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A digital reference desk for the National Library of Iran

A digital
reference desk

A prototype based on content analysis of the digital reference desks of the world's national libraries

221

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Abstract

Purpose – This survey aims to provide an appropriate prototype for the Digital Reference Desk of the National Library of Iran.

Design/methodology/approach – Using a content analysis method, 33 digital reference desks of the national libraries around the world which offer their services in English are examined. A checklist was used to gather data based on specialists' points of view.

Findings – The findings show that specialists suggested 21 features were important and crucial to be included in the model.

Originality/value – The results in the paper reveal that there is a considerable difference between the present situation of the digital reference desks studied and the optimum situation suggested by Iranian specialists.

Keywords Reference services, Electronic media, National libraries, Iran

Paper type Research paper

Introduction

The advent of new communication technologies, as well as the appearance and development of novel techniques in information processing and storage, have changed the role of all types of libraries in information dissemination, and have compelled libraries to supplement traditional services with online services to users, fulfilling *any time* and *anywhere* needs and expectations. National libraries are no exception. Incorporating digital reference services (DRS) to the traditional reference service portfolio is one of new challenges in libraries. Launching such a service necessitates some special requirements; designing a digital reference desk is one of these significant requirements.

National Library of Iran

As the holder of the rich written treasures of Iran, the National Library of Iran (NLI) is a symbol of Iran's great cultural pride. The Library must be in a position to show the cultural greatness of this ancient land. The most important areas of work for the NLI are:



- (1) Collecting, processing, storing, and informing about its book and non-book resources:
 - all works published in Iran or written by Iranians across the globe;
 - all works published in Farsi around the world;
 - all works on Iranian and Islamic studies published anywhere in the world; and
 - credible works on science and culture published in the world.
- (2) Scientific research and planning for the country's library management and information dissemination sector. In this area, NLI has established its goals and objectives as follows:
 - acquisition, preservation, organisation and dissemination of information resources, both written (print and manuscript, electronic) and oral, produced in territorial Iran or by Iranians living abroad;
 - acquisition, preservation, organisation and dissemination of works (print and manuscript) and oral works in the fields of Iranian and Islamic studies, with special emphasis on the Islamic Revolution of 1979;
 - acquisition, preservation, organisation and dissemination of significant works (print and manuscript) and oral works in the fields of science, technology, and humanities, regardless of origin;
 - commissioning research and providing guidelines on the planning and management of library and information services;
 - participation in international research projects which aim towards the development of library and information services;
 - developing policies and strategies to facilitate research and studies in relevant areas to promote national cultural values;
 - provision of consultation and technical and planning services to libraries and information services across Iran; and
 - developing strategies for coordination among national, public and specialised libraries to facilitate information exchange (see www.nlai.ir/).

Objectives

In its parliament-ratified statute, the NLI is regarded as a research and education institution as well. Research and education have, in fact, been announced as one of the main functions of the organisation. The National Library of Iran attempts to meet the needs of researchers based on Persian information resources as well as some English resources in the field of Iran and Islamic studies. With the emergence and development of new technologies and their subsequent influence on library services generally and reference services specifically, the National Library of Iran decided to develop its services based on these technologies. Accordingly, an "Ask a Librarian" service was developed on the website of NLI that was not based on the existing standards of digital reference desk. This survey tries to suggest an appropriate prototype for the Digital Reference Desk of the National Library of Iran. The model proposed is based on content analysis of the features of digital reference desks of the world's national libraries which publish their websites in English. The survey also seeks the views of

Iranian library and information specialists on the features included in these digital reference desks. This resulting model emphasises those DRDs which offer their services via electronic mail.

Research questions

Four research questions framed this investigation:

- (1) Which features are included in the DRDs of the national libraries studied?
- (2) Which of the elements and features included in the world's national libraries are deemed important and crucial by Iranian specialists?
- (3) Apart from those features included in the checklist, which features are proposed by Iranian specialists to be included in the DRD of National Library of Iran?
- (4) Which model is suitable for designing the DRD of the National Library of Iran?

Literature review

Research in the field of distance library services and digital reference services is extensive. On the other hand, although a growing body of literature is gradually discussing digital service desks as a web-based service for distance users, most of the related studies focus mainly on the evaluation of these services (Sharma and Vishwanathan, 2001; Payne and Bradbury, 2002; Moyo, 2002; Accart, 2006). Some research focuses on the content analysis of the digital reference desks. For example, Wasik (1999) states that users of the National Library of Scotland ask their questions by filling a query form and sending it electronically to the library. Fields included in this query form provide some useful information for the reference librarians. Some additional information can be seen in the query form.

As a second example, Lochore (2004) finds that the limitations of e-mail have led to the development of alternative services. Some libraries have adapted their e-mail systems so that queries are submitted via a web form that requires additional information to be entered. This can range from simple verification details (e-mail address, reason for requesting information) to the query's subject area.

Additionally, Cloughley (2004) compares five free digital reference services in terms of the ease of use and the effectiveness of DRS for academic users. "All Expert", one of these DRDs, created in 1998, is a service from the USA that claims to be the oldest and largest free question-and-answer service on the internet. It does not actually employ "experts", but instead volunteers from around the world answer the question. Each expert is listed under their relevant category of expertise and each maintains a profile detailing the extent of their knowledge, the types of questions they are willing to answer and their general background. The user selects a subject category or sub-categories. After choosing an expert, the user then completes a web form with fields for name, e-mail address, question title, question instructions, and an e-mail is sent with a link back to the site to view the answer. Cloughley's (2004) study shows the differences among DRSS. Finally, Cloughley (2004) states that no one service can answer all the reference questions asked by all users, and a cooperative approach is essential to handle different types of questions based on subject, region, and available resources.

Accart (2006) studied the capabilities of the DRD of the Swiss National Library. the findings demonstrate that there are some differences between SwissInfoDesk and other virtual reference desks (VRDs), some of which are as follows:

- multilingual aspects (four languages are represented) and the link between a directory of selected official Swiss websites and the reference desk itself; and
- the information specialists of SwissInfoDesk answer questions according to structural criteria (including author identification, the site's objectives, target audience, and easy and rapid navigation) and quality criteria (including amount of information available, document accessibility, information quality, proven, impartial information, information checked and validated by an expert, links to other pertinent resources, and interactivity).

The user may contact the library's information service directly by e-mail, or use the online form which aims to help the user pre-define the search criteria required. To determine the information needs of users, some other criteria should be considered. These criteria are divided into two groups:

- (1) elements needed for the search request; and
- (2) personal data.

The elements needed for the search request include the user's question (mandatory), search aims, keywords, geographical area, time period (by year of publication), languages, type of information required, photocopies, type of service required (i.e. free search, express, paid), amount prepared to pay, deadline, how information is to be sent (fax, e-mail, etc.), and comments.

Research methodology

Content analysis is the methodology chosen for this survey. "Content analysis is any technique for making inferences by systematically and objectively identifying specified characteristics or messages" (Shields and Twycross, 2008). The general approach employed for content analysis is analogous to developing a set of closed-ended questions for a survey and then administering that survey. This involves preparing an evaluation protocol by defining categories for analysis and then having one or more evaluators or "coders" use that protocol to read and "score" the written communication. The unit of analysis is the "recording unit", measured in a variety of ways, such as with time or space measures (e.g. newspaper column inches) or the appearance of an item (yes/no), which may also include recording frequency and intensity (Norton, 2008).

The authors used the content analysis methodology to analyze the content of digital reference desk of national libraries. The study covered 33 DRDs of the world national libraries, which offer their services in English; since English is an international language, most of the DRDs of the world's national libraries (such as the National Library of Iran) offer their services in both native and English language. Therefore, those non-English national library websites with switch-to-English icons were also selected to be included in the survey. The authors used the IFLA website to identify the national libraries of the world (see www.ifla.org/VI/2/p2/national-libraries.htm; accessed April 14, 2007).

In this research, criteria considered in DRDs of the national libraries were selected to be included in a checklist. Then, the important features used in the DRDs of the world's national libraries are identified by Iranian specialists and finally included in designing the DRD for the National Library of Iran.

The survey was conducted in four stages. At the first stage, using content analysis methodology some content features of the studied DRDs were extracted, and a checklist was developed. The second stage sought to gather attitudes of Iranian information specialists towards the importance of including items of the checklist in the proposed model for DRD of NLI. The checklist was sent electronically to Iranian information scientists via e-mail and through discussion group of LIS in Iran. Some checklists were distributed personally among specialists. Respondents, using a Likert scale (1 = not important, 4 = crucial), determined the importance of the checklist's items for including in DRD of NLI. During the third stage, the researchers analyzed data and identified the most and least important features according to the views of Iranian specialists. In this stage specialists' attitudes to the kinds of fields ("required" and "optional") were also asked. A required field means that the user has to fill that field, but answering to the optional fields is arbitrary. At the fourth and final stage, the prototype for DRD of NLI was proposed according to the most important features of the study. In this proposed model, as a final product of the study, the kind of fields ("required" and "optional") was also determined.

Study findings

Using a content analysis methodology, 64 content features were extracted from all 33 studied DRDs. After omitting some synonymous and similar features, the number of the features decreased to 35 (Table I). The features were listed in a checklist and distributed among 200 Iranian specialists who held an MA/PhD degree in library and information science. Out of the 200 checklists distributed among respondents, a total of 168 were returned. Of 168, 21 respondents declared that DRS was not in their specialty, and ten checklists were excluded from the study due to some inaccurate responses. Finally, data analysis was done based on 137 checklists. A four-point Likert scale (1 = not important, 2 = somewhat important, 3 = important, and 4 = crucial) was used to measure the importance of the features included in the checklist and to determine whether the features are considered arbitrary or obligatory. The 35 extracted features were then divided into two subject clusters:

- (1) personal information; and
- (2) the query.

Finding 1: the optimum situation suggested by Iranian specialists for designing the DRD of the National Library of Iran

After gathering data about the importance of the 35 features included in the checklist, the most frequent features with a mean of 3 (out of 4) were specified. A total of 21 features were specified as "important and crucial" (Table II).

Out of 16 features included in the personal information cluster, numbers of four were specified as crucial. "E-mail address" and "Gender", with means of 3.59 and 3.23 were the most and least crucial specified features, respectively (Table III).

The content features related to the recognition of user information need are detailed in Table IV. Table IV shows that "The language of source material", with a mean of

RSR
37,2

226

Content features	Rank	Frequency	Percentage
E-mail address	1	33	100
Question	2	33	100
Full name	3	31	94
Mailing address	4	18	55
Telephone number	5	18	55
City/province	6	16	48
Reason for research	7	12	36
Resources checked	8	11	33
General subject	9	10	30
Additional details of the question	10	7	21
Confirm e-mail address	11	6	18
Country	12	6	18
Fax number	13	6	18
Creating ID and password for user	14	5	15
Status	15	4	12
Language of source material	16	4	12
Libraries consulted	17	4	12
Deadline for an answer	18	4	12
Kind of resources meeting user information need	19	4	12
Way of sending material to the user	20	4	12
Gender	21	3	9
Age	22	3	9
Subscription number	23	3	9
Format needed	24	3	9
Libraries subscribed	25	3	9
Time period of answering by the library	26	3	9
Education level	27	2	6
Storage of answers for the later searches	28	2	6
Preferred language of contact	29	2	6
Affiliation	30	1	3
Company/organisation name	31	1	3
Search in stored, similar answers	32	1	3
Publication date range	33	1	3
Date of request	34	1	3
How did you get acquainted with this service?	35	1	3

Table I.
Most frequently seen
content features in DRDs
of the study

3.74, ranked first. On the other hand, “Libraries subscribed” had the lowest rank ($M = 2.29$). With the exception of two features (“How did you get acquainted with this service?” and “Libraries subscribed”), other features were specified as an important feature by specialists.

Finding 2: a comparison between present situation and optimum situation of DRDs of national libraries

To compare the present situation and the optimum situation, the features included in the checklist were ranked by both their importance (indicated by Iranian specialists) and frequency (of features in the DRDs of the national libraries studied). As can be seen in Table V, the difference between the importance of the present situation and that of optimum situation is considerable; it seems that DRDs are mostly designed based on their designers’ personal points of view rather than those of their patrons.

Content feature	Mean
Language of source material	3.74
Question	3.72
Kind of materials meeting user's need	3.61
Format needed	3.61
E-mail address	3.59
Way of sending material to the user	3.56
General subject	3.56
Search in stored, similar answers	3.42
Additional details of the question	3.42
Publication date of the question	3.41
Creating ID and password for user	3.35
Education level	3.34
Storing personal information	3.32
Preferred language of contact	3.30
Resources checked	3.26
Gender	3.23
Time period of answering by the library	3.20
Libraries consulted	3.20
Date of request	3.07
Deadline for an answer	3.04
Reason for research	3

Table II.
Importance of content
features suggested by
Iranian specialists

In the present situation, a total of nine content features gained a frequency higher than 10. Other features had a low frequency. For instance, the frequencies of 15 features were between 1 and 3.

The difference between the ranking of the features in the present situation and the optimum situation was considerable. "Language of source material" ranked 17 in the present situation (frequency = 4), but ranked first in the model proposed by specialists (mean = 3.74). On the other hand, "Full name" ranked third in the present situation, but the last in the optimum model. Some differences may originate from cultural differences. Only two features ("Question" and "Libraries consulted") had the same rank both in the present situation and in the optimum situation of DRDs. Although some features (such as "Time period of answering by the library", "Details of question" and "Company/organization name") were not completely paralleled in the present and optimum situations, they had almost similar ranks in both situations.

Finding 3: optimum situation suggested by Iranian specialists for the DRDs of National Library of Iran

Features included in the checklist were ranked according to their importance indicated by Iranian specialists to gain an overall picture of important and crucial content features and to offer a proposal model. As shown in Table V, of the 35 features included the checklist, 21 features (60 percent) were specified as "important" and "crucial" to be incorporated in the model proposed by Iranian specialists (3 = important, 4 = crucial). Furthermore, the following features are suggested to be "somewhat important" and "unimportant": "Status", "How did you get acquainted with this service?", "Telephone number", "Country", "City/province", "Affiliation", "Fax number", "Age", "Mailing address", and "Libraries subscribed".

Table III.
Important and crucial
features included in the
personal information
cluster

Content features	Mean	1		2		3		4	
		Not important	Somewhat important	Important	Crucial	Frequency	Percentage	Frequency	Percentage
E-mail address	3.59	1	4	3	45	33	89	63	
Education level	3.34	9	6	4	52	38	70	51	
Storing personal information	3.32	3	9	7	65	47	59	43	
Gender	3.23	6	15	11	57	42	59	43	
Confirm e-mail address	2.97	13	30	22	42	31	52	38	
Status	2.85	13	28	20	62	45	34	25	
Telephone number	2.61	24	31	23	57	42	25	18	
Country	2.58	18	42	31	56	41	21	15	
City/province	2.43	24	47	34	46	34	18	13	
Affiliation	2.41	32	53	39	41	30	19	14	
Fax number	2.41	27	45	33	47	34	18	13	
Age	2.38	25	53	39	41	30	18	13	
Mailing address	2.36	40	34	25	37	27	26	19	
Company/organisation name	2.26	41	41	30	34	25	21	15	
Subscription number	2.18	45	41	30	32	23	19	14	
Full name	1.89	63	38	28	20	15	14	10	

Content features	Mean	1		2		3		4	
		Not important	Somewhat important	Important	Crucial	Frequency	Percentage	Frequency	Percentage
Language of source material	3.74	0	3	2	21	105	77		
Question	3.72	0	3	2	32	102	74		
Kind of materials meeting user's need	3.61	0	2	1	50	85	62		
Format needed	3.61	0	4	3	46	87	64		
Way of sending material to the user	3.56	1	1	1	55	80	58		
General subject	3.56	0	4	3	52	81	59		
Search in stored similar answers	3.42	2	1	10	34	75	55		
Additional details of the question	3.42	2	1	10	46	75	55		
Publication date range	3.41	0	7	5	67	63	46		
Creating ID and password for user	3.35	3	4	3	72	58	42		
Preferred language of the website	3.3	6	8	6	62	61	45		
Resources checked	3.26	4	17	12	55	61	45		
Time period of answering by the library	3.2	6	14	10	63	54	39		
Libraries consulted	3.2	3	20	15	61	53	39		
Date of request	3.07	4	22	16	71	40	29		
Deadline for an answer	3.04	9	22	16	61	45	33		
Reason for research	3	12	22	16	57	46	34		
How did you get acquainted with this service?	2.62	13	43	31	64	17	12		
Libraries subscribed	2.29	35	43	31	43	16	12		

Table IV. Important and crucial features included in the cluster of the recognition of user information need

Content features	Optimal situation		Present situation	
	Rank	Mean	Rank	Frequency
Language of source material	1	3.74	17	4
Question	2	3.72	2	33
Format needed	3	3.61	25	3
Kind of materials meeting user's need	4	3.61	20	4
E-mail address	5	6.59	1	33
General subject	6	3.56	10	10
Way of sending material to the user	7	3.56	21	4
Additional details of the question	8	3.42	11	7
Search in stored, similar answers	9	3.42	33	1
Date of request	10	3.41	34	1
Creating ID and password for user	11	3.35	15	5
Education level	12	3.34	28	2
Storing personal information	13	3.32	29	2
Preferred language of the website	14	3.30	30	2
Resources checked	15	3.26	9	11
Gender	16	3.23	22	3
Libraries consulted	17	3.20	18	4
Time period of answering by the library	18	3.20	27	3
Date of request	19	3.07	35	1
Deadline for an answer	20	3.04	19	4
Reason for research	21	3	7	12
Confirm e-mail address	22	2.97	12	6
Status	23	2.85	16	4
How did you get acquainted with this service?	24	2.62	36	1
Telephone number	25	2.61	5	18
Country	26	2.58	13	6
City/province	27	2.43	6	16
Fax number	28	2.41	14	6
Affiliation	29	2.41	31	1
Age	30	2.38	23	3
Mailing address	31	2.36	4	18
Libraries subscribed	32	2.29	26	3
Company/organisation name	33	2.26	32	1
Subscription number	34	2.18	24	3
Full name	35	1.89	3	31

Table V.
Comparison between the present situation and the optimum situation of DRDs of national libraries

The proposed model

As mentioned, the findings revealed that out of 35 content features, 21 features were considered as “important” and “crucial” and should be included in the DRD of the National Library of Iran proposed by Iranian specialists (Figures 1 and 2).

Discussion

The findings revealed that all studied DRDs contained less than 50 percent of important and crucial features determined by Iranian specialists. It is noted that the existing DRDs are not sufficiently developed based on library specialists' viewpoints. In other words, the present situation of DRDs differs from the optimum situation proposed by Iranian specialists. For example, the feature of “Full name”, with a frequency of 27 (of 33) ranked second in the present situation of DRDs, whereas it

The screenshot shows a web interface for a Digital Reference Desk. At the top, it reads "Digital Reference Desk of National Library of Islamic Republic of Iran" with a logo on the left and the Iranian flag on the right. Below the header, there is a note: "Asterisk (*) denotes required field" and a link for "Next Page". The form contains several input fields: "ID", "Password", "Search the databases before sending your query" (with "search" and "Reset" buttons), "*Email Address", "male" and "female" radio buttons, and "*Education Level" (with a dropdown menu showing "Primary/Elementary").

Figure 1.
Prototype of the DRD of
the National Library
of Iran

ranked 35 in the optimum situation proposed by specialists. Additional studies are needed to uncover the probably significant difference between content features seen in DRDs and library specialists' viewpoints.

Armed with the data gathered from respondents, an optimum prototype is proposed for the DRD of national Library of Iran. The model contains 21 content features that gained a mean of 3.00 or greater. With the phenomenal growth of library and information centres in recent years, there is an increasing interest in offering remote library services to distance users. Digital reference desk is one of efficient technologies being applied by the libraries of developed countries in recent years. With respect to the purposes of such a technology in libraries, it should be recognised that the distinct information needs of library patrons are of great importance when designing an optimal, user-friendly digital library desk. Additionally, the cultural, social, and political conditions of the host country should also be incorporated in DRD of national libraries. Finally, the missions of the organisation and the library's policy should be considered.

Recommendations

Recommendations to optimise the DRD of the National Library of Iran are provided. Although some are not direct findings of the study, consideration of these findings is suggested as a way to further optimise digital reference services:

- After implementing the proposed model for the National Library of Iran for a specific time period, evaluation of the service and its features according to users' perspectives is recommended.
- In-depth and wider research is needed to keep the DRD design up to date. The DRD needs to be reviewed periodically and, if necessary, redesigned.

Digital Reference Desk
of National Library of Islamic Republic of Iran

Asterisk (*) denotes required field [Previous page](#)

Select the General Subject

*Keywords

*Resources consulted

*Reason for Research

*Format of Information

Libraries consulted

*Language of Information Resources

*Time Period to

Deadline

*Send Information by

*Your Question

The kind of Information Resources

Date of Request

Figure 2.
Prototype of the DRD of
the National Library
of Iran

- The recruitment of professional librarians to work in the DRD is critical to its success.

Recommendations for future studies include the following:

- The user community of this proposed prototype can be a heterogeneous one. Conducting similar research for other kinds of libraries (i.e. academic libraries, special libraries, and school libraries) based of their unique use communities and requirements is recommended.
- Standards and guidelines for providing services via DRD need to be developed.

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