

# Logistics Students' Reading Preferences

M. K. Puteri Zarina, M. Y. M. Yusop, W. M. Dahalan, S. I. Safie, A. H. Yahaya



**Abstract:** Paper and pencil is now being increasingly replaced with the screen and keyboard. The scenario of the current reading adventure is made more advanced with the advent of digitised materials. This study investigates the reading preferences and behaviours of a group of logistics undergraduate students at two private colleges in Malaysia. The investigation revolves around their format preferences when reading academic materials, and the contextual influences that may affect their behaviours. The responses from 125 respondents are solicited through an online tool called Academic Reading Questionnaire. The findings reveal that the respondents still prefer printed reading texts to the electronic ones particularly for learning purposes. However, numerous factors affect their reading behaviours such as ease of access to the materials, cost, intricacy and importance of the reading texts to the course.

**Keywords:** digital reading, printed materials, logistics, reading preferences, reading behaviours

## I. INTRODUCTION

In the previous decade, the entire media scenario has been reshaped by digitisation. The present-day culture and society are heavily dependent on this digital media. Since daily activities are bombarded with most things electronic, and devices like the terrestrial-based or landline telephones or desktop computers have been drastically replaced with mobile media gadgets. The fact that access to the Internet is conveniently easy indicates that smart gadgets like smart phones and mobile workstations like laptops are thus used in most contexts and situations. This reduces the dependence on paper and pencil. These days, university students the world over are required to purchase reading materials for learning purposes. Learning may be made rather challenging when some required materials may only be available on reserve in the campus library for students' limited use where only a few can access these materials. However, with the advent of today's digital technologies, lecturers and tutors post or upload their teaching points and reading materials on their course web pages which are freely and conveniently accessible to their students.

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All these materials are meant for students to read for their academic pursuits. One's ability to analyse and synthesise information and build new concepts is an indicator of information literacy. Reading comprehension – the ability to process and comprehend the message in a text – is a determinant of success in the reading skills acquisition process.

Numerous studies in the cognitive process of reading show that a text format, either electronically or in the printed form, can affect one's comprehension. Reading strategies such as browsing and scanning for targeted information are suitable for online tasks namely e-mail sorting, headline reviewing and fact finding.

Another facet of the reading skill that is now a focus among researchers is to discover how the linear reading process via the printed format affects readers' deep learning and comprehension.

Understanding our students' preferences when reading is important as their preferences would normally influence their reading behaviours. This paper investigates logistics students' format preferences when engaging with their academic reading materials, and the factors that affect their reading preferences and behaviours.

## II. LITERATURE REVIEW

Nkordeh, Oni, Olowonni, Bob-Manuel examine the impact of social media on the reading habits of Nigerian youths and to determine whether it provides the youths with an alternative source of education [1]. It was found that the youths in Nigeria tend to use the social media merely for online social purposes thus contributing to deteriorating reading culture among them. Very few of them use the social media for educational purposes.

Cross-cultural differences in the behaviours of young people in their writing and reading technological practices is the focus of a study by Farinosi, Lim and Roll [2]. The research was conducted in Germany, Italy and the UK by exploring the respondents' behaviour when writing on a keyboard and reading from the screen. It was found that there were no major differences between German, Italian and British students.

Their preference of the two language skills on paper and pencil against the keyboard were divided into several categories: aesthetical factors; habitual practices; interpersonal relationships between interlocutors; physiological conditions; technological factors and ecological conditions.

In addition, both writing on paper or keyboard and reading from paper or screen were also not found mutually exclusive as they were advantageous and disadvantageous concurrently.



Another study which looks at students' exposure to both printed and digital texts also found that gender and ecological factor such as print exposure are important determinants in reading comprehension skills development among adolescent readers from various socio-economic status (SES) backgrounds [3]. Female students were found to read more than the male students though this reading frequency does not necessarily reflect satisfactory reading skills mastery. Traditional reading practice from printed sources scored less with the students though extended reading from the printed sources was a good activity to distinguish skilled learners from the less-skilled ones.

Myrberg and Wiberg researched on European undergraduate students' habit and attitude when reading [4]. They found that the students preferred digital textbooks to the prints for studying purposes. Nevertheless, paper reading materials were proven to be the preferred choice among the technology-savvy students who normally read electronically. This happens when the application interfaces fail to address the flaws of the screens regarding spatial elements.

Reading from online sources is the current trend as students' reading habit is influenced by the media and technology. This phenomenon is shown by Akarsu and Daryemez in their study which aimed to identify the effects of the predominant use of the Internet and other multimedia resources in the reading habits of a Turkish university students. Most of the respondents admitted that their daily activities which included reading were mostly done online [5]. Another study, on the contrary, demonstrated otherwise. Through a survey administered to a group of graduate students at the Faculty of Social Science, Rajshahi University, Bangladesh, the newspaper reading habits of the students were examined [6]. It was shown that majority of the respondents preferred printed newspapers to the digital ones.

A study by Hou, Rashid and Lee examined the effects of two common mechanisms i.e. The Cognitive Map Mechanism and the Medium Materiality Mechanism on the outcomes of electronic vs print readings [7]. They found that cognitively, paper books and digital ones are equivalent. However, the study implied that it was not the medium of presentation that governs reading outcomes, rather it is the role of text presentation in facilitating or impeding reader's cognitive ability that shapes the reading process.

### III. METHODOLOGY

The following are the two research questions for this study: What are the reading format preferences of logistics students when engaging with their academic reading materials? What are the factors that shape their reading preferences and behaviours; and How do these factors influence their reading behaviours?

#### A. Data Collection

For data collection purposes, an online collection tool called Academic Reading Questionnaire (ARQ) which is an online survey tool was used. This survey contains 21 items which function to elicit students' responses regarding their reading experiences. Students' preferences, attitudes and behaviours towards their academic reading activities in both

electronic and printed formats were drawn through 14 Likert-scaled statements. Respondents were required to choose from 5 options given i.e. Strongly Agree, Agree, Neutral, Disagree and Strongly Disagree. In addition, respondents were also encouraged to write short comments in the space provided after each item, though it was not necessary.

#### B. Population

The respondents for this study were randomly selected from two private colleges majoring in logistics. 45 respondents were in their year, 59 in the final year and 21 were in their second year. Their average age was 22 years old. Out of the 130 registered students at the colleges, five respondents were not able to participate as they were on the deferment list due to numerous reasons. None of the respondents reported of having any visual impairment that might affect their reading format preferences.

## IV. RESULTS

All 125 respondents attempted the fourteen statements seeking their preferences and behaviours when reading, yielding a 100% response rate. These statements were divided into two categories. The first category investigates the respondents' reading preferences whilst the other explores the students' behaviours during their reading activity which reflects their preferences. The discussion of the results that follows are made in relation to these two categories.

#### A. Reading Preference and Behavior

Students' reading preferences are reflected in nine items in the survey. Generally, the logistics students in this survey preferred printed course reading materials to the electronic ones. However, the high costs of printed materials and the convenience of access to the materials influence their behaviours. Among the comments given by the students were contexts and lengths of the reading texts as they were relatively affected by these two factors when reading. Students were found to be more at ease when reading shorter or lighter materials electronically. They also favoured reading information which are secondary to their classroom learning points. Strong preference for print materials was articulated when the students felt reading was essential to their understanding. Printed reading materials are found to be beneficial to the students as these materials help them with deep learning. Several students also expressed their preference for print materials due to eye fatigue over extensive viewing of electronic materials.

Below are the selected comments from the results obtained: Survey questions - numbers 1 and 14: "I prefer to have all my course materials in the printed format (e.g. books, course file materials, handouts, etc.)," and "I prefer to read my course materials electronically."

These two items were focused on seeking the respondents' perception about their academic reading format preferences in general.

Question 4 - "I prefer printing my course readings out to reading them electronically." This item refers to students' reading behaviour that reflects their format preference. Question 8 attempts to gauge students' engagement with

digitised materials - "I like to make digital copies of my printed course materials." Students may prefer printed reading materials but may also keep the digitally formatted ones for future references.

The results have clearly shown a preference for printed reading materials. 53 comments derived from these four questions (1, 4, 8 and 14) help explain and elucidate the answers. The students' comments are coded into several categories: the cost of printed materials; more effective learning with printed materials; contextually dependent preference (e.g. length of text, importance to course, and personal interests); eyestrain due to reading on electronic gadgets; convenience and ecological benefits of electronic reading materials. Selected comments from the respondents are listed below. Students responses to questions 1 and 14 by percentage count are shown in Tables 1 and 2 below:

- "My preference relies heavily on the purpose of using the material. I need the printed format if I do it for an assignment. However, when it comes to pure reading, I prefer the electronic version. E- readings are appropriate to me as it means that I don't have to carry bulks of paper or books around."
- "Printouts are costly and time-consuming."
- "I believe I learn better from printed materials, but the digital copies are also important, just for backups."
- "E-readings are cheaper than printed ones but I just prefer having the materials in my hands. To me, it is distracting to read from the electronic devices."
- "Although I feel that digitised materials are convenient and conserves paper, I do favour reading from printed texts. This is because the latter allows me to interact with the text like highlighting pertinent points, etc."
- "Printed materials, to me, truly defies the need for us to go green."
- "Reading from printed texts is more pleasant to the eyes than doing so from electronic sources."

Three items in the survey sought for students' format preference based on the length of the reading text:

- less than 5 pages (Survey Item 2),
- more than 5 pages (Survey Item 3),
- more than 10 pages (Survey Item 12).

53% (n=66) expressed their agreement or strong agreement for shorter electronic readings to longer ones (Table 3). 39% (n=49) strongly agreed that they preferred to read longer printed texts. All respondents were favourable towards reading from the printed sources for texts longer than five or ten pages. Table 4 below shows that 70% of the respondents preferred to read texts longer than 10 pages in print.

Survey item 11 - "I prefer digital textbooks to printed ones," is the only single item in this survey that concerns a specific type of academic reading source. Only 18% strongly agreed or agreed to this (n=23), and 70% of the respondents disagreed (n=88). From the 54 comments received, students who preferred e-sources to printed materials cited the weight and cost factors as the reasons for their choice. Nevertheless, several the respondents highlighted the advantages of both

electronic and printed materials - "Electronic reading materials are convenient to use when looking up some information, but printed ones are easier for comprehension."

The respondents' perception of the convenience of electronic reading materials is the focus of survey item 5 - "I find it more convenient to read my reading assignments electronically than to read from prints." The students' responses are almost evenly divided on this with 42% agreeing and 41% disagreeing. 19% were unsure with the stimulus. 45 comments were received with most of them on single behavioural preferential statements. Similar strands of sentiment were prevalent from the comments as shown below:

- "My preference would depend on the level of importance of the reading task."
- "I tend to get headaches reading too much or too long from electronic gadgets, so I prefer reading from prints if there is a lot for me to read. However, I always have my laptop with me around to be accessible to the reading materials anytime anywhere."
- "Electronic materials are economical but may not be so helpful for highlighting or annotating purposes."
- "Reading from electronic sources allows me to access them from any device."

Table. 1 Responses to Survey Item 1

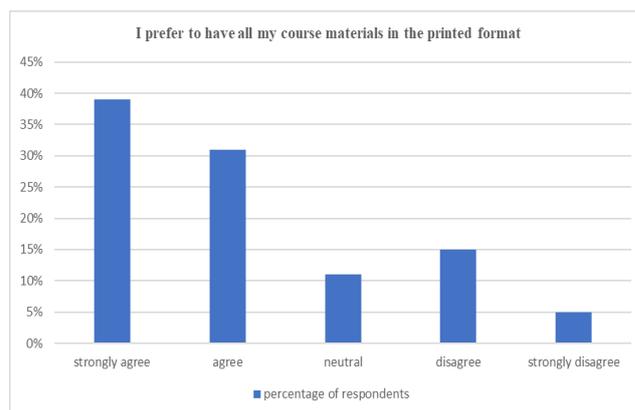


Table. 2 Responses to survey item 14

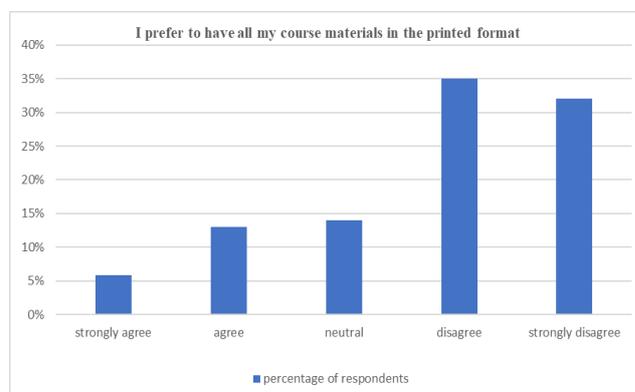


Table. 3 Responses to survey item 2

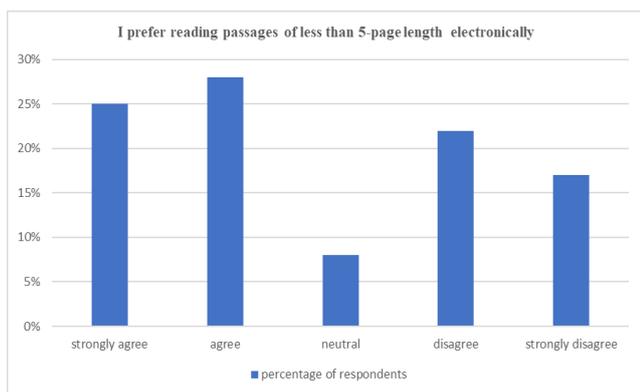


Table. 5 Responses to survey item 6

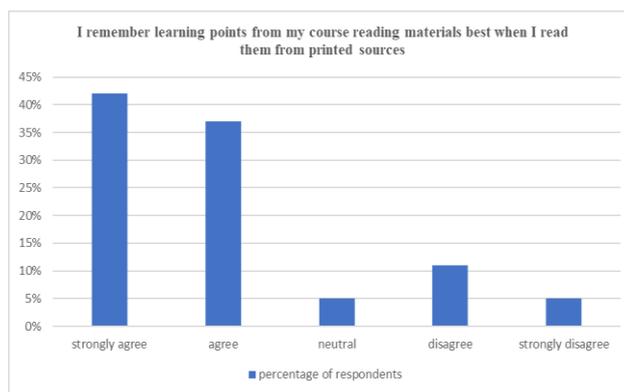


Table. 4 Responses to Survey Item 12

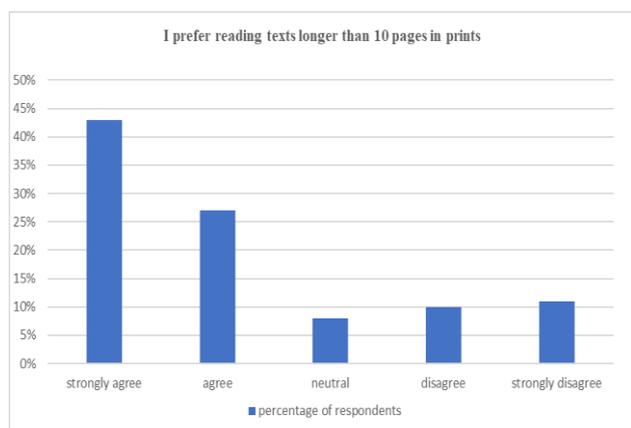
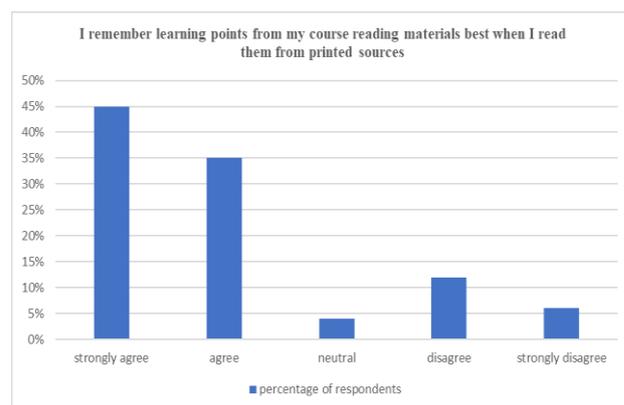


Table. 6 Responses to survey item 7



**B. Learning Engagement and Experience**

Five survey items that were directed at soliciting the students' learning engagement and experience as reflected by their learning factors and behaviours also revealed the students' preferences for printed materials. Tables 5 and 6 below illustrate the obtained from survey item number 6 - I remember learning points from my course reading materials best when I read them from printed sources; and 7 - I can focus on the learning points better when I read them in the printed format. In both items, around 80% of the respondents (n=99, n=100 respectively) agreed or strongly agreed with the statements.

In the 68 feedbacks on these two statements, the participating students further explained that their preferences depended on the reading context such as significance to the course, length of the reading material or their own personal interests in the subject matter read. Four students clearly expressed their preferences for the digitised reading format, e.g.: "Electronic materials allow me to recall information more easily as I can write my feedbacks or note the important points on the texts."

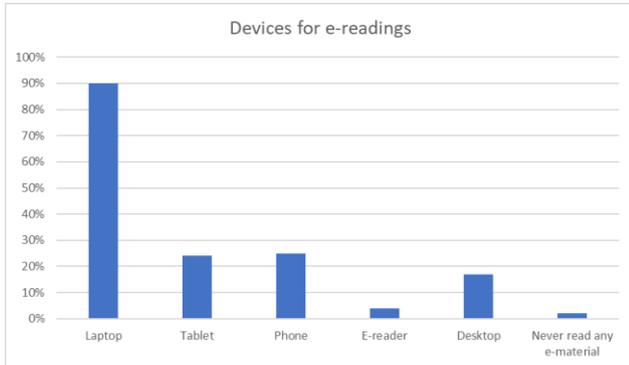
Over 75% of respondents (n=94) agreed or strongly agreed with survey item 9: "I learn better by highlighting and annotating my printed course reading materials." Making highlights and annotations while reading is a behaviour that exhibits a reader's dynamic engagement in a reading material for effective assimilation of information. On the other hand, only one third of the respondents (33.6%, n=42) agreed or strongly agreed with a similar statement in relation to electronic materials: "I normally make highlights and notes on my digital readings" (Survey item 13). Two-thirds of the respondents (66.4%, n=83) disagreed or strongly disagreed. A few of the 23 comments showed that students would make such highlights and notes on their electronic readings if they knew how. Most of the electronic reading materials do not permit such interaction. The failure to engage with the reading materials may also be due to lack of convenient access to the technologies that enable digital highlighting or annotating functions on the gadgets.

One survey item i.e. number 10 relates to another behaviour that echoes engagement during the learning process – "I find more inclined to revise my course reading materials when the notes are in print." 76% of the participating students in the survey agreed or strongly agreed with the statement. Some of the 18 comments received mentioned about the context and circumstances during reading: "My preference for my reading format depends heavily on the length of the reading, my daily schedule, and the amount of reading that I have to handle." On whether the reading format had any bearing on their preference – "I am alright with both electronic & printed formats, regardless."

**C. Preferred devices for electronic reading materials**

All 125 respondents answered survey item 15 - "I read my digitised reading materials on a \_\_\_ (please check any that apply)." As can be seen in Table 7 below, approximately 90% worked on a laptop for this, followed by smart phones and tablets (25% and 24% respectively).

**Table. 7 Preferred devices for e-readings (can be more than one)**



**V. DISCUSSION**

The findings in this study showed that the majority of the 125 undergraduates majoring in logistics in this study who were primarily in their early twenties, still preferred reading their academic texts in the printed format particularly for the purpose of deep learning. The respondents admitted that they understood their learning points better when they read from the printed materials. Despite the advanced technological alternatives, students in this study believed that printed reading materials still worked best for deep learning. The reasons cited for students' preference for the printed format included:

- Tactile advantages of holding, flipping and thumbing through the printed materials;
- Linear page handling against vertical scrolling;
- Better recalling of learning points on printed pages; and
- Highlighting and annotating advantages on their printed reading texts.

The context and circumstances of the reading materials are the two factors of students' reading format preferences. Often, the expensive cost of books or e-reading printouts influence students' behaviour when it concerned their choice of reading materials. The main hindrance to the students' preference for the printed materials was the costs of procuring the materials. Another factor that influenced students' preference was the significance of a particular reading material to a particular subject. The greater the importance or complexity of a reading material, the higher the likeliness of a student to print it out. The logistics students in this study also expressed their preference for the printed materials specifically for texts longer than ten pages. However, there was some variance in behaviour of the students for shorter texts. Some of the students said that they did not mind reading shorter texts from online sources. Others, on the other hand, stated that they would print shorter texts for cost effectiveness and ecological factors.

Some of the respondents felt that the reading format did not have any bearing on their reading tasks. The favour for print over digitised reading may likely decrease once the users master the technological features that enable them to highlight and annotate their reading texts electronically. In addition, the respondents in the study also mentioned about the advantages of the e-readings such as the assistance with word search etc. E-reading was also favoured by the students in this study due to low cost and ease of access to the online materials. Several of the students also cited the burden of the weight of the printed materials as one of its drawbacks.

The findings in this study have reaffirmed the literature on the concerns and issues faced by our students in their reading processes – the quality of their learning against the ease and cost of access to their reading materials [8].

**VI. CONCLUSION**

What this research has attempted to investigate the concerns pertaining to the logistics students' reading preferences and behaviours as shaped by various factors. This study has looked at only a group of logistics students in two colleges in Malaysia. The findings may then not be generalisable to students in other academic programmes. Future research may be recommended for investigation into the behaviours of students in different types of learning institutions and learning environments. The ease of using the online data collection instrument such as AQR foregrounds its uniqueness as an ideal tool for longitudinal and periodical investigation into the behaviours of the community of language users.

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