

# Evaluation of Student Preference for Printed Books and E-books: A Quantitative Study

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**Abstract :** People tend to embrace emerging technologies to make their lives easier in every possible aspect. This has its impact in the field of education as well in terms of pedagogies, interactive tools, learning management systems, and more specifically instructional materials. Amongst the instructional materials, e-books have recently become popular in the sphere of education. It gained popularity during the pandemic situation when the shops were shut to get printed books which reinforced students to adopt e-books. This study intends to find the preference of the students of Velammal College of Engineering & Technology in Madurai with respect to e-books (not the interactive ones) and printed books so that the results can facilitate in decision making as to what kind of sources the educationists should invest on. A survey was conducted using a structured five-point Likert scale questionnaire. It was shared with the students and their responses were recorded. Random sampling method was used for the choice of the participants. Cronbach alpha test was carried out to

verify the reliability of the questionnaire. Having carried out the t-test to check whether the two groups vary from each other, the comparative analysis research methodology was used for data analysis. This study also deals with the pros and cons of both e-books and printed books based on the survey. The results of the study confirms that the students still seem to prefer printed books over e-books. The findings suggest that the educationists should prioritize student preferences and ensure the availability of light weight printed books everywhere.

**Keywords:** e-books, printed books, preference, Cronbach alpha, comparative analysis, students

## 1. Introduction

Books are available in two forms: the age-old traditional type of books that are available in printed form and the soft copies of the books that are in digital form. Owing to the advancements in technology, there are too many smart devices available around us and this influences the choice of the students with reference to printed books or e-books (Haddock et al., 2020). During the pandemic period the use of e-books has become part and parcel of our lives as online education promoted the transition towards digital instructional materials (Sun et al., 2021). Numerous studies have confirmed that the smart devices offer an almost similar reading experience like printed books as they have the features of flipping, triangulation etc.,

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(Salmerón et al., 2021). The effectiveness in terms of language acquisition with respect to reading from e-books compared to printed books is still debatable (Kaman & Ertem, 2018; Salmerón et al., 2021). However, the readers who read from smart devices tend to focus more on the features of the device rather than the content as they are easily distracted (O'Toole & Kannass, 2018). Nevertheless, some studies confirm that there are no differences in reading from the printed books or the e-books (Kaban & Karadeniz, 2021). The study by (Lin et al., 2021) on Thai EFL university students also confirms the same view. This aspect forms the crux of the study as it intends to find out which kind of books are preferred by the students of Velammal College of Engineering & Technology, Madurai.

## 2. Literature Review

Printed books are indispensable according to (Halamish & Elbaz, 2020; Støle et al., 2020) because they believe that these play a more instrumental role in education (Linuwih, 2021). The studies by (KazazoĜLu, 2020; Pardede, 2019) acknowledge that reading from the printed books helps the readers to acquire in-depth knowledge of the content which contributes towards continued concentration and immense retention. Lin et al. (2021) and Sage et al. (2019) propose that reading from the printed books results in better reading performances amidst the students which contributes intensely towards improved academic results. This is in line with the findings of the research studies carried out by (Delgado et al., 2018; Halamish & Elbaz, 2020; KazazoĜLu, 2020; Reich et al., 2019). Further, the study by Bao et al., (2019) identifies that the reading from the printed books for knowledge acquisition happens much faster than reading from e-books. This is confirmed by the findings of (Halamish & Elbaz, 2020; Støle et al., 2020). Loh and Sun (2019) opine that the students prefer to read from printed books for knowledge and understanding but at the same time they do not hesitate to adopt to e-books if the need arises.

The study by Reich et al. (2019) analysed the task of arranging the story sequence by the students; the students who did the reading from printed books scored over the students who read on tablets. In the same way, Salmerón et al. (2021) convince that the students with the below average learning capabilities suffer from low level of knowledge acquisition while reading from the smart devices; they seem to improve

while reading from the printed books. This could be due to the participants' misconceptions with respect to differentiating superficial reading and academic reading (Kuzmičová et al., 2020). Støle et al. (2020) identified that the students tend to read faster without much concentration when they use smart devices as the purpose is for browsing, entertainment, or chatting on social media. Palsdottir (2019) observes that the printed books present more scope for highlighting, underlining, and writing notes which help students to recall the context. These aspects provide enhanced understanding of the context compared to e-books (KazazoĜLu, 2020; Pardede, 2019). Contrary to this, the features of e-books like scrolling and navigating rather hamper the process of smooth reading for understanding instead of facilitating better reading experience (KazazoĜLu, 2020; Støle et al., 2020).

Many studies attempted to evaluate the intensity and effectiveness of reading after physical book reading and e-book reading (Halamish & Elbaz, 2020; Sage et al., 2019; Salmerón et al., 2021); it is noteworthy that digital reading sustains as a part of their mundane routine amongst the students (Eutsler & Trotter, 2020). This is because, being the digital natives, the generation of today has a more open and receptive attitude towards digital reading (Halamish & Elbaz, 2020; Kaban & Karadeniz, 2021; Sage et al., 2019) and this promotes greater motivation towards acquiring reading skills (Kaban & Karadeniz, 2021). According to Palsdottir (2019), most students are not aware of the amount of digital reading carried out by them; however, he does not agree with the conception of screen light affecting the eyes and confirms that the brightness actually stops the students becoming drowsy. Portability is an added advantage when it comes to e-books (Sage et al., 2019). This helps in storage of more materials for a long time in the most economical way (Sage et al., 2019). Additionally, e-books provide a platform to enjoy a user-friendly learning experience (Lin et al., 2021; Reich et al., 2019).

## 3. Methodology

This paper employs a comparative analysis research methodology to examine the preference of students with respect to printed books and e-books. To know the preference of the students, an online survey was conducted among the students of Velammal College of Engineering and Technology, Madurai using Google Forms. The questionnaire consisting of 29 closed ended questions was set based on the

parameters like previous knowledge, accessibility, better reading experience, challenges, areas of improvement, preference, and recommendation for the future. The questionnaire with multiple choice was given in the form of a five-point Likert scale, whereas 5 serving as Strongly Agree, 4 as Agree, 3 as Neutral, 2 as Disagree, and 1 as Strongly Disagree.

The data was collected among the I, II, & III-year Engineering students of Velammal College of Engineering and Technology. It was distributed to all the three-year students adopting random sampling method. Approximately 153 students responded to the questionnaire. As the questionnaire was created through Google Forms, all the fields were marked mandatory to submit the survey and so all the 153 responses are complete. The final sample consisting of 153 respondents is described in Table 1.

Sample Profile Description

**Table 1: Frequency on Gender Analysis**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	96	62.7	62.7	62.7
	Female	57	37.3	37.3	100.0
	Total	153	100.0	100.0	

**Table 2: Frequency on Age**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	17	43	28.1	28.1	28.1
	18	63	41.2	41.2	69.3
	19	32	20.9	20.9	90.2
	20	12	7.8	7.8	98.0
	21	2	1.3	1.3	99.3
	22	1	.7	.7	100.0
	Total	153	100.0	100.0	

**Table 3: Frequency on Year of Study**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	I Year	100	65.4	65.4	65.4
	II Year	24	15.7	15.7	81.0
	III Year	29	19.0	19.0	100.0
	Total	153	100.0	100.0	

**Table 4 : Reliability Statistics**

Cronbach's Alpha	N of Items
.898	29

Reliability Test

To understand the reliability of the questionnaire, the reliability statistics were taken considering all 29 items using Cronbach's Alpha reliability test. The summary of the reliability test is shown in Table 4 and Table 5

**Table 5 : Case Processing Summary**

		N	%
Cases	Valid	153	100.0
	Excluded <sup>a</sup>	0	.0
	Total	153	100.0

**Table 6: Frequency Table on Previous Knowledge**

**Have you ever accessed e-books anytime earlier**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES	94	61.4	61.4	61.4
	NO	59	38.6	38.6	100.0
	Total	153	100.0	100.0	

**Table 7: Group Statistics of T-Test on the preference of the respondents who have the previous knowledge on e-books**

	Have you ever accessed e-books anytime earlier					Std. Error Mean
		N	Mean	Std. Deviation		
Accessibility - printed books	Yes	94	3.59	1.062	.110	
Accessibility - ebooks	Yes	94	4.09	.969	.100	
Better reading experience - printed books	Yes	94	3.89	1.042	.107	
Better reading experience - ebooks	Yes	94	3.20	.887	.091	
Challenges - printed books	Yes	94	4.02	.961	.099	
Challenges - ebooks	Yes	94	3.73	.870	.090	
Areas of improvement - printed books	Yes	94	2.73	.906	.093	
Areas of improvement - ebooks	Yes	94	3.29	.887	.092	

From the above table, it is understood that 94 out of 153 respondents have already accessed e-books and have the complete exposure and knowledge of the e-books. It is observed that over 61.4% of the students know how to handle e-books.

Then, on having these 94 respondents as a count, these variables are analyzed against four major criteria as accessibility, better reading experiences, challenges, and areas of improvement. In order to find out the preference under these four categories, a group T-Test was carried out. The encapsulation of the data interpretation is presented in Table 7.

The reason for selecting only the response of the students who have previous knowledge of e-books is that the students who are exposed to the usage of both printed books and e-books would be able to assess them better. From Table 2, it is obvious that, in terms of accessibility, e-books were found to be more accessible than printed books. As per the response, accessibility of e-books has a mean value of 4.09 whereas the printed book has a value of 3.59. E-books are viewed by users as the always-available resources for quick reference (Leonard & Snyman, 2019; Zhang et al., 2017) as they need not go to a shop to get e-books. Though nowadays, the printed books are available on online platforms like Amazon and Flipkart, not all the books are available all the time. And regarding accessibility, students can access the e-books anytime and anywhere through their mobile phones, whereas it is not possible with printed books (Banik et al., 2019; Johnston & Salaz, 2019; Mizrachi et al., 2018; Piramanayagam & Seal, 2020).

Then on observing, the criteria of better reading experience, printed books have a mean value of 3.89 whereas e-books hold a mean value of 3.20. Though the difference is very minimal, still printed books give a better reading experience as per the respondents. As per the responses obtained, the printed books are observed to be more comfortable to be used for a longer period as it doesn't cause eye strain. Scrolling on the phone for longer hours makes our eyes strained and it causes other health problems as well. Graphic characters used in printed media don't cause eyestrain easily whereas while using an e-book, the issue of eye fatigue is crucial (Isfaeni et al., 2018). (Chen et al., 2019) finds out that people have issues with taking notes in e-books. Though e-books allow us to highlight and take notes, the respondents feel more comfortable highlighting using a pen highlighter on the printed books and consider taking notes handy

using a paper and a pen. This is in line with the findings of (Banik et al., 2019; Johnston & Salaz, 2019; Mizrachi et al., 2018; Piramanayagam & Seal, 2020) acknowledging that the students do not find it comfortable to highlight with digital features on an e-book. E-books never give the feeling of accomplishment such as giving pleasure on seeing the completed pages, whereas printed books give such feelings of accomplishment. Of course, e-books can be shared through online modes of communication but still, it doesn't give the pleasure of gifting our favourite book to our loved ones. The better reading experience rendered by printed books is due to the feel and experience they provide. Printed books give a sense of completeness, which is not present in the e-books. The ability to hold a book, turn its pages, and mark key sections with a highlighter or pen is a unique experience that cannot be replicated in e-books. This unique experience is the reason why respondents prefer printed books for better reading experiences.

Considering the challenges, printed books have a 4.02 mean value whereas e-books hold a 3.73 value. It signifies that printed books have more challenges than e-books. As per the response, printed books are heavy to carry whereas e-books are carried through their mobile phones. Many fundamental books weigh heavy that brings backache to the learners. Printed books are costlier than e-books. The making of printed books costs high as it involves the cost of paper, cost of printing, cost of labelling, binding etc. whereas these costs can be excluded in e-books. Hence, e-books cost much lower than the printed books. Carrying heavy books can be a physical burden, and the cost associated with printed books makes them less accessible. In contrast, e-books are easier to carry and are significantly cheaper than printed books. These factors make e-books more favourable among students.

Considering the last criteria on the areas of improvement, the response of printed books is considerably less than e-books. The response of the mean value observed on printed books is 2.73, whereas e-books is 3.29. The students want the e-books to be improved to be user friendly and hence they prefer printed books. The study by (Alionis et al., 2020) states that blue-violet light emitted while looking at the digital screen can cause eye strain and dryness. Reading e-books definitely strain our eyes, whereas printed books can be read for hours. Considering the posture problems, reading both e-books and printed books cause posture problem. As

we know that we are already addicted to electronic gadgets, when we use it even for reading most of the students tend to bend on their neck and it will cause posture problems. At least with printed books, we can have it straight to the face to read.

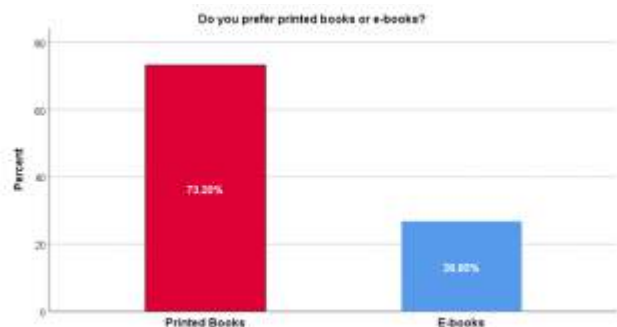
## 5 Discussion

The study intended to identify the students' preference of printed or electronic forms of books in Velammal College of Engineering & Technology. The sample of 153 engineering students randomly from I, II, & III year were asked for the responses. Considering the responses of the whole 153 respondents, the mean value of all the four criteria namely better reading experience, areas of improvement, accessibility, and challenges were found out for printed books as well as e-books. And the frequency of both the values was found out.

From the Table 8, it is obvious that 112 out of 153 respondents prefer printed books whereas e-books are preferred only by 41 students. Though, there is a trending emergence in technology and e-learning, people still prefer printed books. It is analyzed through a descriptive frequency test shown in Figure 1. This result is synonymous to the findings of (Abuloum et al., 2019; Loh and Sun, 2019) and a

**Table 8: Frequency of the preference of the respondents on printed books and e-books**

Do you prefer printed books or e-books?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Printed Books	112	73.2	73.2	73.2
	E-books	41	26.8	26.8	100.0
	Total	153	100.0	100.0	



**Fig.1: Frequency of the preference of the respondents on printed books and e-books**

straight contrast to the findings of (Alfiras & Bojiah, 2020).

## 6. Conclusion

From the study, it could be concluded that the students are accessing e-books but still prefer the printed books for reading owing to the ease of highlighting, taking notes as well as the touch and feel of the physical form. Out of 153 respondents, only 41, which is nearly one fourth of the sample population, have expressed their preference for using e-books over printed books. The results of the t-tests also encapsulate the fact that the printed books are easy to access and instrumental in enhancing the reading experience better. This confirms that the age-old tradition cannot be easily forgotten. Further, when it comes to challenges, printed books have a 4.02 mean value whereas e-books hold a 3.73 value. It signifies that printed books are heavy to carry whereas e-books are carried through their mobile phones. It is explicit that the students expect the printed books to weigh less so that they can be carried easily. Despite its ease of accessibility and availability, the e-books are not preferred as this fail to enrich the reading experience of the users; hence, inclusion of interactive tools and provision of good flow of hi-speed Internet could play a role in changing the mindset of the students in future.

## 7. Recommendations

- It is recommended to print books that weigh less.
- It is better to print books with latest graphical features to make them more striking.
- There could be a qualitative study in this light with open ended questions to bring in more first-hand evaluation of the context.
- Comparison of the responses from varied colleges of Madurai may help in generalizing the findings to a greater extent in the respective context.
- Comparison of results with colleges in other parts of the state will enrich the discussions with more interpretations.

## 8. Limitations

The study is conducted on the available students of an engineering college in Madurai and so the findings cannot be generalized.

There is a possibility of varied responses from the students of an arts and science college as the students there may not be exposed to technology as much as the students from an engineering college.

### 9. Future Research

It is important to find out the lapses of e-books to rectify them as technology is getting embedded into education rapidly. Studies in this regard could be initiated to benefit the easy adoption of e-books in educational institutions.

E-books could be easily adopted if the students tend to learn using smart devices from the school itself. Studies in this light will give insights into the importance and effectiveness of smart classrooms.

### 10. Survey Questionnaire

1. Email:
2. Name:
3. Age:
4. Department:
5. Year of Study:
6. Have you ever accessed e-books anytime earlier?
  - a. Yes
  - b. No
7. Please select one of the options on (5-point Likert scale namely i. Strongly disagree ii. Disagree iii. Neutral iv. Agree v. Strongly agree) based on your preference on Printed books:
  - a. Printed books are easily available.
  - b. Printed books are easily accessible.
  - c. Printed books are heavy to carry.
  - d. Printed books are costlier than e-books.
  - e. Printed books provide more knowledge than e-books.
  - f. Printed books motivate the readers to read.
  - g. Printed books strain your eyes.

h. Printed books can be used for longer period of reading.

i. Printed books allow you to highlight and mark notes easily.

j. Reading printed books might cause you posture problems.

k. Printed books are tangible.

l. Printed books give the feeling of accomplishment.

m. Printed books can be passed on to my closed ones.

8. Please select one of the options (5-point Likert scale namely i. Strongly disagree ii. Disagree iii. Neutral iv. Agree v. Strongly agree) based on your preference on e-books.

a. E-books are easily available.

b. E-books are easily accessible.

c. E-books are easy to carry.

d. E-books costs high.

e. E-books motivate to read more.

f. I can gain more knowledge using e-books.

g. E-books make our eyes strain.

h. For longer period of reading, e-books are convenient.

i. E-books allow me to highlight and mark notes.

j. I do not know how to access e-books.

k. E-books have only limited period of access.

l. E-books make my system storage full by occupying more space.

m. E-books are more interesting to read.

9. Do you prefer printed books or e-books?

a. Printed Books

b. E-books

10. Assume that the printed books are outdated, are you ready to accept the e-books completely?

a. Yes

b. No

11. Do you suggest reading e-books for your upcoming generation?

a. Yes

b. No

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