

Evaluation and Ranking of Book Social Network Websites

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Abstract

Book social media are reading communities primarily developed as online social networks. This study aims to find precise criteria and indicators for evaluation of book social network and examine and rank the most popular book social networks. The sample population included 10 English and two Persian book/reading social networks publicly available on the Web. A checklist containing 9 main criteria and 35 indicators was built up through a Delphi study and it was used to gather the characteristics of the sample networks. The results indicate that Shelfari has the highest number of features (87%) and therefore it ranks first. In contrast, Bisheh, a Persian social network, contains only 60% of the features and ranks last. The results reveal that there is no meaningful statistical difference among the scores. In other words, all of the twelve book/reading social networks contain almost similar features and have more than 50% of indicators. Several technical indicators were ignored as it was impossible to access and examine inner layers of the studied websites. In general, Persian book social network scored less than English ones and this can be related to smaller number of audience, little interest in such online communities or language barriers in developing book social networks. These findings can lead to new patterns and recommendations for different societies to improve their book social networks as these websites can encourage reading. Unlike general social networks, little work has been done on book/reading social network in order to reflect their structural functional characteristics. Besides, this paper has resulted in specific criteria and indicators for evaluation of book social networks which can be used as a tool for future studies.

Keywords: Book Social Networks, Evaluation, Ranking, Website, Indicators

Introduction

Books, reading and libraries have faced major changes during last decades according to the rapid changes in technology. E-books, digital libraries, digital publication, Web 2 and the emerging social media, and virtual social networks are results of the mentioned evolution. The emergence of new media has been considered as a threat as well as a support for book reading. However, information technology has proven to provide a medium for promotion of reading. Social networks, as one of the most popular Web phenomena may have capacities for

promotion of reading and supporting libraries and publishing industries.

Generally social networks can be classified into two categories namely public and subject networks (Verdinejad, 2011). In contrast to popular social networks such as Facebook and Tweeter which attract a variety of social groups, subject networks often focus on a particular category or social group. Academic, business, programming, personal gadgets, art and literature are examples of subject social networks which can be completed with language- and location-specific networks.

Book social networks are a category of subject social networks. They have the same structure as public Social networks sites which people use them in their leisure and entertainment time. However, they focus on the book and studying fields. (Thompson, 2010, P.44). Number of book social networks in various languages is increasing and in Persian language although they are young but gradually developing.

Book social networks are as new technologies in the field of book and reading which inherit characteristics of traditional book clubs as well as advantages of Web and Web-based social networks. On the other hand, book social networks are basically Web sites designed and developed for social interactions between people interested in reading and book discussion.

Structure and specifications of social networks are among the most influential factors which can be used to describe, categorize and even rank social networks.

During the past decade, the number of social networks has increased dramatically along with the rapid development of other Web 2.0 applications. Millions of people tend to participate in social networks such as Facebook, Twitter and MySpace. As the number of users, diversity of social networks and also complexity of this changing increase, the importance of evaluation of such communities becomes more important and complicated.

Along with constantly increasing use of social networks, developing and access to measurement criteria becomes more necessary in order to understand current and future trends of such networks (Falahi, Atif & Elnaffar, 2010, P. 804). The study of criteria and structural indicators of online social networks in the age of web 2.0 is rarely considered in previous investigations. (Fu, Lie & Wang, 2008, P.676). Instead, the majority of related studies in the field of social networks have already focused on topics such as the rate of use and access (Fox & Naidu, 2009), security issues and privacy in social networks (Gross & Acquisti, 2005), social network analysis (SNA), and the graph structure of social networks to derive the patterns of relationships and show mutual actions between the nodes in the networks (Brandes & Wagner, 2004).

Book social networks are popular in reading and publishing communities. Those networks have also been implemented in library services. Librarians have used these tools in their OPACS and have provided a basis for using those networks for communication with their patrons (Santolaria, 2009).

On the other hand, the number of previous studies in the field of book social networks is negligible with different goals and methodologies compared to our work in terms of evaluation of criteria and revising community.

Although it is hard to predict to what extent book-based social networks can have impact on society's culture, nevertheless, due to their scopes, they can be reviewed from various aspects. Knowing a social network structure will help to evaluate its advantages and

weaknesses as well as the opportunities and threats the network is faced with (Falahi, Atif & Elnaffar, 2010, P.804).

Different indicators have been proposed for study of social networks in general. However, such specific indicators have not been determined in the area of book social networks. Therefore, the present study surveys book social networks based on Webometrics indicators. As a result, the most important issue of this research is to find out the social network indicators in book social networks and to understand to what extent the book social networks use these indicators which are related to the structure and design of networks.

Assessment of website's status can actually be a factor to support Web designers in order to improve Websites so they can meet the users' needs more effectively (Tran, 2009, P.97). The main purpose of this study is to evaluate and rank the Web sites of book social networks. The evaluation and ranking of the networks is investigated by comparing book social networks in terms of having of specific indicators and criteria. Throughout mentioned purpose, eight questions and three hypotheses for this research are considered to fulfill the following subjects:

- Demographic nature of the book social networks;
- Facilities on the book social networks for user profiles;
- Security and privacy;
- Making a network of friends and like-minded members;
- Useful guides and help;
- Search tools and facilities;
- Connection to book sellers and book clubs;
- Dealing with book and reading issues.

Three hypotheses are examined through the study as following:

1. There is a significant difference among the scores of various sub-divisions of evaluation criteria in the surveyed book social networks.
2. There is a significant difference among the scores of the book social networks in the terms of having evaluation indicators in their structure.
3. English-language book-based social networks exhibit better in comparison with Persian - language book-based social networks in the terms of having criteria and indicators in their structures.

Literature Review

Book trading and exchange is an old business and economics of publication has been considered as a research topic for several decades. However, the advent of e-publishers and Web-based book providers such as Amazon.com has attracted to more attention to such online services. However, the nature of reading and discussing about books leads librarians and other researchers to focus more on book reading, recommendation and social networking facilities available on the Web.

People around the world have established innovative ways for book donation or exchange. In North America, the phenomenon Neighborhood Book Exchange (NooX) has been observed as a neighborhood attempts for providing a platform for social reading and

book exchange (Gollner, Webster & Nathan, 2013). Little Free Libraries are small shelves and containers installed in localities to keep books and let neighbors to read them (Kirch, 2013). Similarly, public bookcases are now popular for having access to books out of a formal library membership (Grieshaber, 2011). A further step is to leave books in public places such as transport stations and parks for other people to read and re-leave them. Online social network tools have been implemented to support and facilitate such book and reading activities.

Previous studies have surveyed book social networks from different aspects such as their importance, necessity and role in the relation with reading and trade of book, information dissemination, promotion and information marketing. Schnitzler et al. (2009, p. 320) defined and classified Web-based social networks and introduced as user account, application, blogs, privacy, photos, groups, messages, calendar, profile, search, tagging, videos and guestbook.

There is a series of program review of software, hardware, web services, music, and video games and so on in "Top Ten Reviews" website. Updated social network evaluation is a feature that is evaluated according to presented evaluation criteria as one of the most completed collections of assessment. The checklist for evaluation of networks was made of 6 main criteria and indicators including demographic information, profile, privacy, networking capabilities, search, technical help/support (Top Ten Reviews, 2014). Similar reviews and rankings have appeared in different media as of the Guardian (Bausells, 2014).

To facilitate the evaluation and to present a comprehensive basis for evaluation of social network services, a checklist was published by Digizen.org (Social networking evaluation chart, 2008). The indicators consisted of general information, groups, security and access and design and customization.

Hariri and Anbari (2013) studied the characteristics of Persian social networks and offered a framework for optimization of such Web sites. With an evaluative approach, they developed a checklist to enquire five major aspects of social network i.e. profile, security, networking capabilities, search and technical help/support and 44 indicators were surveyed. The study revealed that 8 of 10 surveyed networks have more than %50 of criteria. It was concluded that Persian social networks have acceptable quality in offering services. However, some indicators such as applications and tools, tagging and chat rooms were considered insufficient in many surveyed networks.

In a comparative study of "the network of Iranian professional readers" Moradi & Safavi (2013) focused on three book social networks i.e. Shelfari, BookCrossing and LibraryThing. A checklist including 49 indicators classified in 8 main criteria such as profile, privacy, networking capabilities, search of membership, search of book, technical help/support, related group with book and book status was used as data gathering tool. Results showed that all studied social networks featured similar capabilities and characteristics.

In summary, previous studies on book social networks are limited to a small number of networks and also are concentrated on uses and applications of book social networks in education, communication etc. Instead, our study is dedicated to distinguishable characteristics of such facilities and also includes both English and Persian prototypes of book social media.

Methodology

The present study is an applied research aiming to study more book social networks related to books and reading in English and Persian languages. Two Persian and ten English networks were set up as the research sample as summarized in Table 1.

Table 1

List of Book Social Networks and their characteristics

	Name	Established in	Founder	Global Rank (Alexa)
Persian	Bisheh	2011	Persian blog	111446
	Booki	2011	Iranpl.ir	99190
English	aNobii	2006	Greg Sung	16361
	BookCrossing	2001	Ron Hornbaker	437300
	BookJetty	2006	Heryanto Siatono	864056
	BookRabbit	2008	Redberry Digital Ltd	1628547
	FictFact	2009	Christine Kirsten, Brian Kirsten, Richard Ehring	222438
	GoodReads	2006	Otis Chandler	516
	LibraryThing	2005	Tim Spalding	11610
	Revisi	2007	Dan Champion	331084
	Shelfari	2006	Josh Hug & Kevin Beukelman	21008
	WeRead	2006	BlueRun Ventures & Sierra Ventures	366320

Since social networks especially book-based social networks are new phenomenon. Little studies have been conducted in the terms of their features and the criteria needed for their evaluation. According to the objectives of the study, a primary checklist including 9 main criteria and 65 indicators was developed mostly based on previous studies and observation. The questionnaire was sent to some professionals to modify it. The networks were then evaluated based on final checklist. The descriptive results are presented in Table 2. Score 1 (☑) indicates that the book social network contains such criterion and score 0 (☒) indicates lack of such property.

Table2

Status of book social networks compatibility with evaluation criteria and indicators

Criteria	Networking Features	aNobii	Bisheh	Book Crossing	Booki	Bookjetty	Bookrabbt	FictFact	Goodreads	Library Thing	WeRead	Revish	shelfari
Networking Features	Mobile	✓	✗	✗	✗	✗	✗	✓	✓	✓	✗	✗	✗
	Groups	✓	✓	✗	✓	✗	✗	✗	✓	✓	✗	✓	✓
	Tags	✓	✓	✗	✗	✓	✗	✓	✓	✓	✓	✓	✓
	Create a Group	✓	✓	✗	✓	✗	✗	✗	✓	✓	✗	✓	✓
	Instant Messaging	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Events	✓	✗	✓	✗	✗	✓	✗	✓	✓	✗	✓	✓
	Share Photos	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
	Bulletins	✗	✗	✓	✗	✓	✗	✗	✓	✗	✗	✗	✗
	Forums	✓	✗	✓	✗	✗	✓	✓	✗	✓	✓	✗	✗
	Mail	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Chat rooms	✗	✗	✓	✗	✗	✓	✗	✓	✓	✗	✗	✗
percent	72.8	45.4	54.5	36.7	36.4	45.4	45.4	81.8	81.8	36.4	54.5	54.5	
Security	Privacy Setting	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Report Abuse	✓	✗	✗	✓	✗	✗	✗	✗	✗	✗	✓	✓
	percent	100	50	50	100	50	50	50	50	50	50	100	100
Demographic	Multilingual	✓	✗	✓	✗	✗	✗	✗	✗	✓	✓	✗	✗
	International	✓	✗	✓	✗	✓	✓	✓	✓	✓	✓	✓	✓
	percent	100	0	100	0	50	50	50	50	100	100	50	50
Profile	Post Comments	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Add Remove Friends	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Uploading Photos	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Edit of Profile	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	percent	100	100	100	100	100	100	100	100	100	100	100	100
Friend search	By Name	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	By Interests	✗	✗	✓	✗	✓	✗	✓	✓	✗	✓	✗	✓
	By Keyword	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Criteria	Networking Features	aNobii	Bisheh	Book Crossing	Booki	Bookjetty	Bookrabbt	FictFact	Goodreads	Library Thing	WeRead	Revish	shelfari
	percent	66.7	66.7	1 0 0	66.7	100	66.7	100	100	6 6 . 7	100	66.7	100
Technical	FAQ	✓	✗	✓	✗	✓	✓	✓	✓	✓	✓	✓	✓
	Email Support	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	percent	100	5 0	1 0 0	5 0	100	100	100	100	1 0 0	100	100	100
Book	By Title	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	By Author	✓	✗	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	By Subject	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✓	✓
	percent	66.7	33.3	6 6 . 7	66.7	66.7	66.7	66.7	66.7	6 6 . 7	66.7	100	100
Reading Groups	Collaborati on of Authors	✗	✓	✓	✗	✗	✓	✓	✓	✓	✓	✓	✓
	Link to major libraries	✗	✗	✗	✗	✓	✗	✗	✓	✓	✗	✗	✗
	Link to Book-Sellers	✓	✗	✓	✗	✓	✓	✓	✓	✓	✓	✓	✓
	percent	33.3	33.3	6 6 . 7	0	66.7	66.7	66.7	100	1 0 0	66.7	66.7	66.7
Book Status	Books Read	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Books to be Read	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓
	Books advised to read	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Books added to shelf	✓	✗	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Review of interests	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	percent	100	8 0	1 0 0	100	100	100	100	100	8 0	100	100	100

In analytical part of the research, statistical tests were used to reply hypothesizes to complete inferential statistics. Kolmogorov–Smirnov (K-S) test and ANOVA were used for the first and second hypotheses, and also K-S test and T test (for 2 independent groups) were used to answer the third one.

The content validity of the checklist was checked by 15 professionals in the field of social networks (experts in communication science, media management and social networks). Cronbach's alpha test was used to confirm the reliability of the checklist. 0.866 was the alpha for 35 available indicators that indicates high and suitable reliability.

Evaluation indicators:

To determine final indicators, 4 methods of weighting of indicators were used. Therefore, among 64 evaluated criteria and indicators, 29 indicators were eliminated from the candidates. Eventually 35 remaining indicators were considered as final ones as presented in Table 3.

Table 3

Indicator elimination using four methods of weighting of indicators

Method of elimination	Primary indicators	Eliminated indicators	Remaining indicators
%20 lowest scored in each group	64	13	51
Fixed number (55) as a logical score	64	12	52
Comparison with the highest score (75)	64	11	53
Comparison with the average of scores	64	29	35

Based on the above scoring methods, the key indicators were determined and final checklist was developed as its components are shown in the Table 4.

Table 4

final indicators based on subject and rank of scores

Security facilities and user privacy	Rank	Demographic properties	Rank
Privacy setting	1	Supporting multiple languages	1
Report abuse	2	Global registration	2
Profiles	Rank	Networking and user interaction	Rank
Posting comments	1	Mobile version	1
Adding and removing friends	2	Joining groups	2
Photo uploading and managing	3	Tags	3
Profile editing	4	Create a group	4
Search for friends	Rank	Instant messaging	5
By name	1	Events	6
By interests	2	Sharing photos	7
By keywords	3	Bulletins	8
Technical help / Support	Rank	Forums	9
Frequently asked questions (FAQ)	1	E-mail	10
Email support	2	Chat rooms	11
Book search	Rank	Books	Rank
By title	1	Book review	1
By author	2	Book recommendation to be read	2
By subject	3	Book reviews previously read	3
Reading groups	Rank	Review of books added to cyber shelf	4
Collaboration of authors	1	Sharing interest on books	5
Link to the portal of major libraries	2	-	-
Link to book-seller websites	3	-	-

Findings

In response to research questions, Table 5 shows the frequency of the scores for criteria used to evaluate the studies book-based social networks.

Table 5

Frequency percentage of scores of 9 evaluation criteria

Criterion ID	Description	Frequency (%)
1	Profiles	%100
2	Book status	%96.66
3	Technical help/ support	%66.91
4	Friend search	%83.33
5	Book search	%69.43
6	Security facilities and users' privacy	%66.66
7	Reading groups	%61.1
8	Demographics	%58.33
9	Networking capabilities and interaction with users	%53.78

Table 6 shows the frequency of adaption rate of the evaluation criteria on the book social networks selected for this research. The ranking is done according to complying with more criteria.

Table 6

Ranking the book social networks based on the evaluation criteria.

Book-based social networks	Score Average	Rank
Shelfari	%85.68	1
GoodReads	%83.16	2
LibraryThing	%82.79	3
aNobii	%82.15	4
Revisi	%81.98	5
BookCrossing	%80.13	6
WeRead	%79.96	7
FictFact	%75.41	8
Book-basedjetty	%74.40	9
BookRabbit	%71.71	10
Booki.ir	%57.74	11
Bisheh	%50.97	12

Figure 1 shows the percentage of appearance of all criteria in twelve book social networks. Shelfari ranks 1st as it complies with %85.68 of the criteria related to book social networks and the Persian language social network Bisheh ranks last as it complies only with %50.97 of the research criteria.

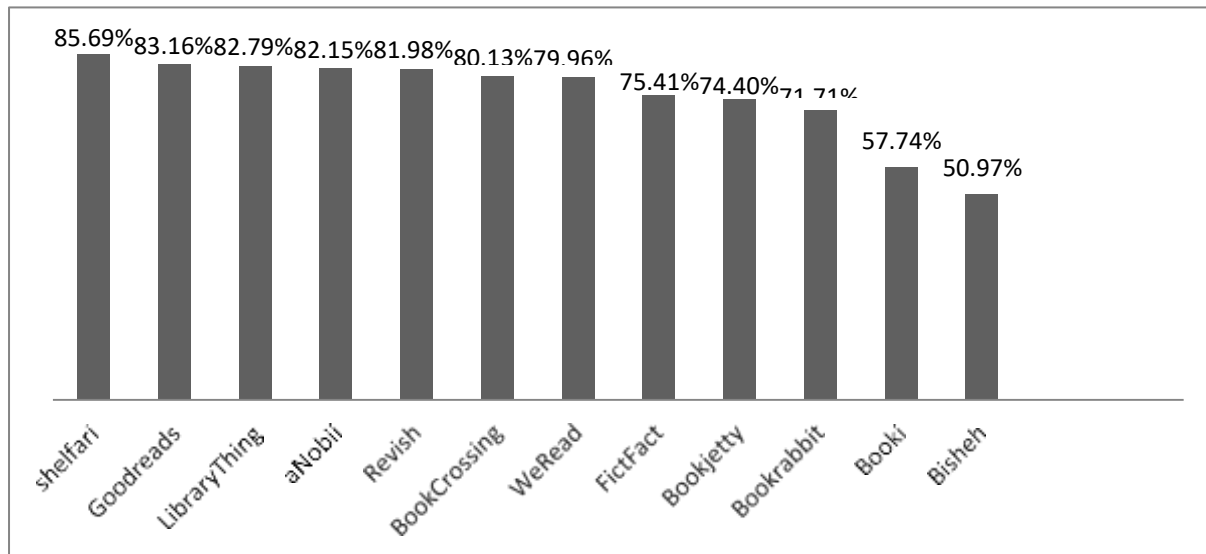


Figure 1: Percentage of the criteria in the book social networks.

The first research hypothesis indicates that there is a significant difference between the scores of various sub-divisions of evaluation criteria in surveyed book social networks. The result for Kolmogorov-Smirnov test is 0.886 that is greater than $P = 0.05$. As a result, null hypothesis was confirmed and average of different groups had a normal distributions.

In one way ANOVA test if H_0 is rejected, then there are at least two groups with significant difference in their average scores. The result of ANOVA test in SPSS is shown in Table 7. Since the correlation coefficient is $Sig = 0.000$ and this is less than 0.05. As a result, the null hypothesis is rejected. It indicates that there is a significant difference between scores of various sub-divisions of evaluation criteria in the surveyed book social networks.

Table 7

Result of differential analysis of variance for nice criteria.

Significance	F	MS	df	S.S	
0.000	8.335	3688.461	8	29807.692	between
		44./539	99	43811.373	within
			107	73319.065	total

The second research hypothesis indicates that there is a significant difference between the scores of the book social networks in terms of complying with the evaluation indicators in their structure. Kolmogorov-Smirnov test results as 0.474 that is greater than $P = 0.05$. As a result, the null hypothesis is confirmed and different groups' averages had normal distributions. To understand the differences of the averages of 12 revised samples, ANOVA is used and the results are shown in the Table 8.

Table 8

Results of analysis of variance for the differences of the averages of 12 samples

Significance	F	MS	df	S.S	
0/097	1.651	1060.393	11	11664./319	between
		642.237	96	61654.746	within
			107	73319.065	total

Since the coefficient of sig =0.097 is more than 0 .05, the null hypothesis is confirmed. It means that there is not a significant difference between the scores of the book social networks in terms of complying with different evaluation criteria and indicators in their structure. On the other words, the level of complying with the research evaluation criteria in the surveyed book social networks is closely similar.

The third hypothesis indicates that English-language book exhibit a better condition compared to Persian networks in terms of complying with the research criteria and indicators. To understand the differences between two groups, independent *T* test was used in order to show whether the difference between the averages of samples is statistically significant. Number of networks, average and standard deviation of English and Persian language of book-based social networks are shown in Table 9.

Table 9

Numbers, average and standard deviation of English and Persian book social networks

Variables	Number of networks	Average	standard deviation
English book-based social networks	10	79.73	4.23
Persian book-based social networks	2	54.35	3.38

Table 10 shows the results of *T*-test for differences in Persian and English book-based social networks.

Table 10

T-test for assessing the differences of English and Persian book social networks.

Variables	t	df	sig=0.05	result
Persian and English book social networks	7.22	10	2.228	significant difference

Figure 2 compares the percentage of research criteria in Persian and English book social networks. Descriptive results suggest that English book social networks outperform compared with Persian networks in terms of verified criteria.

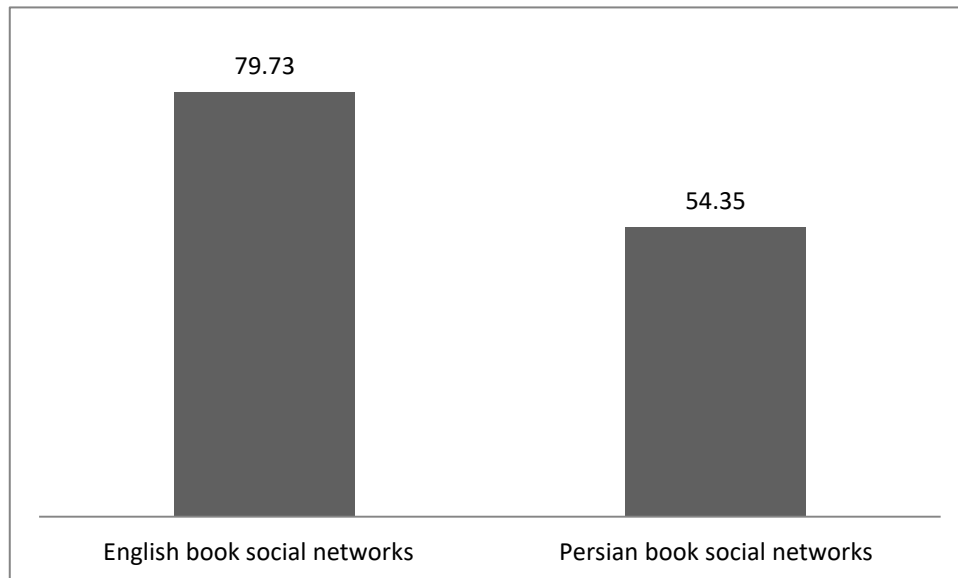


Figure 2: Comparison of English and Persian Book Social Networks for research criteria.

Because of the score of T-test that equals to 9.26 which is more than significant level 0.05, therefore null hypothesis is rejected. It concludes that the difference of the averages is statistically significant. Thus English book social networks have more compatibility with social and book networks in comparison with Persian ones.

In this research a survey on book social networks with 35 final indicators showed that Shelfari, GoodReads and LibraryThings are three networks that comply with most of the desired criteria for assessment of book social networks. The two Persian book social networks i.e. Bisheh and Professional Book Readers (Booki.ir) have the least number of indicators in their structure. All of the studied Web sites have an acceptable level of quality in terms of meeting the desired criteria and indicators. However, there is a distance between BookRabbit, Booki.ir and Bisheh and the rest of the social networks in terms of their scores as these three networks ranks last. Moreover, the difference between English and Persian book social networks is evident as it was examined as a hypothesis. The English social networks outperform in terms of meeting book social network criteria.

A notable difference between the Persian and English social networks can be found in demographics as well as multilingual capacities where English ones can support international members and communications. Also the Persian social networks also English language they are basically designed and developed for local users from Iran and it is hard to expect international and multilingual communication in them.

Another obvious difference between English and Persian book social networks is lack of or little attention to related book groups in the Persian Web sites. It is expected that a book social network can make a space for different group such authors, publishers, vendors and librarians to communicate and exchange ideas inside a group or similar structure. Most of the studied Web sites offer such capabilities to their members to make groups. The two Persian Web sites however show weaker for customization of professional groups.

The results of the present study can complete the result of Moradi & Safavi (2013) work who compared the Iranian Professional Book Readers Network (Booki.ir) with three English

book social networks. Our study included a larger research community, different research tools and methodology, and focused on several hypotheses. Also Antosh (2010) study also included only two book social networks i.e. LibraryThing and GoodReads in terms of strategies for search and

Providing more collaboration platforms for book-related groups particularly authors, publishers, vendors and librarians can lead to more attraction of book social networks. Although most of the surveyed networks had some parts as help or support however little is done in some networks toward frequently asked questions or user manuals.

Most of the surveyed books social networks had paid little attention or none to topic current awareness or reflecting news about book and publication.

Finally, although various capabilities of book social networks were studied in this research, more studies are expected to evaluate their impact on the development of reading culture and habits in communities especially in Iran. Socio-economic aspects of book social networks are also expected to be researched in the future as social networks are dominant phenomenon in today's communications.

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