

Tech Savvy High School Students and Their Textbook

Preferences

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Abstract

As the world enters a digital era, schools have progressed electronically in numerous ways. The purpose of this study aimed to discover how tech-savvy high school students in an international school in Thailand responded to the technological shift in the introduction of eTextbooks. Quantitative research design and descriptive analysis were utilized in data analysis. 179 high school students participated in an electronic semi-structured questionnaire with results indicating the majority of the students preferred a combination of both eTextbooks and print textbooks. Print textbooks were more beneficial for students' learning, and students felt that print textbooks should not be replaced by eTextbooks. On the other hand, most of the students' experiences with eTextbooks were negative. Aside from agreeing and disagreeing with stated reasons for using and not using eTextbooks, students freely expressed their personal viewpoints on eTextbook usage. The information obtained from this study is invaluable to schools as they plan on replacing print textbooks with eTextbooks.

Keywords

digital textbooks, etextbooks, print textbooks, textbooks

1. Introduction

Digital technologies have opened up countless doors for new learning opportunities and paved paths towards a more connected society where learning and collaboration are significant. They have also played a significant role in preparing students for the real workplace that continue to revolutionize based on the ongoing technological innovations (García-Valcárcel, Basilotta, & Lopez, 2014). The key factors influencing the availability of ICT integration in schools are “material, personal and time-related, and include the lack of computers, lack of Internet access, the lack of expertise in computer use among teachers, and the teachers' lack of time for becoming involved in educational initiatives of this type” (Badia, Meneses, & Sigalés, 2013, p. 790). These limitations would gradually diminish with the increases in teacher ICT competency and more technological equipment in classrooms (Badia et al., 2013).

One obvious digital tool that has entered schools is the digital textbook, or better referred to as the eTextbook. The eTextbook had been penetrating the textbook market steadily these past few years (Baek & Monaghan, 2013; Millar & Schrier, 2015) with its usage varying across different educational facilities and countries. Despite the fact that eTextbooks may not be new for more advanced countries, its usage in developing countries is at much lower levels. This lower usage is usually limited to affordability and to those who have a working knowledge of English as most eTextbooks are in available in the English language. This research attempted to investigate textbook preferences (eTextbooks or print textbooks) of high school students as most eTextbook related research are university based and there has been minimal research on eTextbooks at the high school level.

2. Literature Review

2.1 Digital Technology in the Classroom

The results of using digital technology in the classroom have been favorable. Digital technology had contributed to the vast improvements in increased student self-reliance and understanding concepts, skill development, motivation, and responsibility. The significant usage of ICT by innovative European secondary school teachers to support problem-solving learning had also been fruitful (OCDE, 2003; as cited in Garc á-Valc árcel et al., 2014). Moreover, both teachers and students had reported significantly high degrees of satisfaction in collaborative learning projects via digital technology with other schools and through cross-border communication with overseas students (Baca, 2010; as cited in Garc á-Valc árcel et al., 2014). Teaching faculty have found eTextbooks extremely useful as they not only act as a text but also a tool in teaching. Moreover, eTextbooks have enabled textbook firms to further expand their services into educational technology products and services as well as increase the interaction among instructors and students through the Learning Management System (LMS) (Bossaller & Kammer, 2014).

Schools that promoted and employed school internet usage have been successful in creating a constructive and collaborative learning environment through the integration of technology in classroom activities. Internet searches had also enabled students to broaden their scope and understanding of the subject, while socializing through the interpersonal learning collaboration process (Kolloffel, Eysink, & Jong, 2011; Gómez, Puigvert, & Flecha, 2011).

2.2 eTextbooks

eTextbooks gained market entry in the 1990s and have been growing ever since (Baek & Monaghan, 2013; Millar & Schrier, 2015; Yu, 2012). eTextbook usage jumped tremendously in 2008 (Johnson, 2011; as cited in Baek & Monaghan, 2013) and its entry had reduced the demand for print textbook sales and textbook rentals due to its competitively lower prices (Maxwell, Little, & Stites-Doe, 2011; Weisberg, 2011; Young, 2010a, 2010c). As the affordability of university print textbook purchases had been on a decline due to recent skyrocketing U.S. textbook prices, the availability of study material has

been on a decrease (Advisory Committee on Student Financial Assistance, 2007). A statistical analysis also indicated that those with eTextbook preferences were male students, graduate students, and older students (McGowan et al., 2009).

Despite the growing trend towards eTextbook usage (Maxwell et al., 2011; Millar & Schrier, 2015), studies indicated that students of both genders (McGowan, Stephens, & West, 2009; Millar & Schrier, 2015; Woody, Danel, & Baker, 2010) still have a strong preference for print textbooks over eTextbooks because of the “look and feel” (Book Industry Study Group, 2010; National Association of College Bookstores, 2010; Young, 2010b). Approximately 75% of the students who had participated in a study by the Book Industry Study Group (2010) indicated that they preferred print textbooks because of the convenience, familiarity, ease in reading and ability to take notes. In fact, the statistical study conducted by McGowan et al. (2009) revealed that there was an overwhelming demand for regular print textbooks instead of eTextbooks. These tech savvy Generation Y students may be continuously connected to technology (Ng, Schweitzer, & Lyons, 2010) but they were not using it while growing up in the school system in their earlier years (Shih & Allen, 2007), hence the preference for print textbooks (Knutson & Fowler, 2009; Sadon, 2010; Yu, 2012).

Five Californian state universities participated in a study that explored the students’ attitudes towards eTextbooks in 33 courses. Only 33% were satisfied with eTextbooks while more than 50% felt that eTextbooks were easy to use and older students had more positive eTextbook experiences (Baek & Monaghan, 2013). A two-year longitudinal study on university students also revealed that freshmen felt uncomfortable with eTextbooks or eReaders and were skeptical about their effectiveness. However, those freshmen became familiar with their eTextbooks by the end of their first year and most seniors eventually purchased an eReader. It was also discovered that the eTextbook and paper textbook teams did not show any significant learning differences (Weisberg, 2011).

Maxwell et al. (2011) discovered in their study that lower prices, accessibility, and user-friendliness of eTextbooks contributed to the growing openness towards eTextbooks. College students based their textbook purchases on prices and their ability to keep the textbook. Aside from that, students also selected their textbook preference on their learning styles and the ease of use (Chulkov & VanAlstine, 2013).

2.3 Future of eTextbooks

The move, acceptance, and adoption of eTextbooks is gradual, and it would be a premature move to completely replace print books with eTextbooks now (Shepperd, Grace, & Koch, 2008). The current sense of overwhelming uneasiness in using eTextbooks by University students is alarming as universities have future plans in adapting licensed eTextbooks in their institutions (Young, 2010a, 2010c). Another important point to note is the fact that campus bookstores may become bookless once digital textbooks completely replace printed textbooks (Young, 2010c). By continuing to offer a selection of print and eTextbooks, students will continue to have the multiple textbook media options

available to them that would work best for them (Chulkov & VanAlstine, 2013). It cannot be generalized therefore, that just because Generation Y has embraced technology, they would immediately embrace eTextbooks and replace printed textbooks with digital ones (Knutson & Fowler, 2009; Sadon, 2010; Yu, 2012).

2.4 Research Questions

The purpose of this study was to explore the various aspects associated with the preferred type of textbooks of high school students through the aid of five research questions:

Research Question 1: To find out which type of textbook(s) high school students prefer.

Research Question 2: To investigate the various impacts textbooks have on student learning.

Research Question 3: To find out if the students' experiences with eTextbooks had been positive.

Research Question 4: To find out the reasons behind high school students' eTextbook usage.

Research Question 5: To obtain the opinions of high school students on the future of eTextbooks.

3. Research Methodology

The quantitative research design was selected for this study and descriptive statistics employed for data analysis. The study took place at one international school in Thailand that utilized both print textbooks and eTextbooks with high school students as the target population. An electronic questionnaire (Google Forms) was sent by the school to its 356 high school students to participate in the study and the response rate was 50.3 percent or 179 students.

A semi-structured electronic questionnaire comprising of two main parts and a total of 16 questions, were employed to address the five research questions. The first part (four questions) addressed the "*Student Profile*"; student's gender, age, grade level, and nationality. Part two contained 14 questions with the focus on the students' "*Textbook Preference*" under the following topics: (a) Textbook preference; (b) Impacts of a textbook; (c) eTextbook experiences; (d) Reasons behind using and not using eTextbooks; and (e) students' opinions on the future of eTextbooks.

4. Results

4.1 Respondents' Profile

Out of 179 international high school respondents, slightly more than half (55.9%) represented the female gender, with a lower male representation of 44.1%. In terms of the three age range groups, the majority of the students were aged between 14-16 (52%) and 17-19 (45.2%) while only a mere 2.8% were above 19 years old (Figure 1). Grade 9 students were most actively involved in the study (30%), followed by an equivalent percentage of 25% from both Grades 11 and 12, while Grade 10 (20%) showed the least interest (Figure 2). Asians dominated the study (87.1%), followed by North Americans (3.9%), and other nationalities made up the minority participants (Figure 3).

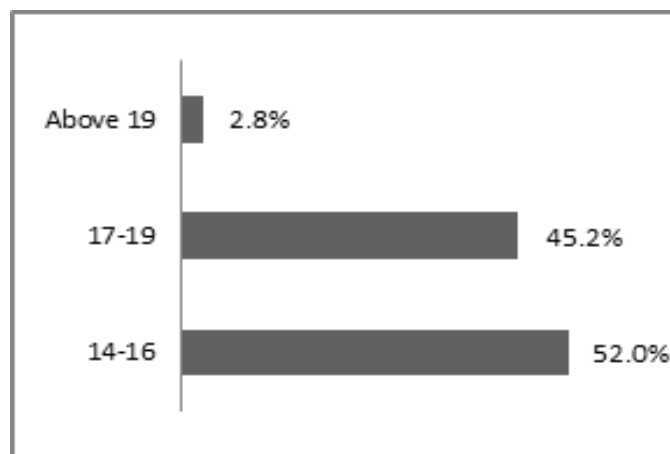


Figure 1. Respondents' Age Groups

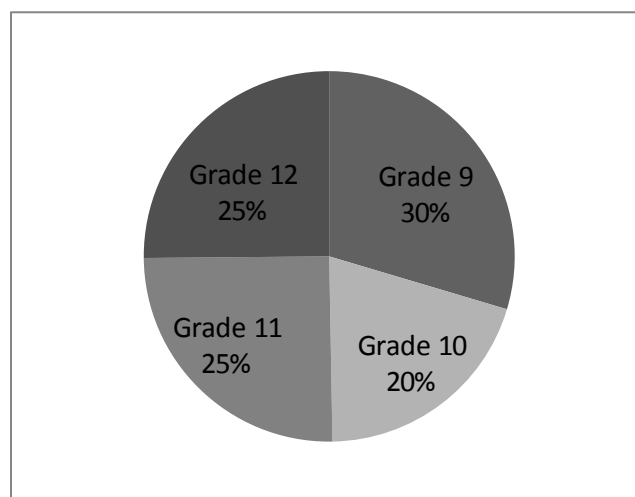


Figure 2. Respondents by Class Levels

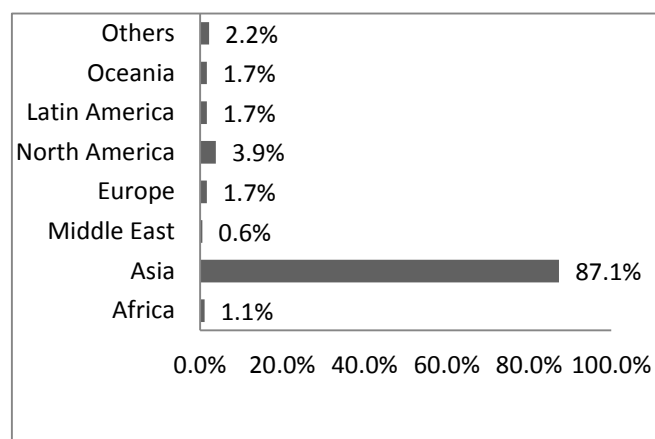


Figure 3. Respondents' Country of Origin

4.2 Data Analysis

4.2.1 Preferred Textbook

The first research question attempted to find out which type of textbook high school students preferred. Students were given three choices in the selection of the preferred textbook and the results indicated that: (a) 52% preferred a combination of both eTextbooks and printed textbooks; (b) 30.5% preferred a printed textbook; and (c) to a much lesser extent, 14% of the students had a preference for eTextbooks. When asked if they would recommend an eTextbook or a print textbook if they were teachers, the majority (63.6%) would allow their students, the textbook of their choice while 27.8% would recommend a print textbook. Only less than 10% (8.6%) would recommend an eTextbook to their students (Figure 4). When questioned about the time spent on reading textbook material, the answers were: (a) *Never to Hardly* at 3.1%; (b) *Sometimes* at 39.6%; and (c) *Most of the time to Always* at 7.3%.

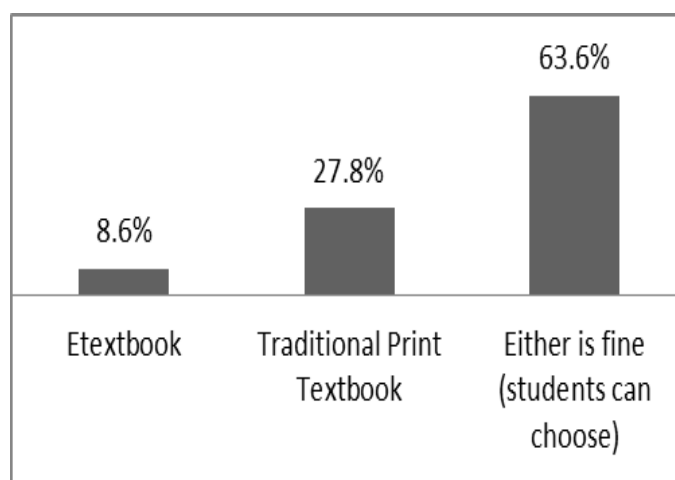


Figure 4. If you were a Teacher, Would You Recommend an eTextbook or a Print Textbook?

4.2.2 Impacts of Textbooks on Student Learning Outcomes

Four questions addressed the second research question on the impacts of textbooks on student learning outcomes. The type of textbook that motivated students to read and study were: (a) printed textbooks—51%; (b) A combination of eTextbooks and printed textbooks—20%; (c) Neither textbook—18%; and (d) eTextbooks—11% (Table 1). The results were similar in ranking for the three other areas pertaining to the impacts of textbooks on learning outcomes: (a) creating a favorable impact on students' grades; (b) helping them do better in class; and (c) being overall, more effective and practical. The print textbooks scored the highest, followed by both types of textbooks, and the last, eTextbooks (Table 1).

Table 1. Impacts of Textbooks on Students

#	Question	eTextbook	Traditional Print textbook	Both Types	Neither	Total
1.	Which motivates you to read and study more?	11%	51%	20%	18%	100%
2.	Which type has a favorable impact on your grades?	12%	49%	23%	16%	100%
3.	Which helps you better in class?	14%	59%	15%	12%	100%
4.	Which is more effective and practical on an overall basis?	24%	40%	28%	8%	100%

4.2.3 Students' Experiences with eTextbooks

In answering the third research question on finding out if the students' experiences with eTextbooks had been positive or negative, the students' responses were as follows: (a) Very negative to Negative—44.1%; (b) 41.3% reported their experiences on a continuum between Negative and Positive; and (c) only 14.5% responded positively to their eTextbook experiences. The overall general percentage of eTextbook usage in the students' education is indicated in Table 2 and the devices on which students have access to eTextbooks (Figure 4) are the: (a) computer (47%); (b) Smartphone (28%); (c) Tablet (17%); (d) Never used an eTextbook (6%); and (e) Others (2%).

Table 2. The Overall General Percentage of eTextbook Usage in My Education

Percentage Range	Percentage
0-10%	22.50%
11-20%	20.40%
21-40%	19.90%
41-60%	12.60%
61-80%	14.10%
81-100%	10.50%
Total	100.00%

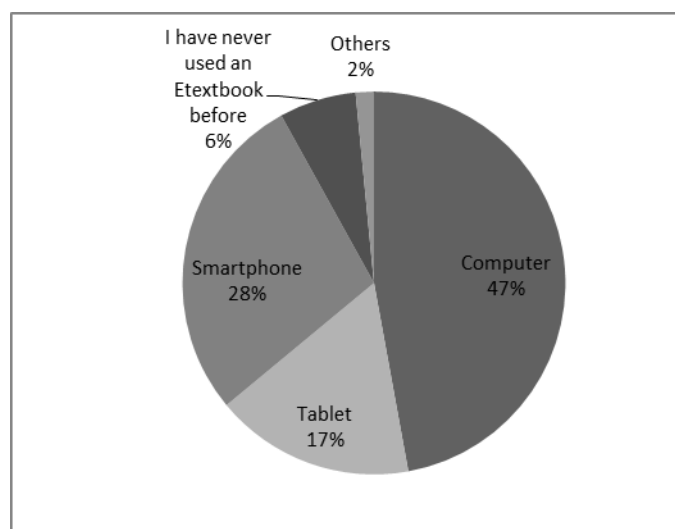


Figure 5. Devices on Which Students Use Their eTextbook

4.2.4 Reasons Why Students Use eTextbooks

This section answered the fourth research question: To find out the reasons behind high school students' eTextbooks usage. A total of seven statements were asked and the answer "Agree" received the highest percentage in six of the seven following statements: (a) It was a requirement from the school/teacher; (b) It was my choice; (c) It is convenient; (d) I don't have to carry textbooks; (e) I have access to my textbooks all the time in a digital format; and (f) It is cheaper. The majority of the students (66.5%) disagreed in having a preference for eTextbooks. The percentage breakdowns for all the statements are located in Table 3 for further study.

Table 3. Reasons Why Students Use eTextbooks

#	Statement	Highly disagree	Disagree	Agree	Highly agree	Total
1	It was a requirement from the school/teacher.	14.0%	29.6%	44.1%	12.3%	100.0%
2	It was my choice.	11.2%	24.0%	46.9%	17.9%	100.0%
3	It is convenient.	9.5%	15.1%	44.7%	30.7%	100.0%
4	I don't have to carry textbooks.	8.4%	11.2%	43.0%	37.4%	100.0%
5	I have access to my textbooks all in a digital format.	13.4%	21.2%	38.0%	27.4%	100.0%
6	It is cheaper.	12.8%	22.9%	47.5%	16.8%	100.0%
7	I just have a preference for eTextbooks.	23.5%	43.0%	26.8%	6.7%	100.0%

One open-ended question was included to allow students to express their own reasons for using eTextbooks and their answers are outlined in Table 4.

Table 4. Other Reasons Why I Would Use an eTextbook

#	Reasons
1	Find pages faster than normal textbooks.
2	In case I accidentally left my textbook at school.
3	When I get bored.
4	I want to.
5	I love estuff.
6	I forgot to bring a printed textbook from home.
7	Not heavy.
8	Don't have to carry a hefty textbook everywhere.
9	I can screenshot the information that I want to see later.
10	Not have to take home textbooks for homework.
11	I can search and find something that I don't know on my eTextbook.
12	Can study whilst doing other things.
13	To save paper.
14	It hurts my back to carry a butt load of textbooks and it is really heavy especially when you live far from home and when you travel by BTS and MRT.
15	Copying and pasting questions and information (not plagiarizing).
16	Portability.
17	It is not very hard to lose.
18	Easier to search for words and chapters.
19	Looks like I'm reading but I'm actually playing games.
20	I don't have to be afraid of losing my textbooks.
21	Easy to carry.
22	eTextbooks have answers that some traditional textbooks don't.
23	It helps me to understand better for the lesson.
24	Don't need to worry about losing it.
25	I hate it because I get easily distracted by the internet and stuff.

4.2.5 Why Students Would not Use and/or Dislike eTextbooks

After having explored why students would use eTextbooks, this section attempted to investigate the reverse; why they might not want to. Most of the students had a device (88.2%) and about half felt that ETs were bad for their eyesight while the other half thought otherwise. When it came to inconvenience, most students (73.1%) disagreed that it was in any way inconvenient to use an eTextbook. A little over 50% felt that they did not like the fact that they could not write in an eTextbook while the second larger majority (42.5%) did not feel it was a concern. Slightly more than of the students (55.8%) indicated that

they were used to eTextbooks while 44.2% were still adapting to its usage. Similar statistics (53.6%) pointed out that students just simply had the preference for the traditional type of textbook. Table 5 provides a detailed outline of this section.

Table 5. The Reasons Why I Would not Use and/or Dislike eTextbooks

#	Statement	Highly disagree	Disagree	Agree	Highly agree	Total
1	I do not have a device.	50.2%	38.0%	7.3%	4.5%	100.0%
2	It is bad for my eyesight.	20.1%	26.3%	39.1%	14.5%	100.0%
3	I find it inconvenient.	33.0%	40.1%	19.6%	7.3%	100.0%
4	I cannot write on it.	19.0%	23.5%	41.3%	16.2%	100.0%
5	I am not used to it.	25.1%	30.7%	31.3%	12.9%	100.0%
6	I just have a preference for the traditional type.	20.1%	26.3%	31.3%	22.3%	100.0%

Table 6 provides more student insights as to why they would not use or dislike an eTextbook.

Table 6. Other Reasons Why I Would not Use and/or Dislike an eTextbook

#	Reasons
1	Why not?
2	We are not used to it, and it's harder to focus on reading because we can go on other sites. It is complicated to use because I have to log in, go into many links to reach the page I want, and
3	it is quite slow to flip between pages.
4	It is bright and I like turning pages in a textbook.
5	It's slow.
6	The traditional textbook is easier to read and doesn't require Wi-Fi network.
7	It's a waste of time.
8	Eyesight deterioration of students over time.
9	It feels easier to learn from a traditional textbook.
10	My internet sucks.
11	It doesn't work and it's annoying.
12	It is really annoying to login and wait for it to load.
13	eTextbooks use too much time to load.
14	Bad Wi-Fi/3G.
15	Harder to access.
16	Lack of Wi-Fi makes the system go BOOM!
17	Screen is too small.

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- 18 If online, it requires internet connection all the time.
- 19 Regular textbooks motivate me more because they are easier to read.
- 20 It's easier to use a book.
- 21 I don't like to read.
- 22 It's hard to concentrate.
- 23 My eyes.
- 24 Reading a long time makes my eyes hurt.
- 25 It increases the risks of me getting side-tracked and not finishing my work.
- 26 I don't carry my laptop with me everywhere I go.
- 27 Reading from an eTextbook can hurt my eyes. Also, it can worsen my eyesight.
- 28 Temptation to get off task on other things on the device.
- 29 Uncomfortable.
- 30 Some people including myself do not have access to internet or device at all times.
-

4.2.6 Students' Opinions

The last question addressed the students' opinions and recommendations. This serves to answer the last research question: To find out the opinions of high school students towards the future of eTextbooks. Students were asked if they felt that eTextbooks should completely replace the print textbooks. Students were asked to rate from a scale of 1 to 10; (a) "1" as a definite "no-eTextbooks should not replace print textbooks"; and to the other extreme, (b) a "10" as a definite "yes-eTextbooks should replace print textbooks". The mean was 3.7 out of a total of 10. Figure 6 graphs the outcomes for this question and the majority were in favor of sticking to print textbooks instead of replacing them with eTextbooks.

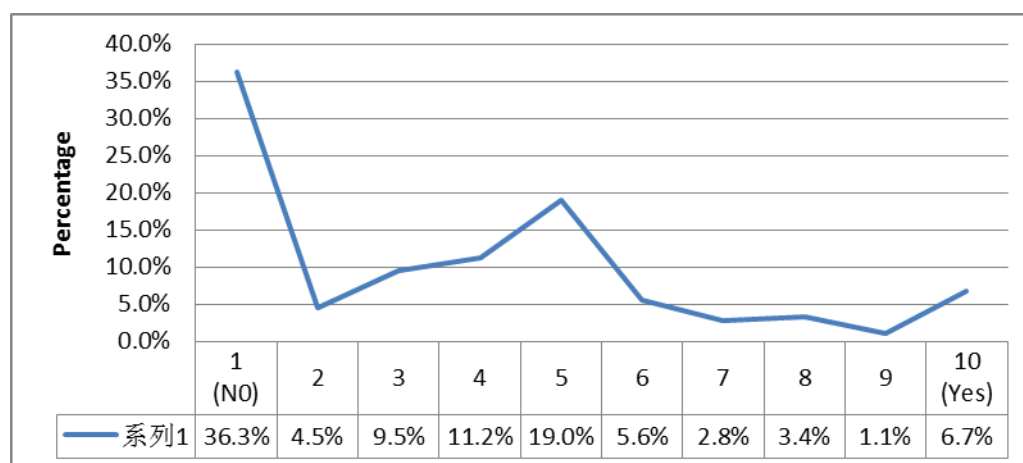


Figure 6. Do You Feel That eTextbooks Should Completely Replace the Print Textbooks?

5. Discussion

The results of the study indicated that high school students preferred a combination of an eTextbook and a print textbook. It was evident that students preferred the accessibility of having two types of textbooks at their disposal. If there were just two single textbook options to choose from, there was a clear indication from the study that the preference for print textbooks scored higher than eTextbooks with eTextbooks opted as the least preferred textbook.

Despite the availability of textbooks, only approximately half of the students read them. This low number could be attributable to various factors that this research did not attempt to explore but it would be an interesting topic for further study.

Although students had stated that they preferred a combination of the eTextbook and print textbook, the textbook that actually motivated the students to read and study more, was the print textbook. The fact that the eTextbook was least motivating to students is frightening as the popularity of eTextbooks is increasing. As the print textbooks leave the scene to be replaced by eTextbooks, there is a possibility of less reading and studying if the findings from this study holds true for other schools. However, that may change with time as students become more familiar and accepting of digital books in the future.

Students, no matter their age, are intelligent and know what works best for them. The results of the study indicated that print textbooks helped students to do well in their studies and best met their study needs. eTextbooks, on the contrary, did not seem to be as effective. Educators and schools would need to study this matter very carefully if they plan and decide on replacing print textbooks with eTextbooks, as this would most definitely have negative impacts on student learning outcomes.

It was distressing to learn that very few students (14.5%) reported positive experiences with the eTextbook. Up to 44.1% stated that their experiences with eTextbooks were "Very negative". It can therefore be deduced that there is a relationship between students' negative eTextbook experiences with their low eTextbook preference. It is recommended that the school investigate the causes of this negativity and try to resolve them.

Despite the low preference for eTextbooks, students still use them for various reasons. The majority of the students agreed that eTextbooks were cheaper, more convenient, lighter than heavy textbooks, and they can have easy access to their textbooks in a digital format. A high percentage of students who were using eTextbooks (64.8%) stated that it was their decision to use an eTextbook while 56.4% indicated that eTextbook usage was a school or teacher requirement. Being able to multitask on the device while studying and having access to a textbook when books were left at home were other reasons for using eTextbooks (Table 4).

As most students had a device, inaccessibility to eTextbooks was definitely not a reason why students would not prefer using an eTextbook. Although students found eTextbooks convenient, it is ironic that they were not as appealing as print textbooks. Approximately half of the students had managed to cope with not having to write in their textbooks while the other half still prefer to have that option available to

them. It is normal for humans to stick to what they are most familiar with, and it is repeated in this case, where a little more than half of the students (53.6%) preferred to stick to the good old traditional print textbook while the others (46.4%) have moved on to the digital option (Table 5).

Being side-tracked into doing something else while reading material on a device is no doubt a problem encountered by many and this is difficult to resolve. Speed is vital in today's society as everything seems to be at the "instant mode". Opening a textbook and turning to the required page is a whole lot faster than turning on a device, going to the required link, logging in, and navigating to the required page. Hours spent reading on a device is detrimental to the eyes and this is a significant concern for all those involved with the encouragement of eTextbook usage. To read an eTextbook requires Wi-Fi and this may not be readily available all the time. Moreover, internet connection complications make reading an eTextbook a very frustrating task. Having access to the internet and device require money and not all families are financially well-off to support this. Moreover, far too much time is spent on devices, is not only bad for the eyes, but also promotes sleep deprivation, mental illness, epidemic obesity, an addiction, and emits radiation (Rowan, 2015).

By assuming the role of a teacher, the majority of students would allow their "students to have a choice in textbook" and the majority strongly believed that print textbooks should not be replaced with eTextbooks.

6. Conclusion and Recommendations for Future Research

The outcome of this research study supports past research studies that students preferred print textbooks over eTextbooks. As past research studies focused on university students, the different group of participants in this study (high school students) provide a contribution to existing research on eTextbooks usage. It is predicted that the time and familiarity with eBooks will progressively change the preferences of their textbook preferences but this is yet to be seen and proven. Future efforts to successfully replace eTextbooks with print textbooks have to be carefully thought through and changes gradually implemented to result in a win-win position for all stakeholders. It is recommended that book publishers continue to find ways to make their eTextbooks more accessible and user-friendly to gain wider student acceptance and usage. It is also recommended that book publishers work closely with schools and students to better understand the issues and concerns of eTextbook functionality. Further research is encouraged in the form of a replicable study in a few years' time and over a larger target population.

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