Assessing the Iranian Children's Needs to Persian Literature and Technological Facilities Using the International Children Digital Library (ICDL)

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Abstract

As much discussed in literature, the creation of digital libraries should be informed by user requirements and behaviors (Soergel, 2002). According to researchers, the best designs for children come from children .This study describes how the Iranian children use a digital library (ICDL). This work was done in order to explore and discover new directions for the development of children digital libraries. It has focused on Iranian children's specific needs to Persian literature and technological facilities using a digital reading environment for pleasure.

Keywords: Children Literature, Digital Library, International Children's Digital Library, Children Books.

Introduction

Reading books plays an important role in children's cognitive and social development. The International Children's Digital Library (ICDL) offers a new approach to providing an international collection of books in multiple languages to the world's children. It is a nonprofit foundation that offers its free collection of more than 3939 books. The books are in 48 different languages. Although at the time of this study—next to English language (3038 books)—the greatest number of ICDL's collection belongs to Persian language (423 books), it provides only a selective representation of Persian titles. Moreover, there is no evidence of how their audience use it and their requirements related to use of this collection. User studies play an important role in discovering user needs (Hartwick & Barki, 1994).

As to who should evaluate digital libraries, users of digital libraries should have their voice heard. After all, the ultimate goal of the development of digital libraries is to serve users and to facilitate their effective use of information and services. Marchonini, Plaisant and komlodi (1998), emphasize that all efforts to design, implement, and evaluate digital libraries must be rooted in the information needs, characteristics and contexts of the people

who may use those libraries. Research on digital libraries has moved from the technical aspects of building digital libraries to how to design libraries to satisfy user needs. This study has been done with the aim of assessing Iranian children's needs to Persian literature and their expectations of ICDL.

Objectives of the Study

The goals of this study are to

 • explore how children use ICDL and their expectation of ICDL's interface which are analyzed below:

 1) The children's search behavior in ICDL
 2) Features that children like or dislike about ICDL

 • discover the type of Persian children's literature (Genre) and subjects that are more requested by children to be collected in ICDL;

 • explore the relationship between gender and age in preferring printed or digital form of children's literature;

 • explore the relationship between gender and age in preferring subject and genre of children's literature.

Research Questions

 • What Kind of ICDL's search pages has been preferred and more used by Iranian children?
 • What aspects of ICDL's design are boring from the Iranian children's perspective?
 • What aspects of ICDL's design are attractive from the Iranian children's perspective?
 • What are the Iranian children's popular genres?
 • What are the Iranian children's popular subjects?
 • What form of books is preferred by Iranian children for reading?

Methods

Because there are few researchers working on children's digital libraries in Iran, we had very few preconceptions of what this study would yield. Qualitative methods are most appropriate in this situation. We observed children's behaviors in using ICDL as the only appropriate children's digital library, which contains over 423 titles of books in Persian language in various types of literature (genre). This work reports only descriptive information of children's needs and interests in searching, selecting and reading children's literature in Persian language using new technology. Furthermore, we interviewed participants for more information about their motivations and attitudes toward reading for pleasure in the context of a digital library.

In this case study, the participants were 16 elementary and secondary school children from ages 10 to 14 who were the library members of the "Children Book Council" (CBC) and the "Institute for the Intellectual Development of Kids and Adolescents" in Iran. The major factor for selecting among children to participate in this study was their intensive interest in reading for pleasure. There were 8 children in the 4th and 5th grades of elementary school and 8 secondary school children in three grades (1st, 2nd, and 3rd)—half boys and half girls in each grade. They were matched in same-sex pairs in order to report any findings based on gender.

Study Experience

After children's instruction on how to use ICDL, participants were asked to use ICDL for finding books at pleasure and then read them. The researcher explained that they were free to spend as much time looking for a book, open as many books, and read as much of each book as they wanted. Children were observed by the researcher to discover their behavior during their use of the ICDL.

The researcher also conducted an opening and closing interview with each participant at the end of the observation. The closing interview consisted of questions concerning the establishment of each child's library and computer usage and their preference to use printed or electronic version of a book. The opening interview dealt with what they liked and did not like about the ICDL interface and their suggestions for developing the interface. It also dealt with participants' subject interests. Overall, the researcher worked with the children for varying amounts of time, ranging from nearly an hour to more than three hours.

Results

In this section findings will be submitted in two parts:

Part one is about children's search behaviors and some issues related to use of ICDL interface. Part two deals with participant's preferred genre and subject interests.

Part one: Children's search behaviors

1. ICDL's homepage

The homepage of ICDL is in English; besides, Spanish and Mongolia version of it are accessible from homepage. It is expected that everyone who wants to use this digital library be familiar with English language to some extent. Although the search page is changeable to many favorite languages as well as Persian, familiarity with English language for linking to the search page from homepage is still needed.

Working with Iranian children demonstrated that the majority of participants want to have their own Persian homepage in ICDL. According to the children, because they are not good at English language, existing page is too complex to know how to use ICDL by themselves.

The situation is more complicated for the elementary school participants who are not familiar with English language enough in comparison with the secondary school children.

2. ICDL's search pages

The creators of ICDL have designed three types of searches: simple search, advanced search and search by country. Participants of this research were more interested in using simple search rather than others.

2.1 Simple search page or search by categories

The design of simple search page consists of two sequential pages. Each page contains some categories that are expressed visually through icons. Books are searchable by characteristics such as color of the cover, age of the audience, genre, short or long books, chapter books etc. The characteristics can be mixed together for limiting the search result. Observations indicated that in spite of the complete introduction of the search pages to the participants by the researcher, the icons located on the first page had been chosen many times more than icons on the second page. The second page had been neglected by the participants very often.

Children rarely were visiting the second page for searching books. They were formulating their search based on existing icons on the first page. Although some of the major genres which had been categorized in the second page such as "fantasy/science fiction", "poems" and "folk tales" were very popular among children, they had been ignored by the participants frequently. Moreover, it seemed that there was an inconsistency in locating materials on the search pages; for example, some icons belong to the same broader category such as" fairy tales" and "poems", whereas they have been dispersed among the other various icons on two separate pages.

All of the Participants (n=16)—both elementary and secondary children—reported that being short book or long book is not an important factor in book selection by them; they select a book based on its content and attractiveness.

Some of the participants (n=5)—three girls and two boys—suggested that replacing motionless icons with animated ones would increase the attractiveness of the search page. An elementary school child said about the simple search page that it was motionless and a little boring: "I like a page with lively icons. I always enjoy animated images using of the computer".

In relation to the physical appearance of the book cover, approximately all of the elementary school participants reported that the picture of the book cover is an important factor for selecting a book by them. For these children, a colorful imaged cover was attractive whereas for the secondary school participants, this factor was not only unimportant but also they believed that the books with fewer images to the text were more acceptable.

For assessing the top level searched categories, the researcher asked the participants to look for the books by using two of their favorite categories. Findings indicated that the majority of the elementary school children looked for books based on "color and genre" (n= 5) whereas the popular categories used by the secondary school children were "subject and genre"

(n= 4). Thus, fact genre's category ranked on top which was the common selection in both groups. It was surprising that in spite of the fact that the participants were reluctant to search the books based on rating, they were interested in rating books by themselves.

The constructing categories of ICDL's simple search page are the following:

    Age (child target age)

    Genre (type of books)

    Subjects of books

    Characters (kids, animals, etc)

    Color (color of the book cover)

    Setting (when and where)

    Rating (how the book was rated)

    Feeling (how the book makes readers feel)

Each category is expressed visually through an icon on the ICDL's simple search page. While working with the children, a secondary school participant suggested that it would be better if they could selectively delete an unwanted icon which possibly had been selected by mistake. Figure 1 shows an example of the result for a simple search. In this sample three categories have been mixed. These categories are color of the book cover, age of the audience and feeling. Normally ICDL's interface does not allow us to delete an icon like the icon of age in this sample without deleting the felling icon first. It deletes the latest choice at first for getting to the previous choice. Therefore, reformulation of search is needed to improve the search result. This would be consuming and tedious for the user. This problem will be solved if we can delete each icon independently by clicking on it instead of using the back arrow.

●	+	🏃	+	😊	+		
24,86,7	1		2			English	
English	Any Language	= 2 books Top of Form					
Bottom of Form							
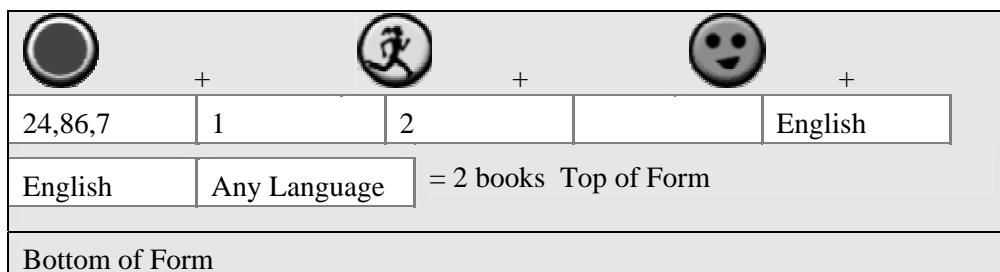
2.2. Search by country

The children in this study used the Categories area (Simple search page) more than the World area (Search by country) for searching books. All of the elementary school children

preferred the simple search.

Table 1

Frequency of search area preference

Grouping	World		Categories	
Elementary	N	%	N	%
	0	0	8	100
Secondary	3	37/5	5	62/5

An elementary school child said that it was difficult to find books by world area: "I prefer to use the much easier way like searching by color or age rather than searching by world area".

Some of the secondary school children who were interested in knowing more about the books that had been published in a continent with different countries and languages, used world area. A secondary school child said that it was interesting for them to know how many books were in ICDL that had been published in Asia and to compare non-Persian books with Persian ones.

2.3. Advanced search

Since the participants in this research were reluctant for the advanced search and extremely preferred the simple search, our findings in this realm is not adequate. However, a brief examination revealed some facts. Like the other parts of ICDL's search realms, this part represents a kind of anarchy due to the lack of controlled indexing. For example when we were looking for history books about ancient Iran written in Persian language, a subject highly requested by children, clicking on "history" then on "ancient history" retrieved only 4 non-Persian books unrelated to Iran. Pursuing the same search in the context of simple search page with the keyword of "ancient time of Iran" found one book exactly in required subject written in Persian language.

Part two: Children's genre and subject interests

In this section findings will be discussed using of figures and tables.

Table 2

The participants' main genre interests

Genre	Elementary		Secondary		Total	
	Boy	Girl	Boy	Girl	N	%
Fairy Tale	1	3	_	1	5	31.2
Folk Tale (Myths)	1	2	1	2	6	37.5
Fable	3	1	_	_	4	25
Fantasy	2	2	1	4	9	56.2
Science-Fiction	_	1	4	2	7	43.7
Poem	1	2	3	3	9	56.2
Riddle	1	2	_	_	3	18.7
Biography	_	_	_	2	2	12.5
Scary/ghosts	3	2	3	2	10	62.5

According to Table 2 there were some notable differences between gender and age regarding genre interest. Among secondary school boys there was a strong preference for the "Science - Fiction" whereas secondary school girls' preference was for the "Fantasy". There was a strong preference among the elementary school girls for the "Fairy Tales" and the elementary school boys were most interested in the " Fable". There was an equal high preference for the "Scary/ghosts" among the boys and girls within both groups. There was an equal preference for the "poem" among the secondary school boys and girls.

Table 3

The participants' main subject interests

Subject	Elementary		Secondary		Total	
	Boy	Girl	Boy	Girl	N	%
Imaginary	—	2	2	1	5	31/2
History	—	1	3	3	7	43/7
Religion	—	_v	1	1	2	12/5
Astronomy/Space	—	1	—	—	1	6/2
Sport	2	—	—	—	2	12/5
Adventure	3	—	1	1	5	31/2
Animal	2	1	—	—	3	18/7
War	—	1	2	—	3	18/7
Customs and people	—	—	3	2	5	31/2
Love	—	2	2	3	7	34/7

Table 4

The rate of ICDL's holding divided based upon category of genre

Genre	N	%
Poems	31	2.49
Action/Adventures	27	2.17
Mythology/Folk Tale	36	2.89
Fantasy/Science Fiction	10	0.8
Scary/Horror	1	0.08
Fairy Tales	50	4.02
Kid Characters	156	12.5
Real Animal characters	102	8.2
Imaginary Characters	83	6.67
Make Believe Books	388	31.2
Picture Books	348	27.9
True Books	11	0.8
Total	1243	100

Note: some of the ICDL's books have been categorized in more than one genre.

According to the Table 4 the huge number of ICDL's holding belongs to "Make Believe Books" which itself can be broken into the several subcategories for having a suitable search result.
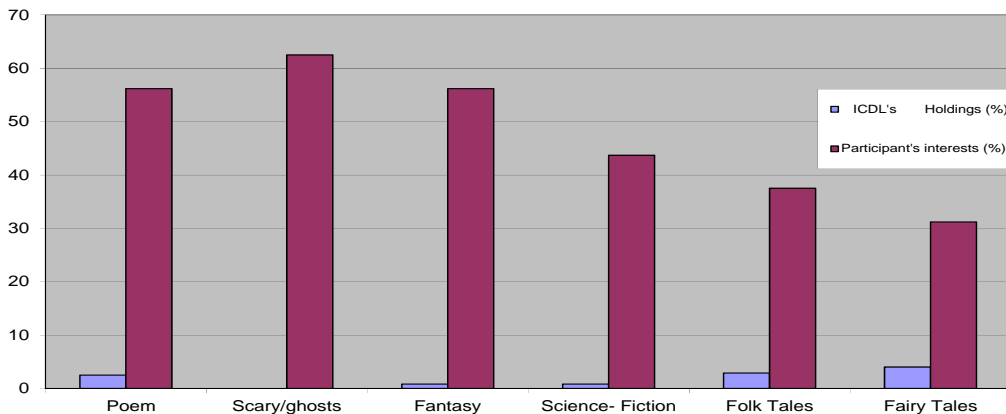

Figure 2. A comparison between ICDL's holding and participants interests for some of the top favorite genres

There is an intensive shortage in ICDL's collection. Reference to Figure 2 shows that the highest requested genre ranks as the least available one among the other types of literature whereby looking for "Scary/Horror" books in ICDL's Persian collection retrieved only one

record (Table 4). Similarly, there is a deep shortage in the other popular genre categories. (Figure 2). Reference to Table 2 discloses that there is a strong preference among the secondary school boys for the "Science - Fiction" whereas the secondary school girls' preference is for the "Fantasy"; in both situations Figure 2 reveals a deep shortage compared to the existing collection. We can see a similar situation about the "Poem" as another more interesting genre among the participants.

Discussion

Working with children informed us of some attractive and boring aspects of ICDL's environment from the participants' point of view. Most of the time, one boring characteristic reported by the participants was the slow speed of internet for opening book pages particularly when children were connected to the internet from home and did not have access to high speed connection via ADSL services or optical fiber. This problem led some of the participants to suggest reading ICDL's books off –line. From their perspective, in this case Persian books can be saved once and read more times along with saving money and time of the users, even though it can be viewed just as a suggestion and is not possible in the real environment because of issues related to the intellectual property and similar problems whereby interface does not allow us to save books and read them off-line.

Sometimes the participants have criticized the left to right instead of right to left pagination of the ICDL's Persian books when they were displayed in the format of double pages which forced readers to read books in an unusual and confusing manner. Questions about the reasons of this problem asked by the researcher were not answered by the ICDL's creators.

As a result of this research we found out that there was a deficiency in metadata demonstration for the Persian books in the environment of ICDL whereby bibliographical information such as Title, Author or Abstract of a number of books were displayed in English language while the others were in Persian. As mentioned before, this was problematical for the users at the time of searching books. Moreover, just as mentioned in the section of" keyword searching" in this report, there is not a systematical indexing method used for ICDL's books. This may be due to the lack of any human control over the indexing process as all the process is done by a machine. To deal with this problem, using experts in the indexing process would be helpful.

According to the findings of this research, the secondary school participants are more likely to use search by subject than the elementary school children. Working with children informed us of the inappropriate book allocation for each category. It seems that we need to modify books' allocation within every category to have suitable search results. For example, among the entire 423 Persian books in ICDL 388 books were put into a large category of "Make Believe Books" which have been translated as "Religious Books" in

ICDL's Persian search page. Examination of this category indicated that it contains not only religious books but also many other different subjects. Because of this misleading translation on one hand and the inappropriate book allocation for categories on the other hand, users may lose many useful records throughout subject search.

One of the tasks that we can do to solve the subject allocation problem mentioned above is to revise the location of books within "Make Believe" category. Examination of books in this category indicated that many subjects can be derived from it. Accordingly, we might create a distinctive "subject icon" on the simple search page capable of link to an integrated subject index and re-arrange books under this subject. This may facilitate search process and enhance the usability of the design.

A number of the secondary school participants (n=3) reported that they like to read about the author of each book before beginning to read the book. They believe that this will encourage them to read more works of a particular author. According to their needs, we might provide each book with a summary of its author's biography.

Some of the participants (n=4, 25 %), both boys and girls who were looking for books by age category, evaluated the level of books' contents lower than the audience reading needs in each age group; for example, participants within the age group 9-13, after visiting some of the books located in the mentioned group, reported that those books were more suitable and useful for younger children than their ICDL's target group. In another similar case, participants in this research were willing to read books upper than their own age. The results of this study can help us match a reader with the right books.

Comparing ICDL's holding with participants' interests for the kind of literature (Genre), revealed that there is an intensive shortage in the Persian books collection. Paying a brief attention to the Figure 2 proves this fact.

Figure 2 compares the rate of ICDL holding for a number of genres to the rate of children's interests about those genres that have been ranked as top genres because of being highly preferred by the participants. According to this figure, in spite of the high demand for these genres we run into an enormous shortage in every category's holdings in ICDL. For example, classical Persian poems such as poems of "Hafez" were very popular among these research participants especially secondary children (see Table 2) while by looking for this kind of genre among ICDL's holding we found only 6 lyric poems of "Hafez". The same situation was observed about "Scary Books" that have reported as another more popular genre by the participants.

Regardless of boring aspects of ICDL stated above, some of the ICDL's features were admired by the participants. These features are the following:

- Personalizing the resources by creating " private book shelf " which provides fast and easy access to the user's selected books including the marked pages to go on reading from the last read page of a specific book.

• Attractiveness of clicking on pages for opening them rather than turning pages in printed format.

• Giving a good feeling to the children when they see that their needs to reading materials for pleasure have been considered in the Digital World by ICDL's creators.

• Making available children's preferred books from home rapidly.

During an intswzerview with each of the participants we asked them about their preference between printed and electronic form of books that they like to read. Approximately, more than half of the participants (56.2%), both girls and boys, preferred printed rather than the electronic format even as they believed that digital environment can encourage them to read more printed books by providing bibliographical information and summary awakening them to the published books.

During working with an elementary school boy looking for books by the "simple search", it was observed that every time the result of the search was desirable to him he left his seat spontaneously and went downstairs where the library was located to borrow the printed format of the same retrieved electronic book.

Conclusion

Working with children through observation and interview, the following principles for developing ICDL for the Iranian children came into view:

• Iranian children need to have their own customized homepage with a lot of popular resources accompanied by facilities such as integrated subject category in Persian language that makes available huge number of popular Persian children books in various genres. It would be possible in two ways at the same time: The first is that we might enrich Persian collection in ICDL. The second is integrating ICDL with the "Database for Children's Culture and Literature of Iran" (DCLI), which contains bibliographical information and abstracts in Persian language for more than tens of thousands of documents and materials such as books , literary articles , periodicals, dissertations, etc. that are related to the Iranian children literature. Among these various types of material we can find bibliographical information and abstracts for almost 2353 Persian children popular books in an appropriate format. Integrating ICDL with DCLI may deal with some searching and metadata representing problems discovered in this research.

• Adding reference books to ICDL's collection was a suggestion from a number of secondary school girls.

• Digital library tools should be appropriate for the home use especially the speed of dial-up connection that most of the time is not high enough for loading scanned pages.

 • Adding more search options such as "subject" and "author" to ICDL's simple search box is needed because comparing with the advanced search simple search was highly used by children in this research.

 • Digital collection should be enhanced in terms of content level of collected books assigned for every age group in ICDL because the majority of the participants have criticized the simplicity of books that have been assigned to their age group in ICDL.

References

Database For Children's Culture and Literature of Iran (DCLI) Retrieved from http://www. iranak.info/en/DataBase/

Hartwick, J., & Barki, H. (1994). Explaining the role of user participation in information system use. *Management Science, 40* (4), 440-465.

Marchonini, G., Plaisant, C., & Komlodi, A. The people in digital libraries: Multifaceted approaches to assessing needs an impact. Retrieved from http://ils.unc.edu/~march/ revision.pdf

Soergel, D. (2002). Framework for digital library research: Broadening the vision. *D-lib Magazine*, *8* (12).