

Proclivity Of E-Reading Versus Printed Among Generation Z

ABSTRACT

BACKGROUND

In present era people use many digital learning resources for education purposes and for getting extra knowledge, it promote healthy environment and also convenience in contrast to printed material. This growing trend impact on cognition and understanding of the user differently.

OBJECTIVE

This study aims to determine the frequency of students who prefer reading on printed text or other digital text and its effects on reading approaches.

METHODOLOGY

This study included a total of 250 samples using a convenient sampling technique. This study was carried out at different Colleges of Rehabilitation Sciences with the age limit of 19-23 year. The data was obtained by self-designed questionnaire based on 15 close ended questions.

RESULT

45.2% of the students prefer reading printed text while 17.2% of the students prefer digital text. Majority of the students choose availability 51.6% as the justification for preferring printed or digital text. For learning from gadgets 70.8% of the student's favour cell phones and 2.0% favour computer.

CONCLUSION

The study indicated that printed reading material is still the first choice in the particular geographical area although the digital text is more convenient. There is a need to discover the explanations that constrain or promote the use of such resource that encourages healthy environment.

KEYWORDS

Technology, learning, comprehension, reading and digital text

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INTRODUCTION

The first vital advancements of digital books started during the 1970s with Project Gutenberg and the Oxford Text Archive. Gutenberg project was coined by Michael Hart in July 1971, as a network venture to enable book accessible to all. Although these advances are here to make the world more productive on the other hand printed textbook is a physical book that has texts, images, etc., printed on paper¹.

Along with the historically learned information, there exist various different types of material in information as well as a wide number of modern methods of learning PDF copies of literature and can be extended not just to applications for self-learning, but also for general studying; they can also be used for purpose based education².

The widespread use of internet for obtaining information is widely seen in modern era. In today's time people use many digital learning resources for education purposes and for getting extra knowledge³. Digital text can be characterized as; content in computerized structure; as a book changed over into advance structure⁴. Digital know-how is essential as learning opportunity can arise everywhere, use of smart phones are widely seen for the learning purpose⁵. Text highlighting, highlights the significant concepts, thoughts and ideas and one of the prevalent ways to self-regulate learning from text⁶. Although there is agreement on the beneficial impact of highlighting in print reading, it is notable that some studies have discovered that highlighting may be harmful for the comprehension⁷. Further, numerous universal and national appraisal of understudies proficiency are not exclusively being conveyed carefully but on the other hand are including affordances that are increasingly explicit to advanced media connections⁸. In today's era, moving towards digital text is moreover evident in the insightful world, whereas, today, the use of digital text is continually developing⁹.

New learners emphasized about electronic reading advancements slowly replacing printed textbooks in the coming era¹⁰. The examination analysed the effect of E-books and cell phones in understudies learning and uncovered that having at least two cell phones fundamentally expanded recurrence of getting to E-books, the understudies have investigated their ability to utilizing E-books and portable innovation in the classroom, availability and cost reserve funds were found as an advantage; while usefulness and instructional method were accounted for as downsides to cell phone use¹¹. Furthermore, the emergence of e-books created a paradigm shift in the purchase of textbooks, considering e-book as an alternative to print books.¹² Because of this advancement trend, publishers are motivated to create a book in a variety of formats. The books are published in both print-based and screen-based formats¹³. The use of computer, laptop, tablets and smart phone are increasingly seen in teenagers, especially the use of smart phones can improve their reading comprehension not the use of paper text¹⁴.

Whereas some studies showed that the students of high school who reads digital text have notable lesser score in comprehension comparing with those with printed text. Likewise, the students of university have also showed the lower comprehension of digital text as compared to printed text¹⁵. one of the study take preferences of community college students regarding retrieve monographs in both printed and digital formats. From 79 completed surveys result indicated that 52% of the participants preferred print text and approximately 39% preferred digital text. While one of the participants (13%) preferred equally both¹⁶.

Another study mention that they use digital devices for daily use in their personal life, whereas 98.6% used for school daily¹⁷. Digital text has many advantages over printed text. They are easy to search their topics, no need to go library, easy to access at any place and any time, it takes minimal space, easy to carry, it has better display to visualize things and is time saving¹⁸. In spite of these various positive advantages of the e-books, there still are viewed as a disputable instrument, which offer ascent to numerous challenges and the inconveniences of the utilization of digital books in the foundation and colleges for a few unmistakable reasons¹⁹.

The readers who read from digital text reported increase discomfort and tiredness as compared to those who read from printed text²⁰. When reading from the printed textbook or newspaper article, participants were effective at recalling other applicable information, from the digital verses printed material. Whereas other studies showed that highlighting is good mnemonic strategy by the interpretation of text which enhance memory of attribute and key words⁶.

In this study author analyse about relationships between the analysing of digital versus printed textual content amongst 1,206 South Korean high university college students the results show, University College students had been place to have increased wonderful perceptions of the reading of printed text; studying desire depended on the purpose for studying²¹. Research conducted in 2017 indicates that, the majority students prefer to read printed text²². The study was conducted from Qasim University College of Medicine in 2015-2016. The result of the research is male were 64 (66.7%) and females 32 (33.3%). The consequences of the study demonstrated that the understudies incline toward digital text TBL as a course position, as it was a fascination for a large portion of the understudies and making them much progressively effective in the key test and digital text TBL build up the abilities expected to work gainfully in undertaking gatherings²³.

Study conducted in 2017 shows that about 92% said they thought best when reading in print, and more than four-fifths reported that whenever cost were the equivalent, they would prefer toward print text for both homework and reading comprehension²⁴. At Study conducted by saleh show that (72%) of the participants preferred printed text and (28%) of the participants preferred digital text. So, it seems that digital book development is moderate yet most of the perusers accept that later on digital book become more prominent than printed books.²⁵ Study conducted in 2016 shows that Digital text was discovered to contain engaging reading characteristics that assist learners to enhance their understanding of reading. This research therefore concludes that digital text is a gradually helpful tool for reading understanding²⁶. A study was conducted to identify if portable digital textbooks would increase the motivation of university students to read by improving cognitive learning strategies and self-regulation of learning. The findings indicate that students use more likely digital text to self-regulated learning strategies than the students using printed textbook²⁷.

The research was conducted in Israel during the first semester of the 2015 academic year shows that males' academic electronic preference is greater than that of females.²⁸ Study conducted in 2015 illustrate that there is a significant difference between the study groups in academic achievement favour to students using E books which increases their motivation towards the academic and concludes that E - book is more beneficial for the students which makes their life easier.²⁹ Study was conducted in UK on students the sample size of 1700 students in which 82% of the students used smart phones and tablets occasionally and for the study purpose while 18% of the students uses printed books for their assignments the evidence portrait a demanding picture where the combination of hand held digital device being used in flux meanwhile course learning device need to better allow a student flexibility and technology.³⁰ The study conducted from years 2000-2017 analysis revealed that the printed book reading has significant comprehension outcomes than digital reading³¹. The study conducted to identify the relationship between meta-cognitive experiences and learning for digital text versus printed text. This research has shown that better readers exhibit more meta-cognitive knowledge than poor readers and strategy instruction improve by reading ability³². Study conducted in 2015 conclude that that college students prefer printed books to digital books in both reading format for pleasure and in reading for school³³. Study conducted by miller is to identify perceptions of college students of digital textbook and student accepted that the printed course readings were more helpful than computerized course books³⁴. Numerous advantage available in E book increases the prediction that reading E books are advantageous learning tools that that foster fruitful learning experience³⁵.

The objective of our study is to find out the frequency of the students who favor perusing reading on printed text and those who favor perusing reading on digital text and also to find out the different effects on reading approaches.

Rationale

The emergence of the concept of a "paper-free world" demands a transition from the conventional paper-text approach to digital learning. Our research helps to establish how far the modern age readers have gotten in contributing to a paper free world.

METHODOLOGY

Research Design

Cross sectional, observational

Population

Age limit 19-23 years

Sample Size

250

Inclusion Criteria

Current DPT students.

Exclusion Criteria

Participants who are unwilling to take part in the study

Ethical Consideration

Informed consent will be taken from participants with adequate level of privacy and confidentiality of participants maintained.

Data Collection Tool and Procedure

The point of this exploration is to determine the student's preference for E-Reading versus Printed texts. This research was carried out at Colleges of Rehabilitation Sciences in the academic year of 2020 on students. The study design of our research is cross-sectional. The targeted population of this research were students. A total of 250 sample was included in this study, by using convenient sampling technique. The Data was collected by using Self-administered questionnaires from students. The questionnaire composed of 15 close ended questions which include questions regarding Demographic data of participants (Name, Age, Batch, Semester), preference of printed text and digital text, including both advantages and disadvantages of digital text and printed text, health problems/issues (headache, eyes strain, muscle strain, abnormal posture), Effectiveness (effects of digital text and printed text on recalling capacity and comprehension) preference of digital text and printed text, if the cost of both is same and awareness of students regarding world paper free day.

Data Analysis

After completing data collection procedure, the data was entered and analysed into SPSS software 20. Descriptive statistics are used to characterize the sample, both as a whole and academic stratified. This includes the measures of frequencies, percentages and mean \pm SD, t-tests and chi-square. No personal data or information was collected from participants as well ensuring the ethical considerations: The study was explained to the participants and the participant was voluntarily involved.

RESULTS

(Table: 3)
Devices you used for digital text reading learning?

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid cell phones	177	70.8	70.8	70.8
tablets	17	6.8	6.8	77.6
laptop	51	20.4	20.4	98.0
computer	5	2.0	2.0	100.0
Total	250	100.0	100.0	

(Table: 4)

Which type is time consuming?

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid printed text	119	47.6	47.6	47.6
digital text	131	52.4	52.4	100.0
Total	250	100.0	100.0	

The result of this study shows that the majority of the students prefer printed text which is 45.2% whereas preference of digital text is 17.2% this indicates that the time frame have not changed the preferences of the students and the ratio of both preference is 37.6%. When we ask from students what was the reason of choosing above preference (printed text or digital text), most of the students select availability (51.6%), easy to carry (31.2%), light in weight (10.4%) and cost effectiveness (6.8%).

In the modern era students must use electrical gadgets as a learning tool. When we ask from students' which gadget they prepare to use for learning. Most of the students select cell phone (70.8%), laptop (20.4%), tablet (6.8%) and computer (2.0%) .When the students were asked about which learning text is time consuming 47.6 % of the students believe that it is time devouring to read printed text while, 52.4% of the students believe that reading digital text takes time.

The increased use of digital text has caused discomforts in students. Approximately the students experience eyes strain (44%), experience headache (36%), feels that sitting in an abnormal posture creates problem (12%) and muscle strain (8%) When we ask from students regarding improvement of memory/recalling capacity while reading from printed text 84.4% students agree that their memory/recalling capacity enhance with digital text reading whereas 15.6% students was not agreed.

(Table: 1)

Prefer to read

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid printed text	113	45.2	45.2	45.2
digital text	43	17.2	17.2	62.4
both	94	37.6	37.6	100.0
Total	250	100.0	100.0	

(Table: 2)

Why to prefer above selective option?

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid cost effective	17	6.8	6.8	6.8
light in weight	26	10.4	10.4	17.2
easy to carry	78	31.2	31.2	48.4
availability	129	51.6	51.6	100.0
Total	250	100.0	100.0	

(Table: 5)

Feel any health issue after reading digital text for longer time?

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Headache	90	36.0	36.0	36.0
eyes strain	110	44.0	44.0	80.0
muscle strain	20	8.0	8.0	88.0
abnormal posture	30	12.0	12.0	100.0
Total	250	100.0	100.0	

(Table: 6)

Reading printed text increase your memory/recalling capacities?

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid yes	211	84.4	84.4	84.4
no	39	15.6	15.6	100.0
Total	250	100.0	100.0	

Regarding the effects of digital text reading on their comprehension most of the students experience no effect on comprehension (49.9%), other experience increments in comprehension (36%) and decrease in comprehension (14%) (Table: 7). When we ask from student's which text improves your learning efficacy most of the students choose printed text (52.0%), both text (38.4%) and digital text (9.6%).

(Table: 7)

Do you believe comprehension is affected by digital text reading?

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid increases my comprehension	90	36.0	36.0	36.0
decreases my comprehension	35	14.0	14.0	50.0
no effect on my comprehension	124	49.6	49.6	99.6
4.00	1	.4	.4	100.0
Total	250	100.0	100.0	

(Table: 8)

Which reading text improves your learning efficacy?

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid printed text	130	52.0	52.0	52.0
digital text	24	9.6	9.6	61.6
both	96	38.4	38.4	100.0
Total	250	100.0	100.0	

When we ask from students regarding the disadvantages of printed text, most of the students select printed text is heavier in size to carry (40.8%), expensive (24.8%), take lot of space (17.6%) and there is no option to increase text size (16.8%) As well when we ask from students regarding the disadvantages of digital text, most of the students has chosen eye strain (48.4%), battery issues (24.4%), distraction for reader (20.8%) and loss of information all of sudden (6.0%).

(Table: 9)

What are the disadvantages of reading printed text?

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid heavier in size, to carry around	102	40.8	40.8	40.8
no option to increase size of text	42	16.8	16.8	57.6
Expensive	62	24.8	24.8	82.4
take up a lot of space	44	17.6	17.6	100.0
Total	250	100.0	100.0	

(Table: 10)

What are the disadvantages of reading digital text?

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid battery issues	61	24.4	24.4	24.4
causes eye strain	121	48.4	48.4	72.8
loss of information all sudden	15	6.0	6.0	78.8
can be distracting for the reader	52	20.8	20.8	99.6
234.00	1	.4	.4	100.0
Total	250	100.0	100.0	

When we ask from the students about the awareness of World paper free day, most of the students had no awareness (76.8%), whereas the rest of the students were aware of World paper free day (23.2%) 39.2% students believe that the use of printed text should be reduced to keep the World paper free whereas 60.8% students believe that the use of printed text should not reduce.

(Table: 11)

Do you know about world paper free day?

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid yes	58	23.2	23.2	23.2
no	192	76.8	76.8	100.0
Total	250	100.0	100.0	

(Table:12)

Do you agree to keep World paper free; the use of printed books should be reduced?

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid yes	98	39.2	39.2	39.2
no	152	60.8	60.8	100.0
Total	250	100.0	100.0	

DISCUSSION

The results of this study show most students prefer printed text over digital text. Such studies supported the results of this study in Tsai, C.C 2016, the preference of male and female groups of students were printed text instead of digital text.

In the study Carey, J. 2019 among the students of two year and four-year college printed text were preferred most over the digital text¹⁶. In one more study Millar, M. 2015 results showed the students prefer printed text over digital text³⁴.

In our research, most of the students feels that eyestrain is the main health issue after reading digital text for a longer period of time and many researches related to this are also conclude this, the result of one of the research survey conducted by Kopper M.Mayor S. & Buchner A

in 2016 concluded that participants expressed a strong preference of eyestrain symptom after reading digital text³⁵.

In the study Manlu B H in 2017 investigates that screen light is one of the significant reasons of eye strain. To prevent from eye fatigue people who read digital text a lot recommend applying a 20/20/20 rule which is taking a 20 sec break in every 20 min by looking at something 20 feet away from you³⁶.

Regarding learning efficacy 52.0% students choose printed text. According to the researcher Scott. Morris, A., & Marais, B.³⁷ who conduct a research in 2017 in which they find a data through questionnaire and student confirmed the extensive use of digital resources for self-directed learning also has the impact of contemporary learning habits on learning efficacy.

Regarding disadvantages of printed text most of the students says that in reading printed text they can't increase the font size, heavier in size, take up lot of space, expensive and according to palsdottir who conduct research in 2019³⁸⁻³⁹.

CONCLUSION

The frequency of the student's preference for printed text is 45.2%, whereas 17.2% of the students opted for digital text, while 37.6% of the students on the other hand, and choose both. The findings of our research are evident by several studies. Concerning the drawbacks of printed text most of the students select printed text because it is heavier to carry around, whereas most of the students choose eye strain as a drawback of reading digital text.

REFERENCE

- [1] Bhatt A. A Modern Law Library Action: The Future of Digital Books in Indian Law Schools. *International Journal of Allied Practice, Research and Review*. 2018; 5(1):1-5.
- [2] Tsai CC. A Case study of english-Major students' Preferences for english reading from a Printed text versus electronic text. *Stanisław Juszczuk*. 2016 Dec 31:142.
- [3] Akçayır M, Dündar H, Akçayır G. What makes you a digital native? Is it enough to be born after 1980? *Computers in Human Behavior*. 2016 Jul 1; 60:435-40.
- [4] Cheng Y, Dong C, Liu R. The coexistence of printed book and electronic book in a book supply chain. In 2017 IEEE International Conference on Industrial Engineering and Engineering Management (IEEM) 2017 Dec 10 (pp. 1421-1425). IEEE.
- [5] Santoso TN, Siswandari S, Sawiji H. The Effectiveness of eBook versus Printed Books in the Rural Schools in Indonesia at the Modern Learning Era. *International Journal of Educational Research Review*. 2018; 3(4):77-84.
- [6] Yue CL, Storm BC, Kornell N, Bjork EL. Highlighting and its relation to distributed study and students' metacognitive beliefs. *Educational Psychology Review*. 2015 Mar 1; 27(1):69-78.
- [7] Willingham DT, Hughes EM, Dobolyi DG. The scientific status of learning styles theories. *Teaching of Psychology*. 2015 Jul; 42(3):266-71.
- [8] Leu DJ, Kinzer CK, Coiro J, Castek J, Henry LA. New literacies: A dual-level theory of the changing nature of literacy, instruction, and assessment. *Journal of Education*. 2017 Apr; 197(2):1-8
- [9] Parkes M, Stein S, Reading C. Student preparedness for university e-learning environments. *The Internet and Higher Education*. 2015 Apr 1; 25:1-0.
- [10] Lau KH, Lam T, Kam BH, Nkhoma M, Richardson J, Thomas S. The role of textbook learning resources in e-learning: A taxonomic study. *Computers & Education*. 2018 Mar 1; 118:10-24.
- [11] Al-Emran M, Elsherif HM, Shaalan K. Investigating attitudes towards the use of mobile learning in higher education. *Computers in Human behavior*. 2016 Mar 1; 56:93-102.
- [12] Seal PP. The Choice between EBooks and Printed Books: A Study among Hospitality and Tourism Educators and Learners. *Choice*. 2020 Jan 27.

- [13] Lestari KD. Screen Book Versus Printed Book: A Comparative Study on the Influence of Students Perceived Learning at six semesters on English department in University of Muhammadiyah Gresik. *Journal of English Teaching, Literature, and Applied Linguistics*. 2020 Aug 9; 4(2):73-83.
- [14] Yachina NP, Valeeva LA, Sirazeeva AF. E-Teaching Materials as the Means to Improve Humanities Teaching Proficiency in the Context of Education Informatization. *International Journal of Environmental and Science Education*. 2016; 11(4):433-42.
- [15] Sidi Y, Ophir Y, Ackerman R. Generalizing screen inferiority-does the medium, screen versus paper, affect performance even with brief tasks?. *Metacognition and Learning*. 2016 Apr 1;11(1):15-33
- [16] Carey J, Pathak A. Book Format Preferences of Community College and Four-Year College Students: Results from Two Urban Campuses. *Urban Library Journal*. 2019; 25(1):2.
- [17] Washburn S, Herman J, Stewart R. Evaluation of performance and perceptions of electronic vs. paper multiple-choice exams. *Advances in physiology education*. 2017 Dec 1; 41(4):548-55.
- [18] Koh, H. and Herring, S. Historical insights for e-book design. *Library Hi Tech*, (2016). 34(4), pp. 764-786.
- [19] Oyaid A, Alshaya H. Saudi University Students Views, Perceptions, and Future Intentions towards E-Books. *Malaysian Online Journal of Educational Technology*. 2019;7(1):69-75.
- [20] Rosenfield M. Computer vision syndrome (aka digital eye strain). *Optometry in Practice*. 2016 Feb 16;17(1):1-0.
- [21] Seok S, DaCosta B. Gender differences in teens' digital propensity and perceptions and preferences with regard to digital and printed text. *TechTrends*. 2017 Mar 1;61(2):171-8.
- [22] Ross B, Pechenkina E, Aeschliman C, Chase AM. Print versus digital texts: understanding the experimental research and challenging the dichotomies. *Research in Learning Technology*. 2017 Nov 3;25.
- [23] Sharaf F, Alnohair S. Comparison of medical students' learning approaches between electronic and hard copy team-based learning. *International journal of health sciences*. 2017 Jan;11(1):1.
- [24] Baron NS, Calixte RM, Havewala M. The persistence of print among university students: An exploratory study. *Telematics and Informatics*. 2017 Aug 1;34(5):590-604.
- [25] Saleh ZI, Mashhur AS. The Impact of e-Books on the Printed Books: e-Books Popularity, Growth and Future. In 2015 Fifth International Conference on e-Learning (econf) 2015 Oct 18 (pp. 125-130). IEEE.
- [26] Reid, C. e-books and Print Books Can Have Different Effects on Literacy Comprehension. *Education master*, (2016). pp. 325
- [27] Rockinson-Szapkiw AJ, Wendt J, Lunde R. Electronic versus print textbooks: The influence of textbook format on university students' self-regulated learning strategies, motivation, and text anxiety. *American Journal of Distance Education*. 2013 Jul 1;27(3):179-88.
- [28] Aharony, N and Bar-Ilan, J. Students' academic reading preferences. *Journal of Librarianship and Information Science*, (2018). 50(1), pp. 3-13
- [29] Ebied MM, Rahman SA. The Effect of Interactive e-Book on Students' Achievement at Najran University in Computer in Education Course. *Journal of Education and Practice*. 2015;6(19):71-82.
- [30] Cross, Simon; Sharples, Mike and Healing, Graham (2016). Learning with mobile devices: the changing place and space of distance learners' study. In: *EDULEARN16 Proceedings*, pp. 5385-5393.

- [31] Delgado P, Vargas C, Ackerman R, Salmerón L. Don't throw away your printed books: A meta-analysis on the effects of reading media on reading comprehension. *Educational Research Review*. 2018 Nov 1;25:23-38.
- [32] Norman E, Furnes B. The relationship between metacognitive experiences and learning: Is there a difference between digital and non-digital study media? *Computers in Human Behavior*. 2016 Jan 1; 54:301-9.
- [33] Byars, M.N. (2015). Printed Books versus Digital Books. *Digital Commons Cal Poly*, pp. 1-35.
- [34] Millar M, Schrier T. Digital or printed textbooks: which do students prefer and why? *Journal of Teaching in Travel & Tourism*. 2015 Apr 3; 15(2):166-85.
- [35] Köpper M, Mayr S, Buchner A. Reading from computer screen versus reading from paper: does it still make a difference?. *Ergonomics*. 2016 May 3;59(5):615-32.
- [36] Manalu BH. Students' Perception of Digital Texts Reading: A Case Study at the English Education Department of Universitas Kristen Indonesi. *JET (Journal of English Teaching)*. 2019 Oct 28; 5(3):191-203.
- [37] Scott K, Morris A, Marais B. Medical student use of digital learning resources. *The clinical teacher*. 2018 Feb; 15(1):29-33.
- [38] Pálsdóttir, Á. (2019). Advantages and disadvantages of printed and electronic study material: perspectives of university students *Information Research*, 24(2), paper 828.
- [39] Alhammad R, Ku HY. Graduate students' perspectives on using e-books for academic learning. *Educational Media International*. 2019 Jan 2;56(1):75-91

