INFORMATION
TECHNOLOGY JOURNAL

Research Article
Data Analysis for Book Reading Preferences: Bangladesh Perspective

Md. Mahbubul Alam and Md. Saifur Rahman

Department of Information and Communication Engineering, Noakhali Science and Technology University, Noakhali 3814, Bangladesh

Abstract

Background and Objective: Bangladesh is one of the world's most densely populated countries. A book is the most powerful weapon to change a person and the world. Most of the Bangladeshi people read various types of books. The purpose of this study was to analyze the book preferences of Bangladeshi people based on four parameters which are gender, age, marital status and geographical area. **Materials and Methods:** The quantitative research technique was applied with data being collected from respondents by questionnaire targeted at various age and gender from all over Bangladesh. This study was carried out statistical analysis on collected data. **Results:** Findings from this study revealed the book reading preferences of Bangladeshi people. It also revealed that book reading choices are based on the four parameters mentioned above. **Conclusion:** This study enhanced the idea about book preferences of Bangladeshi people and gave the choice variation map of Bangladeshi people which will be helpful to the authors, publishers, libraries, government of Bangladesh, national and international business, or research organizations. It will enhance the accuracy of business decisions, the efficiency of the library management system and academic research.

Competing Interest: The authors have declared that no competing interest exists.

Data Availability: All relevant data are within the paper and its supporting information files.

INTRODUCTION

Book is one of the most important resources which gives a pure lesson, entertainment and sometimes shows the true way to live. The reading habit must influence both self-development and social progress in human life. Good and regular reading habits make us confident and participating in our social, religious, cultural and political life[1]. A dumb person becomes a communicator and a lame climbs mountains of knowledge through reading. So, reading books be considered an important metric in human life.

Bangladesh is an overpopulated country. Among these people, there is a huge variation in reading habits. This variation in book choice mostly depends on the gender, age, marital status and geographical area of each person. There are different types of books that are popular with different types of people in Bangladesh. Even though some people don't like to read any kind of book. In Bangladesh, the popular types of books are Science fiction, Satire, Drama, Action and Adventure, Romance, Mystery and Horror.

Dhaka is the capital city of Bangladesh and it has a high number of active Facebook users. Facebook is a very popular social media in Bangladesh. Bangladeshi people mostly use Facebook for communication, entertainment and business purposes. The people of 18-24 years' age are the major Facebook users, although; there are people of different ages and from different locations within Bangladesh. So, Facebook can be a preferable place for data collection and setting up a business relationship.

There is a lot of work based on book preferences of various places in the world although there is not enough study on Bangladeshi people. Some previous works are mentioned here.

In 2020, Sabri *et al.*[2] used the bipartite configuration model and community detection that discovers the relationship among countries according to their book preferences. They conducted a large-scale cross-country based on book preferences and collected data from Goodreads.

In 2019, Chin *et al.*[3] studied the gendered reading habits and preferences of Singapore adolescent students to explore their reading habits. They collected data from 4830 adolescents in five secondary schools and found that more girls enjoyed reading compared to boys.

Kamalova[4] studied the problems of reading and improve the reading culture of students-bachelors of elementary education in modern high institutions in 2016 and identified the most effective methodological techniques of reading culture improvement of undergraduate students at the University.

During 2016, Kotaman and Tekin[5] investigated young children's book preferences over 142 children, their parents and teachers from 4 public kindergartens to read aloud. Johnson[6] studied sex differences in reading preferences and indicated that sex differences in reading preferences related to cultural influences. Golan *et al.*[7] studied the effect of presentation mode on children's reading preferences, performance and self-evaluations.

Alamri[8] investigated the reading preferences of international students between electronic texts and printed texts and explored the influence of reading e-texts and p-texts as well as the purpose of students using these electronic devices (e-devices) by data were collected using a questionnaire. Alamri's study indicated that the students preferred using p-texts over e-texts and revealed that students preferred using electronic devices for personal uses rather than academic uses[8].

Saleh and Mashhur[9] studied to identify the preferences print and electronic media activities of the net generation readers and to investigate the impact of e-books on the printed books. They compared readers' preferences between reading an electronic media and printed book. Most of the book readers believe that e-books will become more popular than printed books shortly.

In 2018, Annalyn *et al.*[10] did the largest study that explores the relationship between personality and book content preferences.

Hwang *et al.*[11] studied learners' reading preferences by building a multimedia e-book system and investigating various factors. The findings of their study contribute a deeper understanding of the relationship between human factors and the usage of e-books.

Jin *et al.*[12] attempted to identify information preferences that readers are often concerned about solving by using data mining technology. According to the readers' preferences, they tried to create an automatic new book recommendation system.

This study will advance knowledge because it is carried out by analyzing data from all over Bangladesh. It showed the book-reading habits of the reader from Bangladesh's perspective. The purpose of this study was to find out the book preferences according to parameters like age, region, marital status and gender.

MATERIALS AND METHODS

Study area: This study was carried out in December, 2019. This is an online questionnaire-based data collection and analysis work. This work focused on the choice of books based on four metrics.

Research design: Current research is to find out the book preference of Bangladeshi people build through an online survey. For this survey, an online questionnaire is used in the social network platform. In the questionnaire, there were five research questions. RQ1: What is your age? in the response to this question the surveyed person writes their age. RQ2: What is your gender? in the response to this question the surveyed person must choose 'M' for male, 'F' for female or others. RQ3: What is your marital status? In response to this question the surveyed person must choose married or unmarried. RQ4: What is your division (location address)? in response to this question the surveyed person must choose only one from Dhaka, Chittagong, Rajshahi, Barisal, Khulna, Sylhet, Rangpur and Mymensingh. RQ5: What kinds of books do you like for reading? in response to this question the surveyed person can choose multiple options from Science Fiction, Satire, Drama, Action and Adventure, Romance, Mystery, Horror and I don't like reading books. Besides, these five research questions there were two more basic questions to avoid duplicates and get unique data. The first one is, what is your name? (optional) and the second one is, what is your email id/ phone number? This study is not going to use these data for result analysis. The purpose of these two questions is to get unique and real data from real people.

Methodology: An online questionnaire-based survey was followed for this research work. A survey is a scientific method to gather and concise information collected from a large portion of the whole population of interest[13]. The internet-based survey was used because this is less expensive,

easy to collect high-quality data. Statistics show the possibility of getting biased data using an online survey is lower than traditional survey[14,15]. That's why this study chooses an internet-based survey. For this research, target people are Facebook users and target metrics are variation in age, marital status, gender and location of the surveyed person. Generally, the targeted dataset for this analysis is the book's choices of Bangladeshi Facebook users. Facebook was used as the data collection tool because nowadays most people are active Facebook users. Data collection by using Facebook as a tool saves manpower and time, it's the easiest way to reach various types of people and to collect their book preferences. The primary key of this dataset is email or phone number that's why no one can submit more than one dataset.

This study design each step of this procedural survey and data analysis. At the very beginning, research questions were designed for this survey which is discussed in the research design section in this paper. Then a google doc questionnaire was created based on our research questions. The most popular social network, Facebook was chosen as an online platform to collect data using our designed questionnaire. In the backend, an auto-generated excel file was found from google doc response to analyze the dataset. Figure 1 shows the sample dataset of book preferences.

A PHP generated data filtering layout was used for data analysis. These datasets are processed and filtered by using the PHP filter layout. Microsoft Excel Filtering algorithm used for analysis dataset to explore the possible output. Then results are represented by tabular and graphical form. In this

Name	Email/Phone	Age	Gender	Marital Status	Address	Book Types
Md. Anamul Hasan Jony	jony.ict.nstu@gmail.com	24	Male	Unmarried	Dhaka	Drama, Action and Adventure, Romance
debojyoti biswas	bishaldebojyoti@gmail.com	24	Male	Unmarried	Sylhet	Science fiction, Action and Adventure, Mystery
Dip sarker	Dip.sarker420@gmail.com	23	Male	Unmarried	Dhaka	I don't like to read
Rumana jannat	rumanajannat049@gmail.com	25	Female	Unmarried	Dhaka	Science fiction, Drama, Action and Adventure
Sanjida Rahman	sanjida.rahman.srl@gmail.com	24	Female	Unmarried	Dhaka	Science fiction, Drama, Romance, Mystery, Horror
Tanvir Hossain Khan	tanvir_2736@hotmail.com	30	Male	Married	Dhaka	Satire, Mystery
Kamrul	mkhtuhin@gmail.com	20	Male	Unmarried	Chittagong	Science fiction, I don't like to read
Monir Hossain	smmonir84558@gmail.com	24	Male	Unmarried	Chittagong	Action and Adventure
Linkon Ghosh	linkonmis45@gmail.com	24	Male	Unmarried	Dhaka	Drama
Shirin sultana	anyshirin2024@gmail.com	24	Female	Unmarried	Dhaka	Science fiction
Joy saha	Joysaha609@gmail.com	23	Male	Unmarried	Mymensingh	Horror
Fatema Tuj Juhra	fatemaormi2015@gmail.com	23	Female	Unmarried	Dhaka	Drama, Action and Adventure, Romance
saydul akbar murad	mmurrad14@yahoo.com	22	Male	Unmarried	Chittagong	I don't like to read
Asad	asadul201586@gmail.com	21	Male	Unmarried	Dhaka	Science fiction, Romance, Mystery

Fig. 1: Sample dataset

Book preferences data analysis

Age From:	Age From		M. Status	Marital Status
Gender:	Select Gender			
Address:	Select Your Address			

Age To: Age To

What types of books do you like to read?

☐ Science fiction ☐ Satire ☐ Drama ☐ Action and Adventure ☐ Romance

☐ Mystery ☐ Horror ☐ I don't like to read

Submit

Fig. 2: Data filtering layout using PHP

Table 1: Percentage of books preferences

Book types	Percentage
Science fiction	43.52
Satire	4.54
Drama	22.20
Action and adventure	32.64
Romance	28.19
Mystery	25.92
Horror	15.42
Don't like to read	17.69

Table 2: Books preference based on gender

	Percentage	
Book types	Male	Female
Science fiction	43.89	43.23
Satire	4.66	4.17
Drama	21.19	27.60
Action and adventure	32.25	35.42
Romance	25.73	40.10
Mystery	24.68	32.29
Horror	11.76	32.29
I don't like to read	18.74	13.54

work, More than thousands of real data were collected from Bangladeshi people. Figure 2 shows a snap of the layout for filtering data based on age, gender, marital status and geographic location as a parameter.

The questionnaire is used as the main medium for data collection. By talking with several people to gain insight into the reading preferences of different people in different situations. This helps to design research questions for this survey.

RESULTS

There are several studies to find out reading habits with book category preferences among the whole world, but Bangladesh doesn't have that much study on this topic. Research shows gender and age affect book preferences, in this work, four factors were considered in data analysis of book preference. Besides these two added location and marital status as two other important factors for data analysis in this survey.

Bangladeshi people read various types of books. In this survey, there were 8 options and they can choose multiples. This study finds out that still, most people like to read books. This study found that 82.31% of the surveyed people like to read different types of books. Among these 82%, book preferences with the percentage of each type are presented in the following Table 1.

From Table 1, it is clear that most of the Bangladeshi book readers prefer to read 'Science Fiction' with 43.52 as the highest percentage. Surprisingly, this is more than 50% of active book readers from this survey. The second most popular book preference is the 'Action and Adventure' types of books

with 32.64%. Interestingly, romance and mystery book preferences are very similar in percentage with 28.19 and 25.92 respectively. Between 'Drama' and 'Horror', most of the reader loves to read 'Drama' books. But 'Satire' book lovers are not actually up to the mark, only 4.54% of people have an interest in satire books. This is not big enough but unfortunate that 17.69% do not like to read books. It's very important to think about this because without reading this portion will be down to dark. Government as well as different private organizations can come forward to take necessary steps to create reading curiosity and eagerness among people.

Books preferences vs. gender (male/female): Book preferences depend on and vary under the gender of the reader. Several researchers confirmed that females enjoy reading more than males. This study found the same. Although there is not a huge difference, females are more interested in reading books. Table 2 shows the percentage of male and female book preferences with each book type. Surprisingly, both male and female book readers are equally and mostly enjoying reading "Science Fiction". About 43.89% of males and 43.23% of females like reading science fiction which maybe indicates these days Bangladeshi people are more interested in science, fantasy and logical reasoning in literature. From this table, it is clear that there is so much similarity in both male and female book preferences except in the category of romance and horror. It is shown that there is a huge difference in romance where 40.10% of females like romantic books but 25.73% of males like romantic books. Besides, 32.29% of females like horror books on the other

Table 3: Books preference based on age

Book types	Age (%)			
	<15	16-25	26-35	>35
Science fiction	30.43	45.96	37.80	14.29
Satire	0.00	3.80	9.15	3.57
Drama	21.74	23.28	18.90	10.71
Action and adventure	13.04	34.80	28.66	7.14
Romance	30.43	30.17	21.34	7.14
Mystery	4.35	27.32	24.39	10.71
Horror	13.04	17.34	6.10	14.29
I don't like to read	8.70	13.06	36.59	53.57

Table 4: Books preference based on marital status

Book types	Marital status (%)	
	Married	Unmarried
Science fiction	27.27	45.96
Satire	9.09	3.98
Drama	16.53	23.14
Action and adventure	28.10	33.48
Romance	15.70	30.03
Mystery	21.49	26.70
Horror	7.44	16.58
I don't like to read	44.63	14.32

hand only 11.76% of males like horror books. Between male and female, female loves to read 'Mystery' and 'Horror' than the male readers. The number of female readers of 'Mystery' and 'Horror' books is about the same. Although the number of male readers of 'Mystery' is more than 'Horror' books. Male and female both are less interested to read 'Satire' books.

Why males are less interested to read books than females? It should be a big concern for further research. There may be many reasons like in Bangladesh males are generally very busy and spend more time outside the home.

Books preferences based on age: During this survey, it observed that book preferences differ from age to age. In this survey, all surveyed people were divided into four age groups for further data analysis. The first group is below 15 years of age and they are school students and any other people with this age range. After school, there is a major chance of change in Bangladeshi people. The second group is college and university students and other people with ages ranging from 16-25 years. After university graduation, there is the most important change happen in Bangladeshi people. Within this age range (26-35), they are struggling for a job or family or stability in life. After 35, most Bangladeshi people manage to be stable and continue this for the rest of their life. So, the rest of their life will be on the same phage. Book preferences of these four age groups of Bangladeshi people are represented in the following Table 3.

Analyzing Table 3, people from the second age group is the most active book readers. That means after school and before graduation from university people have more time and don't miss the chance to read books. With this age range (16-25) the most popular type of books are science fiction with 45.96% people. Significantly, within all other groups, this science fiction remains most popular as book preference. People under 15 years of age completely dislike satire type of books but the highest percentage (only 9.15%) of people from 26-35 age group like satire books.

This study found two very significant issues in book reading from this table. Reading habit decreases gradually with increasing ages of people in Bangladesh. This starts at 8.70% from the first age group who don't like to read and finally it becomes 53.57% dislike reading books after 35 years of age. Besides, we see more than 50% of people don't like to read after 35 years of age.

This is shocking and both government and private organizations should research more on this to improve their interest in reading. Already, as reading habit can indirectly contribute to the development of the society and country. The second issue is romance for life decreases with respect to increasing age. This should be studied by psychologists to find out why people are getting frustrated and unmotivated in life.

Books preferences vs marital status: Marriage is a vital point to make a change in human life. Statistical survey results of book preferences of Bangladeshi people based on marital status (married/unmarried) are presented in the following Table 4.

Unfortunately, most of the married Bangladeshi people (44.63%) don't like to read books. Reading habits decrease after marriage. This should be researched further to find out possible reasons. May be extra responsibility add up after marriage.

Most of the Bangladeshi unmarried people with 45.96%, prefer to read 'Science Fiction' books. The second most preference is 'Action and Adventure' with 33.48 in percentage and 30.03% of unmarried Bangladeshi people like to read 'Romance'. 'Satire' books are more popular with married people than unmarried people. May be married people try to find happiness by reading satire at their tough life.

From this survey, it is found that romantic books are two times popular among unmarried people when compared to the married group. Interestingly, married people lose interest in reading romantic books after marriage. Research should be conducted to find out the

Table 5: Books preference based on area

Book types	Area (%)							
	Dhaka	Chittagong	Sylhet	Barisal	Khulna	Rajshahi	Rangpur	Mymensingh
Science fiction	54.85	42.02	52.24	56.82	44.16	21.78	52.78	13.33
Satire	10.97	4.60	2.99	0.00	2.60	0.99	2.78	0.00
Drama	24.47	21.47	14.93	32.95	38.96	14.85	11.11	17.33
Action and adventure	29.96	41.41	37.31	22.73	24.68	35.64	40.28	10.67
Romance	29.96	25.46	31.34	32.95	51.95	30.69	20.83	6.67
Mystery	31.65	26.99	44.78	32.95	16.88	18.81	19.44	5.33
Horror	14.77	11.96	5.97	15.91	27.27	14.85	12.50	5.33
I don't like to read	3.80	13.19	73.13	45.45	12.99	13.86	18.06	12.00

possible reasons behind this significant drop. 'Mystery' types of books are more popular to unmarried than married although it's very close. 'Horror' books are more popular with the young unmarried group.

Books preferences vs area (division): Preferences in book choice differ from place to place. That's why it was decided to analyze data based on the location of the surveyed people. Bangladesh has eight divisions and then decided to stick with those divisions for location-based data analysis. Location-based book preferences of Bangladeshi people are represented by a tabular form in the following Table 5.

In this survey, most people from the Rajshahi division like to read books and the least percentage is from the Mymensingh division. Most of the 'Science Fiction' lovers are from Barisal. Most of the 'Satire' lovers are from Dhaka. Most of the 'Drama' lovers are from Khulna. Most of the 'Action and Adventure' lovers are from Chittagong. Most of the 'Romance' lovers are from Khulna. Most of the 'Mystery' lovers are from Sylhet. Most of the 'Horror' lovers are from Khulna. Most people who don't prefer to read books are from Mymensingh.

Most of the people who are from Dhaka and Sylhet likes to read 'Mystery' after 'Science Fiction'. Most of the people who are from Chittagong likes to read 'Action and Adventure' after 'Science Fiction'. Most of the people who are from Barisal likes to read 'Mystery', 'Drama' and 'Romance' after 'Science Fiction'. Most of the people who are from Khulna likes to read 'Science Fiction' after 'Romance'. Most of the people who are from Rajshahi likes to read 'Romance' after 'Action and Adventure'. Most of the people who are from Rangpur likes to read 'Action and Adventure' after 'Science Fiction'. Most of the people among the book reader and lover who are from Mymensingh likes to read 'Science Fiction' after 'Drama'.

DISCUSSION

This discussion is based on the key findings of this survey and comparison analysis to the previously published works.

This study found that 82.31% of the surveyed people like to read different types of books. A similar study investigated by Kotaman and Tekin[5] presents book preferences over children, their parents and teachers. Another study by Golan *et al.*[7] shows the effect of presentation mode on children's reading preferences. Rather than limiting the study to children's books and book preferences, this study expanded the scope of the investigation to all range of ages, locations and expended types of book choice. For example, this study offers a choice of book categories such as science fiction, satire, drama, action and adventure, romance, mystery and horror. Another study limited the choice between electronic texts and printed texts[8,9].

This study found that females like to read books more than males which is similar to the study of Chin *et al.*[3] on gendered reading habits and preferences. Another study by Johnson[6] showed the same result in the study of sex differences in reading preferences. This study on Bangladeshi people also shows reading preferences are influenced by gender.

Kamalova[4] presents the most effective methodological techniques of reading culture improvement of undergraduate students at the University. On the other hand, this study started with university students but later expanded to general people of different age, marital status and location.

This study took place over Bangladeshi people of different ages, gender and area although Kotaman and Tekin investigated children's book preferences over children, their parents and teachers[5]. Golan *et al.* studied the effect of presentation mode on children's reading preferences[7] but this study belongs to statistical analysis of book reading preferences of Bangladeshi people.

Research from Annalyn *et al.*[10] explores the relationship between personality and book preferences. While this study discovers the relationship book reading preferences to age, gender, marital status and varied location. The major finding of this study is that book preferences vary depending on gender, age, marital status and location. This

study can be further expanded to investigate among countries and automated analysis, pattern recognition, data mining can be implemented based on a machine learning approach.

CONCLUSION

Bangladeshi people like to read books. This study proved that book preferences related to gender, age, marital status and area of any person. Statistics from this survey are efficient enough to predict the choice, personality and curiosity of Bangladeshi people. As this survey is online-based and Facebook was used as a social network, the results from this survey help Google/Facebook on their strategy to place an advertisement about books.

SIGNIFICANCE STATEMENT

This study discovers the book preferences of Bangladeshi people from different regions of different gender, age and marital status. This study will help the authors, publishers, libraries, government of Bangladesh, national and international business, or research organizations.

REFERENCES

1. Loan, F.A. and R.U.N. Shah, 2017. Survey of the literature reading habits and preferences of adolescents: A study of a public school in India. Libres, 27 : 80-96.
2. Sabri, N., S. Sadeghian and B. Bahrak, 2020. A cross-country study on cultural similarities based on book preferences. Social Network Anal. Min., Vol. 10. 10.1007/s13278-020-00695-y.
3. Loh, C.E., B. Sun and S. Majid, 2020. Do girls read differently from boys? Adolescents and their gendered reading habits and preferences. English Educ., 54: 174-190.
4. Kamalova, L.A. and N.D. Koletvinova, 2016. The problem of reading and reading culture improvement of students-bachelors of elementary education in modern high institution. Int. J. Environ. Sci. Educ., 11: 473-484.
5. Kotaman, H. and A.K. Tekin, 2016. Informational and fictional books: Young children's book preferences and teachers' perspectives. Early Child Dev. Care, 187: 600-614.
6. Johnson, D.D., 1973. Sex differences in reading across cultures. Reading Research Quarterly, 9 : 67-86.
7. Golan, D.D., M. Barzillai and T. Katzir, 2018. The effect of presentation mode on children's reading preferences, performance and self-evaluations. Comput. Educ., 126: 346-358.
8. Alamri, B., 2019. Reading preferences of ESL students: Electronic texts vs. printed. Int. J. Emerging Technol. Learn. (iJET), 14: 169-179.
9. Saleh, Z.I. and A.S. Mashhur, 2015. The impact of e-books on the printed books: e-books popularity, growth and future. Fifth International Conference on e-Learning (econf), October 18-20, 2015, IEEE, pp: 125-130.
10. Annalyn, N., M.W. Bos, L. Sigal and B. Li, 2018. Predicting personality from book preferences with user-generated content labels. IEEE Trans. Affective Comput., 11: 482-492.
11. Hwang, J.P., Kinshuk and Y.M. Huang, 2014. Investigating e-book reading patterns: A human factors perspective. IEEE 14th International Conference on Advanced Learning Technologies, July 7-10, 2014, IEEE, pp: 104-108.
12. Jin, S., C. Fan, Y. Meng, X. Wu and Q. Chen, 2011. The design of a new book auto recommendation system based on readers' interest. International Conference on Electrical and Control Engineering, September 16-18, 2011, IEEE, pp: 3224-3227.
13. Molleri, J.S., K. Petersen and E. Mendes, 2016. Survey guidelines in software engineering: An annotated review. Proceedings of the 10th ACM/IEEE International Symposium on Empirical Software Engineering and Measurement, September 08-09, 2016, ACM Press, pp: 1-6.
14. Yi, Z., Y. Meiping and Y. Xiaoguang, 2009. Design techniques of stated preference method in travel behavior research: A research on data collection method and survey method. Second International Conference on Intelligent Computation Technology and Automation, October 16, 2009, IEEE, pp: 126-129.
15. McKenna, M.C., D.J. Kear and R.A. Ellsworth, 1995. Children's attitudes toward reading: A national survey. Reading Res. Q., 30: 934-956.