

An Empirical Study on The Student Perspicacity about The Usage of E-Books in Academics.

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Abstract

In this growing era of competitiveness, retrieving relevant and authoritative information has become more exigent. During the last decade, libraries and publishers have made a successful move in providing online journals and database. Although the move towards e-books in academic libraries seems to be very challenging, the prospect looks bright. E-book publishing has been growing rapidly. There are signs of progress on the supply side. But little is known about the demand side. The perspective of students and academicians on e-books is unrevealed. Electronic textbooks and reading devices had to improve students learning experience, in order to be effective. Publisher wanted to know the factors corresponding to usage of e-books and the perception of different demographic variables towards the books so as to improve quality of e-books and make them effective. The study was undertaken to explore the significant factors that influence the usage of e-books and to investigate the extent of usage and acceptability of e-books from users' perspectives in academics. This study is also undertaken to examine the difference in perception of usage of e-books on the basis students of varied discipline of management courses and on the basis of gender. This study is based on the primary data collected from 200 respondents in Indore city. Results of this study will be beneficial to authors/publishers uploading their e-books.

Keywords:

e-books, technology, digital format, academics, environment.

Introduction

At the beginning of the 21st Century, societal changes created by new technologies were affecting how people sought information. Print on paper is no longer the predominant way of communicating. New opportunities created by the Internet churned up new innovations and products related to digital communication. In 1971, Michael Hart started project Gutenberg, the goal of this project was to digitize and archive cultural works (Hart,2004). With the evolution of computer hardware, the digitalization of books known as eBooks eventually evolved. By the early 1990's, e-books were available for purchase on floppy disks to be read on personal computers. Computer is already ubiquitous in most homes and remains the most common device for reading eBooks. However, a drawback to the computer for reading books is that they are relatively unwieldy when compared with a traditional bound book. After years of development efforts and high expectations, e-books have begun to cement their place as a central part of the information experience. According to Lee (2002), "e-Book is a term used to describe a text analogous to a book that is in digital form to be displayed on a computer". E-books could

expand over print media by adding several specific features such as hypertext links, search and cross-reference functions and multimedia.

An e-Book is based both on emulating the basic characteristics of traditional books in an electronic format, as well as leveraging internet technology to make an e-Book easy and efficient to use. An e-Book can take the form of a single monograph or a multi-volume set of books in a digital format. During the last decade, libraries together with publishers have made a successful move towards the provision of journals and databases in online format. The next information resource that was destined to be part of this digital transition was academic books. Although the move towards e-books in academic libraries seems to be very challenging, the prospect looks bright. E-books publishing have been growing rapidly. More libraries are also adding e-books to their collections. These are all signs of progress towards e-world.

Ardito (2000) describes how Andries Van Dam, a professor of technology at Brown University in the US coined the phrase electronic book while working on the first hypertext system during 1967 and 1968 on an IBM 360 mainframe, and Alan Kay (1968), conceptualized an e-book called Dynabook, a portable interactive personal computer with a flat panel display and wireless communication. Though e-books are not new, their uptake has been slow, especially when compared to other e-formats such as e-journals and e-newspapers. One reason for this is because e-books have been available in many formats and these formats are often incompatible and non-interoperable. Snowhill (2001) confirms this in a report on an evaluation of e-books undertaken by a taskforce from the California Digital Library in 2000. Urs (2004) noted the diversity of definitions, standards, formats, delivery mechanisms and access models and explained that one of the primary objectives of that workshop was to identify, appreciate and understand the issues and complexities involved and to delineate the role of e-books in education, research and libraries from the perspectives of the publishers, intermediaries and users. Rao (2004) also provided background information on e-books, including their advantages and disadvantages in an educational context and describes how the publication of e-books on a commercial basis is gaining momentum in India.

Rationale

Due to exclusiveness and limited readerships of e-books, the fractured market of independents and specialty authors lacked consensus regarding a standard for packaging and selling e-books. E-books continued to gain in their own underground markets. Many e-book publishers began distributing books that were in the public domain. At the same time, authors with books that were not accepted by publishers offered their works online so they could be seen by others. Unofficial (and occasionally unauthorized) catalogs of books became available over the web, and sites devoted to e-books began disseminating information about e-books to the public. As of 2009, new marketing models for e-books were being developed and dedicated reading hardware was produced. E-books have yet to achieve global distribution. Only three e-book readers dominate the market, Amazon's Kindle model or Sony's PRS-500 and Bookeen with Cybook Gen3 and Cybook Opus. On January 27, 2010 Apple, Inc. launched a multi-function device called the iPad and announced agreements with five of the six largest publishers that would allow Apple to distribute e-books.

Due to its several advantages over printed books, e-books are gaining popularity. Previously, e-books were generally written for specialty areas and a limited audience, meant to be read only by small and devoted interest groups. The scope of the subject matter of these e-books included technical manuals for hardware, manufacturing techniques, and other subjects. Numerous e-book formats emerged and proliferated, some supported by major software companies such as Adobe's PDF format, and others supported by independent and open-source programmers. In the last few years, research on gender in information systems has been gaining concern. Some have argued that the gender is less studied and under-theorized (Adam, Howcroft and Richardson, 2004). Adam et al. (2004) further argue that gender must be taken into account if the information systems field will accomplish the goal of studying the development use and impact of Information technology. Over the last decade, gender differences have been studied in the areas of technology acceptance, adoption and even in career choice considerations (Joshi and Kuhn, 2001; Slyke, Comunale and Belanger, 2002; Igbaria and Baroudi, 1995; Venkatesh, Morris and Ackerman, 2000; Gefen and Straub, 1997). However, in the area of technology acceptance and more specifically e-learning, the concept of gender difference research and subject specialization difference research is yet to be explored.

Literature Review

The early research focused on desirable features, pedagogy, and technology issues with the usage and acceptance of e-books. The e-books were generally accessible in systems that provided access to one or possibly a few e-books at a time (Bell, McCoy, and Peters, 2002; Dearnley and McKnight, 2001; Simon, 2001; Wearden, 1998). The results of the early research concluded that e-books were not being accepted by higher education students. In addition, the studies concluded that technology issue was the major factor in the lack of acceptance (Doman, 2001; Lonsdale and Armstrong, 2001). The later research concludes that students are using e-books, but not necessarily for the purpose of reading. Students were using e-book collections as a tool to conduct research rather than for reading. Students search through a collection of e-books, scan relevant sentences, select a section of text, cut a desired portion, and paste the retrieved content into another application (Brown, 2001; Coyle, 2003; Safley, 2006).

Anuradha and Usha (2006) surveyed 101 staff and students (with a low response rate of 2.94 per cent) at the Indian Institute of Science in 2004. The responses indicated that the students tended to use e-books more often than faculty members and staff. Those who did use e-books mostly used reference and technical material. Another survey of all students, faculty and staff (with a healthy 2,067 respondents this time, 30.1 per cent response rate) at the University of Denver in 2005 by Levine-Clark (2006) showed that e-books were used by about half of the campus community. However, most of these people used them only occasionally. About 68 per cent of faculty, 57 per cent of undergraduates and 64 per cent of postgraduates used them occasionally. 28 percent used e-books once only, 62 percent thought that they used them occasionally, and 10 per cent believed that they used them frequently. When asked about how they typically used e-books, of the 1,148 people saying they used e-books, 57 per cent read a chapter or article within a book, and 36 percent read a single entry or a few pages

within a book, but only 7 per cent read the entire book.

Levine-Clark (2007) also revealed subject differences between users. For example, humanities scholars, compared to their peers in other disciplines, were more aware of e-books and tended to discover e-books through catalogues. However, this greater awareness did not translate to greater use and they used e-books almost at the same frequency as the other respondents said they did. Edward W. Walton (2007) SBU's experience and the five discussed concepts of the future indicate that e-book use in higher education is viable. Academic libraries seeking to purchase an e-book collection can find ample evidence that if they provide access to an e-book collection, students will try to use it. Students are beginning to embrace the use of e-books for the purpose of conducting research and are receptive to using e-books as a textbook, but students are still hesitant to embrace e-books as the primary format for leisure reading.

E-book provider eBrary conducted a global survey in which 906 individuals representing about 300 higher education institutions from 38 countries (but mainly the USA, the UK, Canada and New Zealand) took part. The aim of the survey was mainly to measure faculty attitudes towards e-books. Among the important findings was that half of faculty said they now preferred to use online resources, while just 18 per cent said they preferred print. 89 per cent of respondents used educational, government and professional web sites for research, class preparation, or instruction, followed closely by e-journals. Indeed e-journals tended to be thought of as a more appropriate resource for students than e-books. 55 percent respondents encouraged students to use e-books as a viable resource, 319 did not; 250 said they used chapters/sections for course reading, 146 said they put links in course management software; 83 said they required the reading of entire text. The top three advantages of e-books were found to be greater breadth and depth of collection; ability to download; and fewer restrictions on printing and copying. In the study, McKiel (2007) wrote that e-books had a fairly poor showing and they rank down with personal and corporate web sites. This supports eBrary's librarian survey, where 59 per cent of librarians said e-book usage was fair to poor.

The study by Chu (2003) showed around the clock availability and searchability to be the most favourable features of e-books and being hard to read and browse or need for special equipment as reasons hindering the use of e-books. The results clearly could not be generalized and do not give us a sense of how end-users perceive electronic books. This is because the survey was distributed to only 27 students as potential users, all of them studying to be librarians. Another survey of 118 self-selected participants, conducted as part of the California State University E-book Task Force in 2001, showed that the users were generally pleased with net library, though 60 per cent said they preferred print (Langston, 2003).

A survey of 1,818 staff and students at University College London by Rowlands and Nicholas (2008) showed that e-books clearly compare very unfavourably indeed with print titles for perceived ease of reading. The benefits of e-books cluster around convenience: ease of making copies, perceived up-to-dateness, space-saving, and around the clock availability. Hard copy is decisively favoured in terms of ease of reading. There was a big difference between men and women in respect of features and

functionality, men tended to rate these aspects much more highly.

Venkatesh and Morris (2000), found significant evidence outside the information systems domain supporting the standpoint that social influence and gender do indeed play a critical role in influencing behaviors. Traditionally, women were negatively associated with computer acceptance. This is reflected in previous research suggesting that women are likely to be more anxious about computers than men (Jehn, Northcraft, and Neale, 1999; Rose and Straub, 1998). A very few researches are available based on specialization subjects. Amongst them is an study of information industry company, which gathered information about the habits of U.S. students and faculty. The researchers conducted more than 3,000 interviews with faculty, graduate students and undergraduate students. The results are based on the interviews and reflect the respondents' perceptions. Eighty-eight percent of the respondents stated that they use online indexes and abstracts and 82% reported using online databases. Online information usage varied between disciplines, as does eBook usage. The law, business, and biology researchers tended to depend upon electronic information more than the humanities researchers.

Objectives

- To analyze the perception of students of various discipline of management course on the dimensions affecting the usage of e-books.
- To analyze the perception of male and female on the dimensions affecting the usage of e-books.

Methodology

The Study: The study is descriptive and exploratory in nature and is undertaken to provide insight into the concepts of the students, related to usage of e-Books. The study is basically primary in nature.

The Sample: The sample of the study constituted of 200 respondents who were management students from Indore city. Non Probability Convenience sampling method was used to select the respondents.

Tools for Data Collection: Primary data for the study was collected through a self-structured questionnaire. The questionnaire was designed following a wide review of the literature on e-books. It was divided into three parts. The first part was based on personal profile of the students. The second part was based on the general awareness of technology of e-books. The third part consisted of 55 close ended items based on five point Likert scale (Strongly Agree – 5 to Strongly Disagree – 1).

Reliability of the measures: Reliability of the measures was assessed with the use of Cronbach's Alpha. Cronbach's Alpha allows us to measure the reliability different variables. As a general rule a coefficient greater than or equal to 0.7 is considered acceptable and is a good indicator of reliability. The Cronbach's Alpha for the questionnaire is 0.83. Hence it is reliable and can be used for analysis.

Tools for Data Analysis: The analysis of collected data was done by Statistical Package for Social Science (SPSS 16.0) and MS Excel 2007. Percentage analysis, Item-total correlation, factor analysis, Analysis of Variance (Anova) and Independent samples

test(t-test) were used to analyze the data.

A pilot study resulted in 17 factors which effects the usage of ebooks . These factors when subjected to second order factor analysis, resulted into seven imperative dimensions of e-Books These dimensions were Environmental Collaboration (% of Var. = 13.04), Supportive Access (% of Var. = 8.835), Immense Efficacy (% of Var. = 7.758), Knowledge Integration (% of Var. = 7.532), Innovative Virtual Environment (% of Var. = 7.268), Enhanced

Personalization(% of Var. = 6.911) and Improved Timely Updates (% of Var. = 6.260). The total percent of variance for dimensions was 57.604% and the Eigen values for each dimension was more than one. The details of these factors tabularized with their item loads, Eigen values and percent of variances are shown in Annexure1. On the basis of these dimensions, following 14 hypotheses were framed. Analysis of Variance (ANOVA) was applied to test these hypotheses.

HYPOTHESES

01 – There is no significant difference in the Environmental Collaboration of e-Books.	perception of students of various discipline of management on the
02 – There is no significant difference in the Supportive Access of e-Books.	perception of students of various disciplines of management on the
03 – There is no significant difference in the Immense Efficacy of e-Books.	perception of students of various disciplines of management on the
04 – There is no significant difference in the Knowledge Integration of e-Books.	perception of students of various disciplines of management on the
05 – There is no significant difference in the Innovative Virtual Environment of e-Books.	perception of students of various disciplines of management on the
06 – There is no significant difference in the Enhanced Personalization of e-Books.	perception of students of various disciplines of management on the
07– There is no significant difference in the Improved Timely Updates of e-Books.	perception of students of various disciplines of management on the
08 – There is no significant difference in the perception of male and female on the Environmental Collaboration of e-Books.	
09 – There is no significant difference in the perception of male and female on the Supportive Access of e-Books.	
010– There is no significant difference in the perception of male and female on the Immense Efficacy of e-Books.	
011 – There is no significant difference in the perception of male and female on the Knowledge Integration of e-Books.	
012 – There is no significant difference in the perception of male and female on the Innovative Virtual Environment of e-Books.	
013 – There is no significant difference in the perception of male and female on the Enhanced Personalization of e-Books.	
014 – There is no significant difference in the perception of male and female on the Improved Timely Updates of e-Books.	

Result and Discussion

Overall responses to the survey

Data was collected from 200 questionnaires of which 116 were from males and 84 were from females. All the respondents were

management students from different subject of specialization 46 of them were from finance,70 of them were from marketing,52 were from information technology and 32 of them were from human resource.

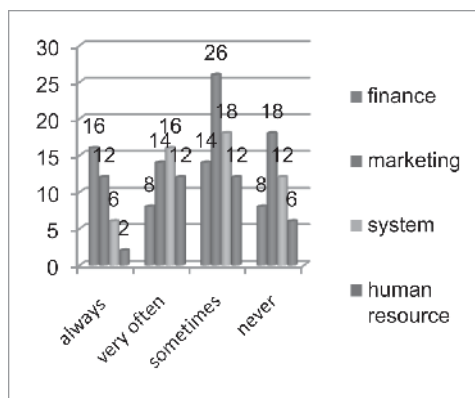


Fig.1(a) frequency of use of e-book technology (on basis of subject)

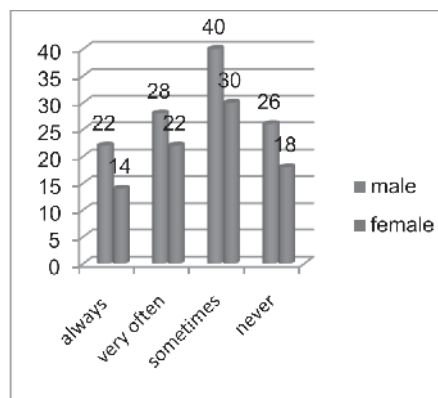


Fig. 1(b) frequency of use of e-book technology (on basis of gender)

The graph 1(a) and 1(b) depicts the frequency of e-book usage which shows that out of 200 respondents 36 had used e-books technology almost always, 50 respondents agreed that they had used this technology very often, 70 of them had used it sometimes

and 44 of them never used e-books. Figure 1(a) indicates that most of the marketing, system and human resource students sometimes preferred e-books while finance students always preferred e-books.

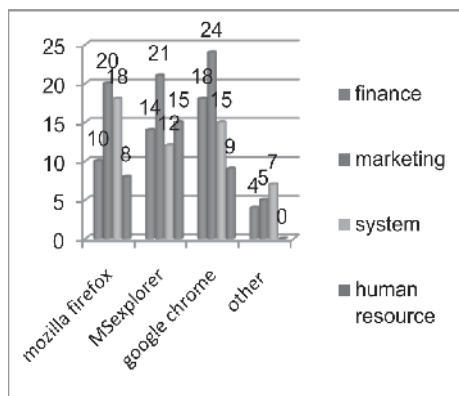


Fig. 2(a) Type of browser used (on basis of subject)

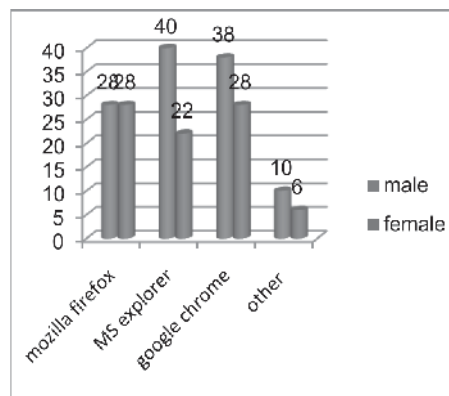


Fig. 2(b) Type of browser used (on basis of gender)

56 out of 200 respondents used Mozilla firefox, 62 of them used Internet explorer out of which 66 of them used google, 16 of them used some other browser while surfing for the e-books. It is clear from the graph 2(a) that marketing group students gives equal preference to Mozilla, chrome and explorer while finance students

used chrome frequently, system group surf on mozilla and human resource group liked to surf on chrome. Figure 2(b) indicates that male gives more preference to ms explorer and female are interested in chrome or Mozilla while surfing for e-books.

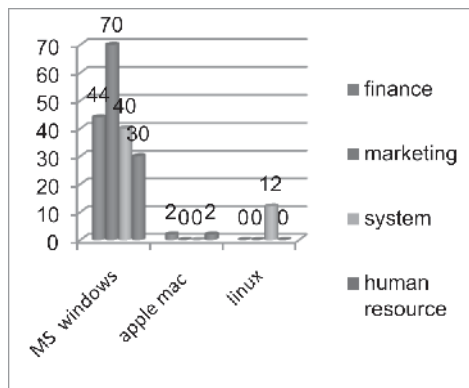


Fig 3a-Type of operating system used (subject)

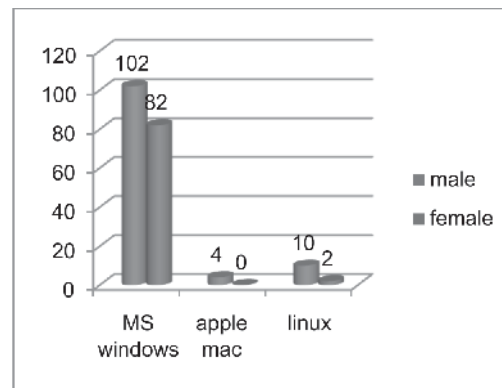


Fig3b-Type of operating system used (gender)

From the figure above, 184 used Microsoft windows, 4 respondents used apple mac while 12 of the used linux. Figure 3(a) and 3(b) gives detailed analysis the type of operating system used on the

basis of specialization subject and gender. Some of the system students used linux which indicate there inclination to the newest technology.

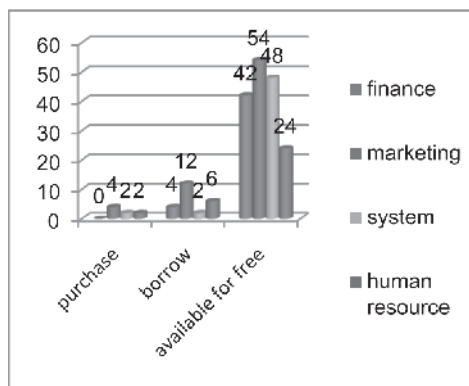


Fig 4a- Mode of getting e-book(subject)

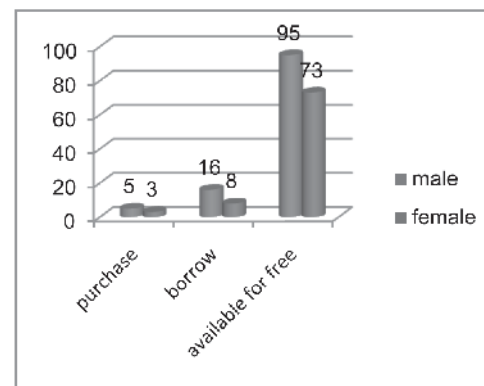


Fig 4b- Mode of getting e-book(gender)

Figure 4a and 4b depicts that 84% of people agreed that they used only those e-books which are available for free. 12 % of them borrowed it from someone and only 4% of respondents were

interested in purchasing e-books. Genderwise and subjectwise description about the mode of getting e-books is shown in figure 4a and 4b.

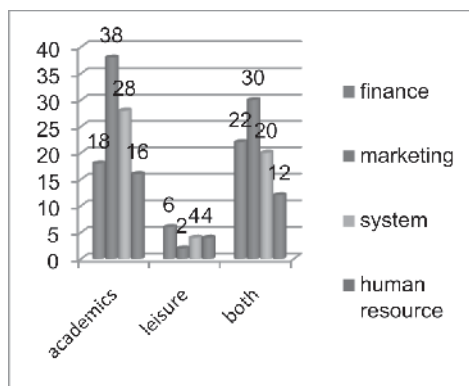


Fig. 5(a)-Purpose of reading e-books(subject)

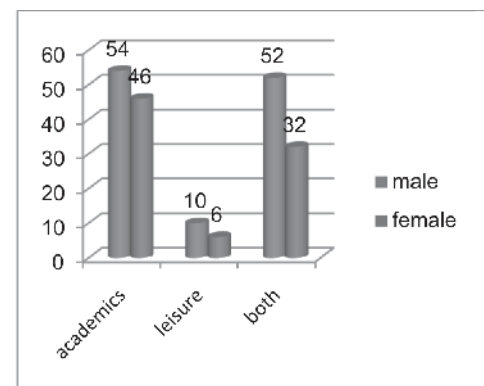


Fig.5(b)-Purpose of reading e-books(gender)

The figure 5(a) and 5(b) describes the purpose of reading e-books which revealed that 100 out of 200 people used e-books for the academic purpose only whereas 16 of them used it for leisure only

.84 people used e-books for both leisure as well as academic purpose. The responses were found to be similar within the groups. (see figure above)

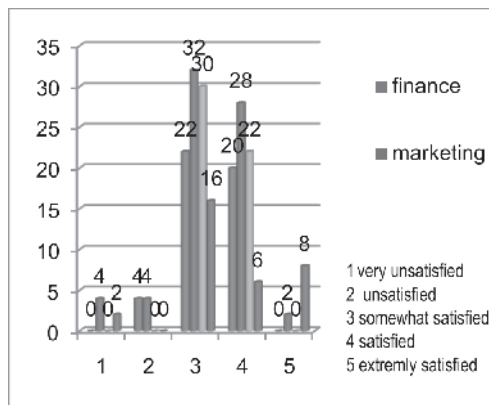


Fig. 6(a)-Satisfaction level towards e-books

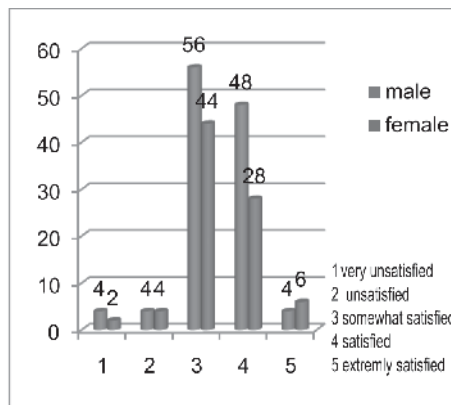


Fig. 6(b)-Satisfaction level towards e-books

In response to satisfaction level of students about e-books. It was found that 6 respondents were very unsatisfied, 8 of them were founded to be unsatisfied, 100 of the were satisfied to some extent whereas 76 of the were satisfied, only 10 of them were extremely

satisfied. Satisfaction level of students of various disciplines was observed to be same. Also gender has no impact on the satisfaction level towards e-books.

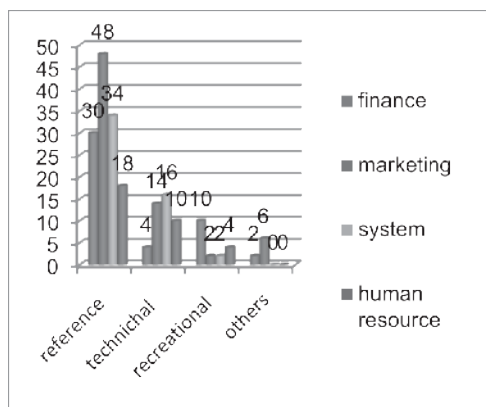


Fig. 7(a)-Type of e-books used (subject)

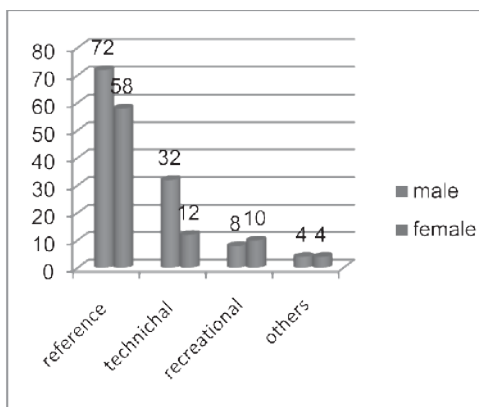


Fig. 7(b)-Type of e-books used(gender)

Survey respondents were also asked to indicate the types of e-books that they would be interested in reading and the results shows that 130 of them were interested in reference Materials, 44 of them in finding Technical Books, 18 of them Recreational

Books (fiction etc) and 8 of them were interested for some others reasons. The responses were found to be similar within the groups. (see figure above)

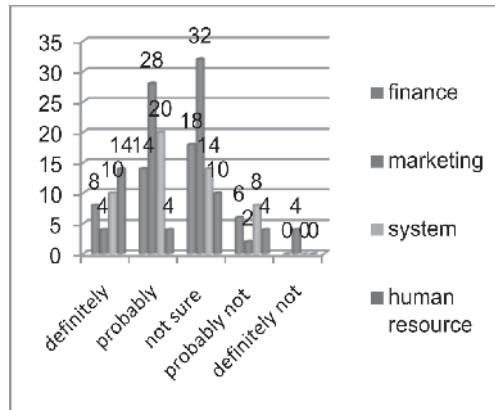


Fig. 8(a)- Decision to purchase e-books again

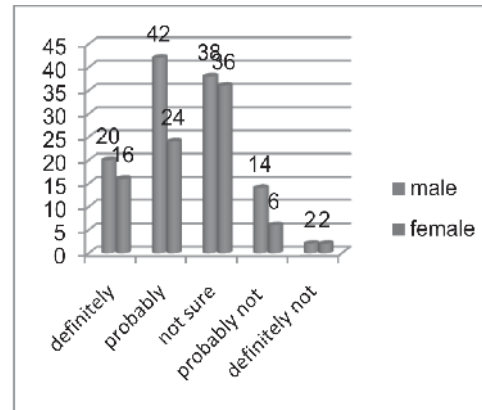


Fig.8(b)-Decision to purchase e-books again

As to their future use of e-books the following responses were given:

36 of them said that they will definitely use or purchase it again, 66 of them replied that they would probably use or purchase it, 74 of them respond that they might or might not use or purchase, 20 said they probably would not use/purchase, 4 said that they will

never use or purchase it again. Most of the Marketing students were not sure of purchasing the e-books in future while students of system were in favour of purchasing or using it. Similarly the female students were not sure of purchasing the e-books in future while male students were in favour of purchasing or using it

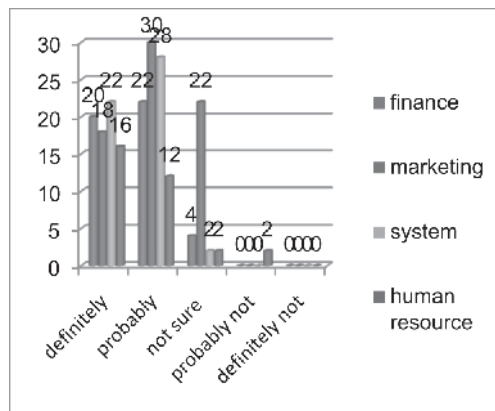


Fig.9(a)-Recommendation of e-books to others

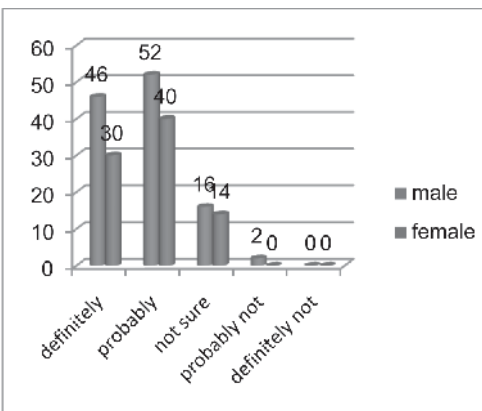


Fig.9(b)-Recommendation of e-books to others

In response to recommendation to friends or relatives to use of e-books 76 said that they will definitely suggest, 92 replied probably, 30 said might or might not, 4 said probably and none of them said that they will never recommend e-books to others. From the figure 9(a) and 9(b) we can see that responses were similar within the groups.

Hypothesis Testing

Seven hypotheses (H_{01} - H_{07}) were set to study the perception of students of various discipline of management over these dimensions. ANOVA was carried and the results are tabulated in annexure 2. The results indicated that the sig. values ('p') for hypothesis $H_{01,4}$ was less than 0.01 and therefore the hypothesis was rejected at 1 % level of significance. Rest all the hypotheses

were having significant values more than 0.05 and therefore, not rejected. It was found that there is a significant difference between the specialization subject on Knowledge Integration dimension of e-Books. Knowledge Integration dimension consisted factors namely Functional Navigation and Distinguished Learning. The items included are Navigation is easy in e-Books. Ex : tables of content lead straight to chapters, e-Books has ability to take notes in the margins, e-Books can be read in the dark, e-Books helps to share notes for group study, e-Books helps in portability of reading devices etc. These items are depended on the subject and utility of e-book hence differentiates. There was also an accumulating body of collection management-oriented studies which analyze e-book usage statistics across various parameters. (Hernon et al.,2007) investigated how students in the varied

disciplines perceived e-Books differently according to the content, information etc. The subject areas of business, economics, management, computer science, and social sciences have the highest number of accesses among netLibrary academic library eBook users (Carlson, 2002)

For the Environmental Collaboration, Supportive Access and Immense Efficacy, the study found no significant difference between the perception of e-Books by students of different streams of specialization subjects. Since, accessibility, usefulness and environmental impact does not change with the subject. Every user has a quest for more technological associations and better utilization, hence they are preferring e-Books more than printed books. The study also found no significant difference between perception of students of varied specialization subjects for dimensions like Innovative Virtual Environment, Enhanced Personalization and Improved Timely Updates, since, these dimensions does not vary with the subject. Advanced technological practices of e-Books are known to the students and they all seem to be more interested in their usage. Personalization of e-Books is being contributed by various parameters which may attract each user for better readability. Contribution of authors for timely updates remains same despite of the choice of the subject, hence, perception of different students of specialization subjects may not vary.

Similarly seven hypotheses (H_{08} - H_{014}) were set to study the perception of male and female over these dimensions. Independent samples t-test was carried and the results are tabulated in annexure 3. The results indicated that the sig. values ('p') for all the hypotheses were having significant values more than 0.05 and therefore, not rejected. The study also found no significant difference between perception of male and female for these seven dimensions. This is consistent with the findings of Nash and Moroz (1997). They found no relationship between gender and computer attitude. In fact in later research they found a statistically significant relationship between women and positive attitude towards computers. Jehn et.al (1999); Rose and Straub, (1998) found that females had lower expectations for success, underestimating their abilities in vague circumstances. In developed countries this trend has changed, but can still be a situation in developing countries where women are likely to have fewer chances to adopt and use new technologies.

Conclusion

Since, the use of e-books is the best choice for students to get current information at a better economical and comfort level, it is important for publishers and authors to utilize these for providing quality books that may be perceived effective by readers. The study showed that Knowledge Integration dimension was perceived differently by the students of various subjects while rest six dimensions were not been found to be significantly affected by the students specialization subject. Also seven dimensions were not been found significantly affected by the gender. Academic libraries seeking to purchase an e-book collection can find ample evidence that if they provide access to an e-book collection students will definitely come. Students are interested in the use of e-books for the purpose of conducting research and are approaching to e-books as a textbook, but students are still hesitant to accept e-books as the primary format for leisure reading. The e-book industry would find these results helpful in

understanding what factors make for e-book acceptance among college students who are considered to be the greatest users of e-book learning.

Limitations

Finally, the findings reported here are likely to be limited to the e-Books and may not be generalized to e-Journals and other online sources. The sample of the study constituted of the management students studying in Indore. The view of the respondents may differ from those who are studying in engineering, medical and other streams. Responses may also vary of people who are staying in big cities and using advanced technology of reading e-Books. This limitation may be minimized by extending the future studies to other cities for further investigation. However, results of this study are providing a foundation for future studies on e-Books.

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Annexure 1: Factor Analysis.

Dimension	Factors	Factor Load	Dimension Load	Eigen Values	% of variance
Environmental Collaboration	Ever-Accessibly	0.655	2.436	2.217	10.890
	Trouble-Free Circulation	0.635			
	Environmental Conscious	0.587			
	Technological Affable	0.559			
Supportive Access	Easy Acquisition	0.648	1.832	1.501	8.663
	Better Security Measures	0.599			
	Well-Supportive	0.585			
Immense Efficacy	Cost-Effective	0.770	1.344	1.318	8.238
	Improved Flexibility	0.574			
Knowledge Integration	Functional Navigation	0.756	1.511	1.280	8.121
	Distinguished Learning	0.755			
Innovative Virtual Environment	Interactive Technology	0.643	1.846	1.235	7.736
	Ecological Friendly	0.618			
	Effortless Recoverability	0.585			
Enhanced Personalization	User Friendliness	0.788	1.419	1.175	7.297
	Enhanced Customization	0.631			
Improved Timely Updates	Timely Updates	0.885	0.885	1.065	6.660

Annexure 2: HYPOTHESES TESTING (ANOVA)

DESCRIPTIVES								
	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		f-value	Sig.
					Lower Bound	Upper Bound		
Dependent Variable: Dimension 1 - Environmental Collaboration								
Finance	25	51.4	4.55521679	0.911043	49.51969892	53.28030108	0.156739	0.925106
Mktg.	25	50.48	4.194440765	0.838888	48.74861995	52.21138005		
IT	25	50.8	5.322906474	1.064581	48.6028122	52.9971878		
IIRM	25	50.84	5.153316084	1.030663	48.71281567	52.96718433		
Total	100	50.88	4.765787162	0.476579	49.93436443	51.82563557		
Dependent Variable: Dimension 2 - Supportive Access								
Finance	25	34.72	4.392417709	0.878484	32.90689908	36.53310092	1.951461	0.126487
Mktg.	25	32.56	3.317629676	0.663526	31.19054978	33.92945022		
IT	25	33.56	3.62950869	0.725902	32.06181245	35.05818755		
HRM	25	34.84	3.965265859	0.793053	33.2032187	36.4767813		
Total	100	33.92	3.902032622	0.390203	33.14575207	34.69424793		
Dependent Variable: Dimension 3 - Immense Efficacy								
Finance	25	20	2.309401077	0.46188	19.04672609	20.95327391	0.934801	0.427048
Mktg.	25	19.04	2.653299832	0.53066	17.94477166	20.13522834		
IT	25	19.12	2.386070689	0.477214	18.13507843	20.10492157		
HRM	25	19	2.483277404	0.496655	17.97495347	20.02504653		
Total	100	19.29	2.458935468	0.245894	18.80209386	19.77790614		
Dependent Variable: Dimension 4 - Knowledge Integration								
Finance	25	31.72	4.886375617	0.977275	29.70300328	33.73699672	4.335452	0.006543
Mktg.	25	31.28	2.18936825	0.437874	30.3762732	32.1837268		
IT	25	30.12	4.186486196	0.837297	28.39190343	31.84809657		
IIRM	25	28.04	4.025750448	0.80515	26.37825189	29.70174811		
Total	100	30.29	4.144596092	0.41446	29.46762222	31.11237778		

Dependent Variable: Dimension 5 - Innovative Virtual Environment

Finance	25	34.4	4.716990566	0.943398	32.45292199	36.34707801	1.252397	0.295181
Mktg.	25	32.32	4.732159479	0.946432	30.36666057	34.27333943		
IT	25	34	3.149073938	0.629815	32.70012617	35.29987383		
HRM	25	34	3.730504881	0.746101	32.46012327	35.53987673		
Total	100	33.68	4.153324092	0.415332	32.85589039	34.50410961		

Dependent Variable: Dimension 6 - Enhanced Personalization

Finance	25	18.88	1.641137817	0.328228	18.2025716	19.5574284	1.719384	0.168151
Mktg.	25	18.24	2.586503431	0.517301	17.17234386	19.30765614		
IT	25	19.36	2.855987862	0.571198	18.18110615	20.53889385		
HRM	25	17.96	2.371356855	0.474271	16.981152	18.938848		
Total	100	18.61	2.432502972	0.24325	18.12733864	19.09266136		

Dependent Variable: Dimension 7 - Improved Timely Updates

Finance	25	8.08	1.351542329	0.270308	7.522110746	8.637889254	2.08	0.107934
Mktg.	25	7.16	1.491084616	0.298217	6.544510521	7.775489479		
IT	25	7.76	1.562049935	0.31241	7.115217477	8.404782523		
HRM	25	7.52	0.871779789	0.174356	7.16014699	7.87985301		
Total	100	7.63	1.368144065	0.136814	7.358530535	7.901469465		

Annexure 3: HYPOTHESES TESTING (Independent sample t-test)

		Levene's Test for EVA	t-test for Equality of Means							95% Confidence Interval of the Difference	
			F	Sig.	t	df	Sig. (2- tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Environmental Collaboration	EVA	.245	.622	-.464	98	.644	-.395	.853		-2.088	1.297
	EVNA			-.468	97.876	.641	-.395	.844		-2.071	1.280
Supportive Access	EVA	.537	.466	.425	98	.672	.341	.803		-1.253	1.935
	EVNA			.419	88.565	.676	.341	.814		-1.276	1.959
Immense Efficacy	EVA	.011	.917	-.464	98	.644	-.229	.495		-1.211	.752
	EVNA			-.467	97.516	.641	-.229	.491		-1.204	.745
Knowledge Integration	EVA	.005	.941	1.061	98	.291	.856	.807		-.746	2.457
	EVNA			1.061	95.544	.291	.856	.807		-.746	2.458
Innovative Virtual Environment	EVA	.748	.389	1.525	98	.131	1.421	.932		-.428	3.271
	EVNA			1.502	87.583	.137	1.421	.946		-.459	3.301
Enhanced Personalization	EVA	3.361	.070	.540	98	.590	.246	.455		-.657	1.148
	EVNA			.549	97.742	.584	.246	.447		-.642	1.133
Improved Timely Updates	EVA	.193	.661	-.610	98	.543	-.177	.290		-.753	.399
	EVNA			-.606	92.883	.546	-.177	.292		-.757	.403

* EVA– Equal Variances assumed

* EVNA–Equal Variances not assumed