the way National Education is taught at schools, with an emphasis on making history lessons come alive by visiting, rather than merely reading about the sites of interest.

PURPOSE OF USE

The purpose for which each information resource was used was investigated next. The types of uses were broadly divided into four categories, namely, for use during classroom instruction, for project work, for the preparation of examination, and for developing and expanding one's interest in the history of Singapore. The results are summarised in Table 4.

Table 4. Summary of the purpose for which each information resource was used

Information Source	classroom teaching	project work	examination preparation	development of interest
Assigned textbooks	93.2	39.3	59.0	23.1
History aids	65.0	35.0	38.5	27.4
Books	37.6	35.0	27.4	34.2
Magazine articles	53.8	53.0	18.8	58.1
Newspaper articles	38.5	43.6	11.1	45.3
Photographs & images	48.7	47.0	17.1	33.3
Items & artefacts	47.0	46.2	12.8	40.2
Websites	27.4	41.9	6.0	28.2
Multimedia resources	56.4	46.2	12.0	39.3
Heritage tours	17.9	35.9	1.7	60.7
Exhibitions & displays	12.0	26.5	0.9	43.6
Dramas & games	29.1	27.4	0.9	41.9

For classroom teaching, the resources that are used most often are unsurprisingly, the assigned textbook (93%) and history aids (65%). The use of multimedia resources and magazine articles was also found to be relatively high. For project work, where the students have to write term papers, prepare reports, and make presentations, the resources they use most often are magazine articles (53%), and photographs and images (47%). To prepare for examinations (the activities here include the setting of examination questions and the preparation of suggested answers), respondents use the assigned textbooks (59%) and history aids (39%) most frequently. This agrees with the top two resources for classroom teaching, and reflects the emphasis on classroom teaching in examinations. To develop an interest in history, respondents go for heritage tours and read newspaper articles.

The survey also investigated the use of history experts and other professionals as sources of information when teaching Singapore history. Three categories of people were found. First, colleagues were found to be the most frequently consulted people. This is likely to be due to their proximity. This was followed by history experts, in the form of curriculum planners and history lecturers at the local universities. Lastly, information professionals, specifically museum guides and librarians, were consulted. That people are consulted frequently suggests that there is scope for Singapore Infopedia to facilitate people-to-people connections. For example, a Yellow Pages facility, listing the experts in Singapore history, and an expertise locator may be a good addition to the portal. To allow teachers and students to ask the information professionals directly, the addition of an Ask-a-Librarian and an Ask-a-Museum Guide service could be considered.

CONCLUSION

In summary, the survey results include a detailed user profile, data on information resource use and the purpose of use. The survey shows that history teachers continue to rely on traditional resources such as prescribed textbooks, and newspaper and magazine articles. However, non-traditional resources such as photographs and digital images, and artefacts such as letters, postcards, pamphlets, maps, manuscripts, and audio files are increasingly being used, especially in project work. Teachers are also teaching history using activities such as heritage tours and field trips, visits to exhibitions, and dramatization and role play.

The resources from the portal were used mainly for class work, but were also used for project work, the setting of examination papers, and the developing of interest in specific areas. Teachers also consulted other people, e.g., their colleagues, history experts, and information professionals. The results of the survey were used to guide the development of the portal and the prioritization of the digitization process. For example, the survey suggests that the incorporation of an "Ask-a-Librarian" service, and the development of an expertise locator would be helpful to portal users. The survey also suggests that the digitization effort be extended to materials previously excluded, e.g. postcards and manuscripts. Audio files from oral history collections should also be included in the portal, as suggested by the high demand for multimedia materials. Information on "museum happenings" would also be useful to alert teachers to potentially useful events and exhibitions organised by the various museums in Singapore. The user needs assessment of Singapore Infopedia has provided insights that will prove invaluable in ensuring that the portal, when fully launched, will meet actual user needs.

For the future development of the portal, Santelli, Cornu, Gauthier and Ritoux's (2003) model of the levels of appropriation of a website should be used as a guide. In this model, the objective of the first phase (adoption) is to convince and demonstrate to the user that the content of the website is useful to him, with the aim of attracting the user to frequent the website. Once buy-in is achieved, the second phase (involvement) invites the user to participate by reacting to the available content, providing his feedback to the documents in the portal, his perspective on issues discussed, etc. This phase is crucial as it is through the involvement of the user that the portal content multiplies. The third phase (reuse) involves a decision by the user to appropriate and repurpose the available content in the creation of his own content. In

the last phase (co-development), the user actively participates in the content creation process, contributing original content, and not merely reacting to already available content.

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