

## Lecturers' Opinions and Preferences: Printed Book or E-Book for Science Teaching

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### ABSTRACT

*Even while printed books and electronic books frequently contain the same material, they differ greatly from one another and each format has its own benefits and drawbacks. This study's purpose is to acquire a thorough grasp of the opinions and preferences of the lecturers in employing book formats for science teaching. The findings of the study would assist other lecturers in thinking through and selecting implementation strategies for employing those two types of book formats. Then, this study identifies the advantages and disadvantages of digital versus print books as well as the reasons why lecturers favor one over the other through this research. This study used a qualitative phenomenological methodology. The stages of the research are selecting research informants, collecting the data and analysis to drawing conclusions. The instrument used in this study is in depth interview. Data collection was carried out through interviews with lecturers who have used both books' formats. Based on the results of the study it was found that there were 35% lecturers who preferred to use printed books, 10% lecturers who preferred to uses e-books, and 55% lecturers who preferred to use both printed and e-books. They preferences were based on the situational of teaching and learning process.*

**Keywords :** Lecturers' preferences, Printed book, E-book, Science teaching



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### INTRODUCTION

Since the pandemic, the term "online learning" has become widely used. It permits learning to take place online, without face-to-face interaction. With the use of an internet connection, students can access learning materials remotely at any time and from any location (Abernathy, 2020). The lecturer may teach students somewhere, and so do students. Estevez et al. (2015) state that online learning is becoming a more popular educational option for students who cannot attend face-to-face sessions at university or senior high school due to time and space issues. By using online learning, the learning process is almost similar to offline learning; lecturers may give presentations with supported programs. Yee (2015) mentioned that students might study in a web-based learning environment where course materials are available online. Students could talk with their classmates and teachers using a learning communication platform.

There are numerous platforms that offer tools for and promote online learning as it has

grown in popularity. The first is a Zoom meeting, a fantastic substitute for online conferences that may help learners meet the demands of today's digital world by enabling communication with many of people without getting in touch directly (Pratiwi, Afandi, & Wahyuni, 2019). It helps lecturers or instructors run online classes, particularly in English. By fully engaging with medical students and testing their four language abilities through these interactions, several Zoom features allow English lecturers to convey and explain the subject matter in a variety of ways (Guzacheva, 2020). In addition, teachers can create and assign projects to students in an online classroom using the Google Classroom platform, which makes it easier for students and teachers to collaborate. Edmodo is the next. It is a website for education that adapts social network ideas and adjusts them for use in the classroom. Nonetheless, there are still many different types of platforms that facilitate online education.

In addition to choosing the right platform, you should also think about the media. Books and other teaching and learning aids are one of its mediums. whether it be an e-book or a printed

book, lecturers must select the types of book formats utilized for teaching. The learning process can be improved by using books as a learning resource. Textbooks, supplemental materials, or other types of books might make up the actual book. The success of the learning processes and the outcomes of learning are significantly influenced by textbooks and enrichment materials. Books can be used as learning resources or as learning media to enhance students' learning activities during the learning process. The inclusion of books in learning activities in the classroom can improve students' conceptual comprehension of concepts as well as other competencies (Isfaeni, Corebima, Suwono and Rohman, 2018).

Additionally, the availability of books is also given priority in Indonesian education. Books often include educational materials or learning literature about a specific scientific topic. The book includes instructional materials with exercises that serve as a manual for teachers and students. The value of books is so great that they are prioritized and used by students to help them build their own critical thinking skills. Students will struggle to learn without books, both in class and on their own.

There are benefits and drawbacks to grow up in the technological age. These developments have increased productivity, but occasionally the use of technology can make older methods seem obsolete. Regarding the publishing industry, this couldn't be more accurate. It appears that the way information is interpreted has completely changed as a result of these technological advancements. In other words, especially in publishing industry recently not only publish the printed book but also e-book. Even there are two kinds of books, people will clearly prefer which they are more likely to utilize because of the variations in how consumers use these products.

There are two types of books available today: printed books and e - books. Printed books are instructional resources that are tangible, can be held, and come in the shape of book or paper sheets. Printed books do serve as both traditional teaching tools and educational resources. Nevertheless, despite being conventional, it is still capable of making a valuable contribution and playing a positive role in education.

Based on some studies, there were numerous findings found that using printed book was still adorable. They enjoy the tactile quality of print books. The pages can be turned and the

object can be felt as well as held. Khalid (2014) found that around 85% of his respondent agreed that the majority of texts were still in the form of printed books. The students preferred printed textbooks for a variety of reasons, but readability, use, and mobility were the main ones. Readability refers to how simple it is for learners and teachers to concentrate on the materials and how simple it is to make notes on the text or highlight. Millar and Schrier (2015) also had similarities result of their study that since some students' desire to preserve their printed books, they value the ability to refer back to their notes and highlighted passages in printed books.

Then, Srirahayu and Premananto (2020) add a point to printed books on their study. According to their research, printed books have unique qualities that cannot be replicated by digital technology, including the tactile experience of holding a book, the feel of the paper that can be directly felt (each publisher uses a different type of paper), and the aroma of the book that is released as each page is opened. Additionally, when digital natives use e-books, they are frequently distracted by social media. And Byars (2015) also had similarities finding that the most interviewees admitted that they choose printed books over other types.

Next, for active, student-centered learning to be most effective, printed media can motivate students to participate in the learning process. Students are encouraged to read in environments that are more convenient and comfortable for their eyes when using printed media.

When using learning media, especially book media, the issue of eye fatigue is crucial. Print books are more aesthetically pleasing than online books, according to research comparing the two types of books (Jeung, 2012). Printed media has graphic characters that do not make eyes not tired quickly. It is caused by graphic characters used in printed media don't cause eyestrain very rapidly. This graphic facilitates students in comprehending the course material. The use of graphic characters in printed book media, both in the form of writing (letters) and images, can help students comprehend the subject matter more readily. As a result, the printed book medium is still incredibly important for learning.

The use of printed books has its limitations, which is the next crucial aspect. Srirahayu & Premananto (2020) state that it's tough to transport printed books anyplace. If a

printed book is not handled properly, it will rapidly become damaged, and if it is kept too long, its colour will turn slightly yellowish. Food and beverages that the informant frequently brings when reading a book can also damage printed books. Then, environmentally-inimical could appear. The removal of trees is one of the causes of environmental deterioration. Printing on books does indeed come from trees. They obviously have no positive environmental effects. cost of printed books is high.

Lynch (2012) states that an advanced technological invention, the e-book is anticipated to undergo enormous advancements that will eventually allow it to replace traditional printed books in the near future. It becomes a fairly common type of educational medium used by students nowadays. Sehn and Fragoso (2015) states that as mobile reader devices became more widely available at the end of the first decade of the twenty-first century, the popularity of e-Books began to rise. As COVID 19 spread since 2019 in Indonesia, students have been familiar in using devices and having e-books on it. Students can easily search for information because e-Books have made it possible for conventional literature to be converted to digital formats.

Tuah et al., (2019) states that E-books are books or documents that have been scanned into digital form as images, texts, or videos and then shown on a computer. Gibson & Gibb (2011) add that an e-book is a fascinating book with elements that are offered in electronic form and textual material in digital documents. In other words, A digital book, often called an electronic book (e-book), is a kind of book that can be digitally opened using a computer, netbook, or mobile. It is a publication that includes text, graphics, and sound and is released in digital format so that it may be read on computers or other electronic devices.

E-books could replace the position of printed books. As Lee, et.al (2013) stated that potentially, printed books will be phased out of the school curriculum in favour of e-books. This is a widely held belief, especially in light of the rising use of technology. A few additional names for electronic books include e-textbooks, e-books, e-texts, and digital textbooks. Then, Dobler (2015) adds that when examining their various features, there is a large variety of e-textbooks available that include well-known aspects of traditional textbooks into a digital

format that can be accessed through the internet or an app.

E-book has its own characteristics. Embong, et. al. (2012) mention that hardware, often known as a reader, software, and e-Book files, are the three fundamental parts of an e-book. Portable electronic devices called hardware-based e-books are primarily made for reading e-Books or other types of publications. Then, Software-based e-Book readers are applications that show an e-data Book's on a device. These programs include Microsoft Reader, Adobe Acrobat Reader, and Adobe Acrobat E-Book Reader. And, A file with an embedded signature is referred to as an e-book file type. It provides instructions to the operating system on how to handle that file. A user can determine the sort of file they have by looking at the file extension at the end of the file name. The format of e-book is PDF, EPUB, MOBI, AZW, etc.

E-book has its well-known advantage; portability. Besides that, there are numerous advantages that offered by e-books. E-books are used by many learners and lecturers because they have several benefits, including easier buying and delivery, simple storage and backup, the capacity to read on many devices, change the font size, add text to multimedia, and have a wide number of devices are all features of electronic books (Fojtik, 2015). Korwitts (2016) adds that because e-Books are so convenient and the e-Book itself fits comfortably in the hand, having an e-Book instead of a printed book relieves the stress of lugging large traditional printed books. Users; students and lecturers should just click the link to the e-books or save them to their devices; it is unimportant how many books you save because they are only in your possession.

Then, E-books can be downloaded for free or bought. The majority of consumers don't mind paying it because an electronic book typically costs far less than a printed book. As Daniel (2012) states that the use of digital formats helps to achieve greater economies of scale and lower distribution costs. It goes since e-books lessen the need for paper and ink.

Besides, it has intriguing features. Font size adjustment, text-to-speech facilities, dictionaries, automatic page turning, and animation hotspots are e-book features that may have a significant adverse impact on a student's literacy abilities. It implies that the characteristics of e-books are more fascinating and

comprehensive. The e-features books can increase the reader's motivation (Vaala & Takeuchi, 2012). Moreover, because e-book can be opened by devices, it doesn't worry if there is lack lighting and hard to read as reading printed books. devices need to open the e-book. Because the gadget has its own light, using it eliminates the need for lighting. Even in the dark, one can read an electronic book using a device.

Despite their widespread use and benefits, experts and educators are unsure about the usage of e-books in education. Some e-books, according to Liaw and Huang (2016), are not available in digital format or cannot be downloaded for free. As a result, students must take more time to obtain a certain e-book, which may cause them to fall behind in their studies. Then, even the device makes everything simple and useful. On the other side, the battery life of the device is constrained, and it needs to be charged. In a different instance, the cost of the invention exceeds that of the printed book. Internet access is also necessary. Sometimes the lecturers and students may experience technical issues, preventing the user from accessing the e-book. In the distant area, internet access is not always available. And, the file will be lost if the e-book gets infected. To secure e-book files, several security measures are required. Some applications for securities are not free.

Then, Singer & Alexander (2017) and Walsh (2016) raise concerns about its effects on critical thinking, other language proficiency, and in-depth reading comprehension. It happens since when an e-book was too long to read, students tended to skim or scan it, focusing only on the most significant parts or keywords they think. Richter & Courage (2017) add concern on the detrimental effects of digital reading on users' attention spans because e-books require more time to read. This theory might be supported by the fact that tablet users frequently activate connections and access the Internet (Piotrowski & Krmar, 2017) or that they prefer to talk more about the device than the information in the book, which could divert students' attention away from reading (O'Toole & Kannass, 2018).

Moreover, one of this weakness's flaws is copyright concerns. Copying is exceedingly simple, which is undoubtedly a problem in and of itself. It is particularly prone to harm, including from exposure to viruses or misuse-related file damage. E-books' marketing capabilities might potentially be a drawback. Many people in this

day and age still do not have access to technologies that can access them.

By having these contrast opinions, it could be seen that lecturers will have clear preferences as to which of these book formats they are more likely to choose due to differences in the advantages of using them. There has been discussion over whether technology (e-books) will totally replace paper books for years.

In science teaching, both kinds book formats must be used especially there are some lecturers conduct teaching and learning process offline and online. Even the content of book is similar, it does not guarantee the way of teaching by using each book is similar. As it has been known that science teaching needs a high-level concentration to teach and learn. So that, in choosing book format must be considered well.

In short, the introduction of electronic books (e-books) altered the place of printed books in the classroom. The opinions and preferences of the lecturers at Muhammadiyah University in Jambi are investigated in this study. It is intended that the findings of the study would assist other lecturers in thinking through and selecting implementation strategies for employing those two types of book formats. Then, this study identifies the advantages and disadvantages of digital versus print books as well as the reasons why lecturers favour one over the other through this research. Aside from this study, there will be some concrete evidence on the choices made when buying printed or electronic books from interviews with people who the researchers personally know as well as from other people's research.

## METHODS

This study employed a qualitative phenomenological methodology to acquire a thorough grasp of the preferences of the lecturers in employing book formats. Its population comes from the lecturers of University of Muhammadiyah Jambi. Purposive sampling was used to pick the samples for this study. And, the samples of this study included 21 lecturers who have used or have been using both books' formats; printed book and e-book. The stages of the research are described in Creswell's (2015) qualitative approach with phenomenological design, from selecting research informants through data collecting and analysis to drawing

conclusions. The instrument used in this study is in depth interview.

In collecting the data, after having 21 lecturers as samples, they were interviewed deeply related to their experience in using printed and e-book, the advantages and the limitation using both format books, their preferences and opinions in choosing printed book and e-books and the strategies to maximize those advantages and minimize those books limitations. In this study, words and deeds are the sources of data. Those data were recorded and their important points were written down on paper.

There were eight core questions in depth interview. By the core questions, there were two questions as a requirement question whether the samples were suitable for this research. Then there was a question as determination of their preferences in choosing book format. And other questions were used to collect other information in terms of their opinions in using both books format. The samples' experiences with both printed books and e-books were a major emphasis to get their opinions in choosing printed books and e-books for science teaching. And there were other additional questions that came when there needed to be defined deeply. For the eight core questions are listed on table below:

**Table 1.** Core Interview Questions in terms of Printed Books and E-Books

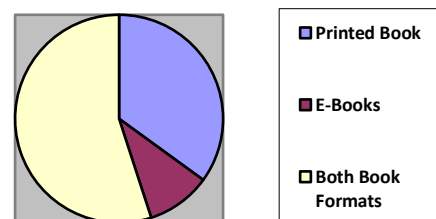
Questions	Aims
Have You Ever Used Printed Books for Science Teaching?	Requirement for being Research Samples.
Have You Ever Used E-Books for Science Teaching?	
What Kind of Books Format are You being Used Currently?	Confirmation Sample's Teaching Condition
Printed Book or E-Books, Which One Do You Think Better for Science Teaching?	To Know Samples' Preference in terms of Printed Book or E-Books.
What are The Advantages of Printed Books as long as You Use It?	
What are The Limitations of Printed Books as long as You Use It?	
What are The Advantages of E-Books as long as You Use It?	To Know Samples' Opinion in Using Printed Books and E-Books.
What are The Limitations of E-Books as long as You Use It?	

Then, the data analysis used here was interpretive qualitative data analysis. Analytical activities are carried out by sorting, organizing and unifying, synthesizing, searching and finding patterns from interviews and FGDs with the samples (Creswell, 2015). The stages of data analysis refer to the theory of phenomenological analysis including: data management, here the data were put into a document file in order to be easier in organizing, copying and pasting words, phrases, sentences, or paragraphs from interview transcripts and FGDs. Then, Epoche or Bracketing, at this stage all forms of prejudice, conjecture, assumptions, or the researcher's experience from the beginning, process, to the end of the research were labelled. After that, generating and developing codes, themes, or categories, all aspects of the data were disseminated so as to find and list every statement that is relevant to the topic and gives significant value to the research (horizontalization). The next is, Cluster meanings, the data were organized, grouped important statements into themes or meaning units, eliminating data or statements that overlap and repeat. And, structural synthesis, this last stage was developing the core framework (essence) of the experience and puts together the pieces that have emerged so that it becomes a comprehensive experience, showing themes, patterns, and relationships.

**RESULTS AND DISCUSSION**

**1. Results**

After having 21 samples of this research, they were asked the fourth question of core questions. The question was about their preference using printed books to e-books. The result was using both books format was the highest range. It was continued by using printed book and the last one was using e-books. The data was drawn on the figure 1, as follows:



**Figure 1.** Lecturers' Preference in Choosing Book Formats for Teaching

By data above, it could be seen that, from 21 samples, there were 35% or 7 lecturers preferred in choosing printed books. They believe that in learning process; offline and online, printed books have the key in achieving the goal of learning process. It is because, by having books in hand, the atmosphere and the mind (lecturer and students) will focus on it.

Then, there were only around 10% of samples or only two lecturers who preferred choosing e-books. The conditions of these lecturers who always go outside get used to use e-books. They got its portability, and they feel e-books are innovative way in science teaching. They thought that students for nowadays need an innovative learning media so they will get new experience and get more challenge in exploring the use of e-books while learning.

Then, it was out of predicted result for the researchers. After all samples delivered their opinions about the limitations of each book format, more than half samples suggest to use those book formats in order to minimize each of limitations, because the learning process was still in shifting online and offline. And there were around 55% of samples or 12 lecturers who chose these two kinds book formats for teaching. Those lecturers used blended learning method; sometimes learning process was done virtually and sometimes offline.

## 2. Discussions

### a. Using Printed Books

On this study, all lecturers confirmed that they have ever used printed books on their teaching and learning process. And currently half of samples used this book format. Then, there was around 35% of lecturers prefer to use this book format for teaching.

They agreed that using printed books offer higher level of concentration in learning, since the students were asked to focus on reading it. As Khalid (2014) had stated above that readability, use and mobility become one packet of main advantage in using printed books. Its readability offers concentration in teaching and learning process.

Additionally, some lecturers report that when utilizing printed books, the information might not always be presented in a way that is easy for students to understand. As a result, when lecturers clarify the content, students may add notes to the books or highlight key passages. They will be able to clearly recall what they have

learned whenever they read their printed books again. It is as similar as Millar and Schrier (2015) arguments on the value the ability to refer back to their notes and highlighted passages in printed books. It is in line with Bouck's (2016) opinion that use of printed is more comfortable and familiar. Lecturers also state that they do not need to have device in reading printed books neither do internet. And they believe students also think the same since they live in the location that is not having good internet connection. Moreover, some lecturers expressed their proudness in having printed book. There are some indications that students have acquired specific subjects thanks to printed books. Those written books could be gathered in a tidy cabin, where they could refer to them anytime, they needed the information. Additionally, it is difficult to throw away printed books because it was promised that they will one day be valuable again. And, they also shared their experience that students who read books are more likely to retain what they have read and have a stronger emotional connection to the textual material. By increasing their knowledge base and levels of interest, this has a significant impact on their ability to learn in general. Reading a book's contents in-depth as opposed to just skimming through it on gadgets and smartphones is a natural habit.

Even, printed books are still dominated to choose, sometimes some lecturers have encountered its limitation. One main point that all lecturers encountered is difficult to carry. It is in line with Srirahayu and Premananto (2020) statement which is printed books is tough to transport to anyplace. This becomes reason for students to say forget in carrying the printed book. Then, some lecturers often found students left their printed books in some places such as canteen, library, etc. And the next meeting, they just copied their friend's book.

Then, durability becomes obstacle for printed book (Kreton and Naletelich, 2016). The physic of printed books sometimes is risky to damage, it could be wet, yellowish and so on. Besides, there were two lecturers who really care for nature also argued that trees are the source of printed books. The removal of trees is one of the causes of environmental deterioration. They obviously have no positive environmental effects. Also, some lecturers complained that going to a bookstore or waiting students to print the printed book is wasting time. And sometimes

it needs extra money to purchase the printed books.

After that, the font used on printed books is static. Sometimes lecturers feel hard to read the text. So, they will automatically adjust the reading space between text and their eyes. Then, when reading text, lecturers hard to find certain keywords that they forgot to highlight. It will be different when they read e-books that can enlarge the font and find certain keywords whenever it needed (James, 2008).

And, printed book needs extra effort to share with friends or students. Lecturers sometimes find additional good book for students. When that book is in the form of printed book, lecturers always ask students to copy. This process needs time for students to copy it because of queue in copying. Or students may need time in order to get money in copying it. It would be different if the book is in the form of digital. As Sidabutar, et.al (2022) state that digital books can be shared with multiple readers at once, unlike printed books.

#### b. Using E-Books

There were 10% of samples used e-books. It was because the lecturers were in duty that made learning process only done virtually. It meant that they use e-books for teaching.

On this study, most all of lecturers asked their students to use E-books to support learning process. And on this case, there was 10% of lecturers felt using e-books is better. They send e-books in the form of PDF, so the students do not need to waste their quota whenever they need those books. Because of that condition, lecturers found some benefits in having E-books. Around 80% agreed that e-books are easier to purchase, simple, efficient to use and offer some features that make students easier to use it. Because lecturers and students may access and read books easily through information technology tools, giving the impression that they are reading a paper book, e-books can be interactive. As there are no additional costs associated with printing digital books, they are more affordable. These are in line with Fojtik (2015) statement that including easier buying and delivery, simple storage and backup, the capacity to read on many devices, change the font size, add text to multimedia, and have a wide number of devices are all features of electronic books are offered by E-books. Vaala & Takeuchi's (2012) add that the e-features books can increase the reader's motivation. Also, e-

books are fit comfortably in the hand (Korwitts, 2016), this idea was mentioned by most all lecturers, because of this, there would be no problem to keep some e-books on devices. And of course, whenever and wherever we need to read that e-book, we might access it easily, as long as it is saved on devices. Then, some lecturers agreed that e-books are cheaper and mostly free. According to Daniel (2012), using digital formats enables higher scale economies and cheaper distribution costs. It makes sense because e-books use less paper and ink.

On the other hand, some limitations are also encountered on using e-books, device memory must have a large capacity. Some lecturers claimed that, occasionally, when devices demand a lot of space for system upgrades, e-books would be accidentally deleted. It implied that they would have to download it once more in order to use it. It relates to the durability of e-books as Kreton and Naletelich (2016) research.

Students who frequently had their devices loaded with games, photographs, and other applications also experienced this. Then, during the teaching and learning process, it might be challenging for lecturers to keep an eye on how their students are utilizing e-books. It happens since e-books are operated in one device that has many functions such as smart phones that have many applications on it that are possible to distract students in learning process.

Then, they also argued that reading by e-book format, sometimes made eyes are tired easily. For sensitive people, it could make their eyes redder after reading e-books because e-books use light and even the text can be enlarged it does not mean make eyes comfortable. As similar opinion with Hakkinen et al., (2012) who state that Eyestrain and nausea symptoms were caused by all near-to-eye displays, however the severity of these symptoms varied depending on the device. Problems with the display's optics and design, text arrangement, headset fit, use context, and individual differences were linked to the negative effects.

Moreover, some lecturers thought that using e-books can make students not focus in getting meaning on a text they are reading. They may get distraction from another application in their gadget, and they may also



do skimming or scanning when they meet a long text of learning materials. This case can make critical thinking, language proficiency, and in-depth reading comprehension are all impacted (Singer & Alexander (2017) and Walsh (2016)).

c. Using Printed Books and E-Books

Next interesting point, on this study, more than half of lecturers used both printed and e-books for one kind of book in teaching and learning process. It could be such a solution to be between using printed book and e-book. Based on lecturers' experience, they gave e-books to students and when offline class was held, they asked students to print certain pages that would be taught in the classroom. They believed this way could minimize the limitations of both formats book. Students would not say forget to bring since they ordered to photocopy man in campus to copy before the learning process started. They seldom to leave their printed e-books somewhere since there were only several pages and those could be put in their bag. In teaching learning process, lecturers could keep an eye on students' attention to the printed e-books. In addition, students could focus on what were they learning, they might highlight several important points and gave additional simple note on that printed e-book. The problem faced was, at the end of using printed e-books, sometimes students did not keep the printed materials that have been learned before. So, whenever they needed previous topic information about certain topics, they needed to recall what did they learn or lend friend's printed e-books.

The findings of this study, however, cannot be applied to all lecturers. The tiny sample size of this study also becomes a limitation. Further research may examine the difficulties in using e-books in learning activities and examine lecturers' readiness to implement e-book-based activities in the classroom as this study solely focuses on lecturers' attitudes of using e-books or printed books.

### CONCLUSION

Both printed books and e-books have special qualities and fulfil diverse purposes in satisfying students' reading requirements, which can vary depending on individual demographic, contextual, and situational aspects. According to the findings of this study, some lecturers used a

certain book format. It based on their situational teaching process; online or offline learning. While using both types of book formats was used by more than half of the study's sample. They prefer this way since they teach their students not only offline mode but also online mode. They asked their students to print e-book, whenever they needed to discuss the topic deeply in offline class mode. So, the students would be more get their concentration.

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