



Integrating Information Technology and Marketing to increase e-Book consumption

Hsiu-Li Liao¹ · Su-Houn Liu¹

© The Author(s), under exclusive licence to Springer Science+Business Media, LLC, part of Springer Nature 2022

Abstract

This research contributes to the interdisciplinary area of marketing and information systems by examining two different strategies to increasing e-book consumption. Information technologies have changed the culture of book purchasing, which provides an opportunity to examine the impact of print-book marketing strategies on e-books. Information technologies facilitate value cocreation, part of service-dominant logic. This research examined the influence of both a technology- and non-technology-based marketing strategy on consumers' intention and decision to download and/or purchase e-books from an e-book sales platform. 192 participants completed browse-and-purchase tasks in two experimental conditions: with/without a technology-based free e-book preview; with/without a non-technology-based strategy of including a numbered time reference in an e-book title. The results indicated that providing free previews of e-books significantly improved participants' purchase intentions and purchase behavior. This improvement was more marked for free e-books than for priced e-books. The results also indicate that including a time reference in an e-book title improves participants' purchase intentions and purchase behavior. This finding was more significant for the leisure genre compared with the how-to genre.

Keywords e-books · Information technology · Free preview · Time reference · Purchase intention · Experiment

✉ Hsiu-Li Liao
wenlly0823@gmail.com

¹ Information Management, Chung Yuan Christian University, Taoyuan, Taiwan, Republic of China

1 Introduction

The widespread adoption of mobile devices, such as smart phones and tablets, has led to a shift in book purchases. The market over the past decade has seen a significant increase in e-book sales and a decline in print books—especially in North America (Bounie et al., 2013; Hua et al., 2011; Jiang & Katsamakos, 2010; Lai & Chang, 2011; Mussinelli, 2011). Consumer behavior is influenced by information technologies; consumer behavior also adapts to new information technologies. In the case of e-books, the technology push from publishers and e-reader vendors merged with the technology pull from consumers (Tian & Martin, 2011). Whereas a consumer's emotional attachment to print books (Waheed et al., 2015) could pose a barrier to adopting e-reader technology, a consumer's emotional attachment to e-books and embedded rich media could result in a willingness to make sacrifices for a technology (Ratten, 2011). An emotional attachment to technology devices and a preference for e-books (Srirahayu et al., 2021) is especially predominant in populations who grew up with technology devices (e.g., the Gen Z population). The information technology behind e-books, coupled with the marketing of e-books, prompts further investigation into the impact of print-book marketing strategies on e-book purchases. However, the integral association between e-readers and e-books—and their role in the shift from print books to e-books—mandates an initial discussion of e-readers as a foundation of the research reported in this paper.

The e-reader devices (e.g., Kindle, iPad, Sony Reader, Nook, and the Kobo Reader) are inextricably tied to user experience. User experience studies (MacWilliam, 2013; Richardson Jr. & Mahmood, 2012) examined e-readers (e.g., Kindle, iPad) in terms of memory and storage, screen resolution, navigation and control, battery and power, and any additional built-in features the devices provided. Consumer adoption of e-reader technology is significantly associated with how well the e-reader enables the consumer to approximate the traditional paper-book experience but extend it through media-rich techniques such as embedded hyperlinks, digital searches, bookmarking, and annotating (Bounie et al., 2013; Lai & Chang, 2011; McNeish & Hazra, 2014). Some e-book research (McNeish & Hazra, 2014; de Oliveira Mota and Miranda de Oliveira Arruda Gomes, 2011; Jiramahapoka & Loh 2019) illustrated consumer perception of overlap between e-book and e-reader (the device). One such factor was “trialability” (de Oliveira Mota and Miranda de Oliveira Arruda Gomes, 2011) which was the ability to try out e-reader features (using an e-book as the artifact). Another overlapping concept was ownership related to ownership of e-books stored on personally owned e-readers, resulting in resistance to e-book adoption (McNeish & Hazra, 2014). In the Chinese market, the most significant e-reader adoption factors were the convenience with which an e-reader could be carried and operated, social influence exerted by one's peers, and individual perceptions of switching costs—with the first two having a positive influence and switching costs having a negative, moderating influence (Chiang & Chen, 2014). Consumer adoption of e-reader technology is also dependent, in part, on the availability of e-book content available via a given e-reader (Torres et al., 2014). Consumers want device-independent e-books. E-book publishers must consider e-reader technology features when transitioning from print books to e-books. This research will address one such feature: the free e-book preview.

Hua et al., (2011) developed a mathematical model to predict when publishers should sell paper books, e-books, or both. Compared with paper books, e-books are typically free or less expensive and have content that is more compact and smaller in volume than traditional books. They suggested that until users become accustomed to the e-reader technologies—and e-reader technologies mature—publishers should distribute titles both online and in paper format (Hua et al., 2011). The major publishers in the U.S. and Europe (e.g., Penguin, HarperCollins, Simon & Schuster) have adopted this business model of dual publication modes (Greenfield, 2014). Publishers in Japan typically release the print-based version first and then the e-book version, based on both expectations of cannibalization and distribution costs associated with e-publishing (Asai, 2016). In related research, Jiang & Katsamakos (2010) tested readership associated with advances in e-reader technologies and distribution-channel ownership. They found that users accustomed to purchasing paper books through a seller (e.g., Amazon) are likely to see a purchase of an e-book as an extension of their accepted purchase behavior. This perception typifies the transition in the publication industry, where both the product (print book versus e-book) and the distribution channel (brick-and-mortar versus online) are trending towards digital. Interestingly, the level at which a country produces e-readers does not transfer equivalently to that country's adoption of e-books. For instance, even though Taiwan produces a full supply chain of e-reader components and the Taiwanese telecommunications industry is aggressively pushing digital publishing and distribution, the actual consumption of e-books in Taiwan is very small—indicating tremendous potential (Chiang & Chen, 2014; Lai & Chang, 2011). Taiwan provides two primary categories of online distribution channels: the traditional online bookstores and e-books download and selling sites. Traditional online bookstores sell paper books as well as the digital versions of books, when available. The e-book download and selling sites provide digital downloads to users. If users are interested in purchasing a paper version of a specific e-book, they are required to make a print-on-demand request.

E-book sites have completely revolutionized how books are published by overcoming the physical and financial constraints of the traditional business model, which entailed printing multiple copies of a book, distributing them to wholesalers, who would then deliver them to retail outlets. The traditional model is expensive, requiring a base investment in all books and speculative investment in books which might be top sellers. Now almost anyone can author, publish, and sell their work. One outcome of this open market is that the quality level in self-published work ranges from dubious to top-seller. For example, a 2014 survey of top online publishers (Greenfield, 2014) reports that self-published authors, taken as an aggregate group, published 4% of the best sellers in 2014, including a No. 1 best seller. However, the ease with which people can author and publish works also results in a flood of poor-quality e-books. Therefore, research is needed to determine how consumers can use technology to discern e-book value prior to making a purchase. This research helps address that research need.

By focusing on marketing strategies, the current research builds upon the previous research streams focused on the publication, distribution, and consumption of e-books. Previous studies on e-books have focused primarily on the usability of e-books and the overall user experience (Choi et al., 2019; Jiramahapoka & Loh,

2019; Jou et al., 2016; Torres et al., 2014; MacWilliam, 2013; Richardson Jr & Mahmood, 2012; Kostick, 2011; de Oliveira Mota and Miranda de Oliveira Arruda Gomes, 2011; Shrimplin et al., 2011; Landoni, 2006). Additional contributions from e-book usability studies includes types of users (Shrimplin et al., 2011), what publishers can learn from web usability and user-experience experts (Choi et al., 2019; Kostick, 2011) and the emotional factors associated with e-books and paper books (MacWilliam, 2013). The previous research indicates continued growth in e-reader and e-book sales with a more focused attention on providing a more engaged user experience which duplicates and extends consumer's user experiences with purchasing and reading print-based books.

Previous research focused on the intention to use or purchase e-books was conducted as independent information systems research or marketing research; however, to our knowledge no interdisciplinary research has been conducted to examine whether e-book consumers exhibit some of the same consumption logic as consumers who purchase paper books through traditional online bookstores. Two marketing strategies used with print books are to (a) provide consumers with the option of previewing sections of a book before purchasing it and (b) provide time-reference hints in a book title. The purpose of this interdisciplinary research is to examine how well those two strategies increase the consumption of e-books. Results indicate that both can lead to increased consumption, which should therefore escalate the overall adoption of e-books.

This paper is organized as follows. Section 2 provides a background on service-dominant logic and co-created value. Co-created value is a central tenet of service-dominant logic and the basis of our technology-driven marketing strategy: providing free e-book previews. Section 2 also includes the basis for our non-technology-driven marketing strategy: using a time reference in an e-book title. Hypotheses for both marketing strategies are included in Sect. 2. Section 3 describes our methodology of establishing an e-book website, selecting and testing the experimental and control e-books, and engaging the participants. Section 4 describes the results for each of the two tested marketing strategies. We discuss those findings in Sect. 5 and conclude in Sect. 6 that e-book publishers would benefit from providing free previews for e-books and utilizing some type of numeric time indicator in an e-book title. We also suggest areas for further research.

2 Service-dominant logic and co-created value

Service-dominant logic was first introduced in 2004 (Vargo & Lusch, 2004) as a lens through which to perceive social and economic exchanges. Intangibility, exchange processes, and relationships are central to service-dominant logic, and value is defined by and cocreated with the consumer rather than embedded in output. In contrast to a goods-dominant logic, where utilitarian value is embedded within a product, a service-dominant logic is based on a relational perspective wherein consumers and providers co-produce value (Vargo & Lusch, 2004). The providers, however, can only propose the value; the consumer must determine what activities in the exchange are valuable and participate in creating that value (Grönroos & Gummerus, 2014; Vargo

& Lusch, 2004). Customers' satisfactory co-creation experiences over time lead to value-in-use (Grönroos & Gummerus, 2014; Grönroos, 2008), a well-known marketing concept since the transition from goods-dominant to service-dominant marketing logic. Value-in-use is a unique, contextual experience determined by each consumer (Grönroos, 2008; Grönroos & Gummerus, 2014; Vargo & Lusch, 2004, 2008). That is, consumers must find value in the exchange experience, as well as in the service. In service-dominant logic (Grönroos & Gummerus, 2014) the consumer—rather than the service—is the focal point. The service is the use of resources to support a consumer's value-in-use during the exchange.

In service-dominant logic, the consumer is an operant resource acting on other resources to co-create value. Both the consumer and the organization derive benefit from the co-created value. This perception of the consumer differs from traditional marketing where the consumer was perceived as an “operand resource” that was analyzed and then targeted with promotional campaigns (Shaw et al., 2011). In other words, from a goods-dominant perspective, consumers of e-books are merely resources—manipulatable by marketers via text notifications or online ads promoting new e-book listings—for the purpose of a transactional exchange. However, in service-dominant logic, information technology serves as both an operand and the operant resource through the implementation of service platforms, which providers and beneficiaries use to co-create value (Lusch & Nambisan, 2015). For example, information technology is used in the tourism industry to co-create value through the online ability to book flights and arrange holidays. The consumer gains value by saving time in the planning/arranging process; the organization gained value by gaining information provided by the consumer's online activities. The organization can then use that information to adapt the online consumer experience and gain/retain competitive advantage and increase consumer loyalty (Polo Peña et al., 2014; Shaw et al., 2011).

Amazon's Look Inside! feature is another example of technology resources used to provide a value-in-use opportunity (Karpen et al., 2012). Consumers derive value from the ability to preview selected content prior to purchasing a book. Specifically relevant to this research is the idea of using technology to provide consumers with the ability to create value as part of a marketing exchange. One focus of this research is to examine how technology resources (i.e., providing the ability to generate an e-book preview) support a consumer's ability to create value in the exchange, thereby leading to increased intention to consume e-books. We also explore a non-technology-driven approach to help consumers discern value: providing a reference to time in the e-book title. The next two sections describe these two research foci.

2.1 Use of e-Book previews

Price has long been associated with value: the higher the price, the greater the perceived quality. In a price/quality assessment, consumers determine if the quality is worth the price (Min et al., 2012; Lichtenstein et al., 1993). Value is personal and is determined by the amount of economic outlay a person is willing to expend in exchange for the perceived quality. For tangible goods (which are central to a goods-dominant perspective), consumers can test drive, try on, or taste a product to deter-

mine value prior to purchase. In a sense, consumers are sampling ownership prior to purchasing.

Free samples have been used in marketing since the 1960s to help consumers determine value. A primary goal of providing free samples is to convince consumers that a product is worth purchasing. Samples increase the likelihood of a purchase by decreasing perceived risk associated with loss of time, ego, or money (Shaw et al., 2011; Wallenberg, 2009). In a marketing field study empirically testing buyer behavior associated with free samples, Bawa & Shoemaker (2004) found that sales among consumers who had tried the product already increased only slightly. However, consumers who had never tried the product before accounted for nearly a 93% increase in sales. This finding has significant implications for e-book authors and publishers attempting to increase adoption and consumption of e-books. Information systems technology enables potential consumers to sample e-books before purchasing and/or downloading.

However, the value-in-use service of providing e-book previews is controversial. Amazon and Google both provide preview opportunities to increase book purchases. The Author's Guild sued Google on the basis that the extensive preview feature depreciated the value of books and resulted in lost profits associated with users downloading significant portions of books free of charge. In many cases, consumers could preview the entire text, which then cannibalized sales (Bawa & Shoemaker, 2004). As a result of the lawsuit, Google changed its preview policy to include publisher permission (see <http://books.google.com/googlebooks/about/index.html> for the current policy). To test whether previews increased or decreased online sales of print books, Wallenberg (2009) compared use of Amazon's Search Inside! feature with print-book purchases. The study found no significant effect (either increased sales or cannibalization due to excessive free downloading) related to the previews. He attributed non-significant results to sample limitations. Our research contributes to the field by examining whether providing e-book previews influences intention to download and/or purchase priced and free e-books.

To our knowledge, no research exists which tests the effectiveness of consumers' value creation (such as free previews) on intention to consume e-books. Previews with priced e-books function equivalently as with print books: the price serves as an effective index of the books' quality. However, as indicated above, many e-books are inexpensive or free. From a goods-based perspective, where consumers can sample a product prior to purchasing it, one would assume that book previews for free e-books would not provide value. Consumers could download the free e-book and so therefore would have no reason to read the preview. Paradoxically, three major e-book download and selling sites in Taiwan (i.e., Pubu, Hami, and MagV) provide e-book previews. In the absence of a price indicator for quality, we expect consumers will use e-book previews to discern value. We suggest that the proliferation of self-publishing authors producing literary works—some of which are of high quality—has resulted in a transition from price to time as a predictor of value, when price is not a factor. We therefore also suggest that e-book previews increase the likelihood that consumers will download/purchase e-books by (a) decreasing perceived risk associated with loss of time required to read the book and (b) providing the ability to discern the e-book quality. The goal of previews with free e-books is to convince consumers that a book

is worth reading instead of worth purchasing. Therefore, we propose the following hypotheses in this study:

H1: Providing free e-book previews significantly improves participants' purchase intentions and purchase behavior.

H2: Providing free e-book previews significantly improves participants' purchase intentions and purchase behavior, and this improvement is more marked for free books than for priced books.

2.2 Use of time reference in title

This research also explored a non-technology-driven approach to help consumers discern value: providing a reference to time in the e-book title. We extend the notion that time could influence intention to consume e-books by examining references to time in e-book titles. Consumers gain value via the ability to discern the amount of time necessary to read an e-book. For the leisure type of e-book, this value is especially useful when selecting e-books for commutes or flights. A reference to time in an e-book title could also suggest content value. For example, one could infer from a title such as *The Creative Traveler's Handbook: One-hour Sightseeing in Taitung* whether the e-book would be both (a) consumable within the time-constraints of one's travel and (b) valuable in planning for a trip to Taitung. Providing a time reference in an e-book title is therefore an example of a value-in-service that facilitates a transactional exchange.

On the other hand, including a reference to time in a how-to type of e-book title could negatively influence transactions by implying low content quality. Marketing research on including numbers in product names (known as alphanumeric branding) suggests that consumers use a "higher is better" decision heuristic when selecting from among alternative products. Consumers tend to select products with larger numbers in the product name, even if other published facts about the product indicated that an alternative product was of higher quality (Gunasti & Ross, 2010). Book titles were not part of the marketing research, but the principle is applicable to books: consumers will purchase books with higher numbers in the book title. However, since time references in how-to books generally tend to use lower numbers, the alphanumeric brand research suggests that consumers will purchase less of these titles. For example, *Teach Yourself HTML5 in 2 h* is likely to be interpreted as hype and reflect negatively on the perceived content quality, which could result in a loss of personal time. Alternatively, *One-hour Sightseeing in Taitung* also uses low numbers, but does not communicate hype. Therefore, although references in both leisure and how-to types of e-books are important, references to time in e-book titles would be more significant for the leisure rather than how-to genre of e-books. Therefore, we propose the following hypotheses in this study:

H3: Including a time reference in an e-book title will improve participants' purchase intentions and purchase behavior.

H4: Including a time reference in the e-book title will improve participants' purchase intentions and purchase behavior more significantly for leisure type e-books compared with how-to type e-books.

3 Research Methodology

To test the above hypotheses, we created a miniature online bookstore, deposited “membership points” into participant accounts, provided participants with an opportunity to browse and download or purchase e-books, and then collected data on their intentions and activity. To ensure purity in data related to each set of hypotheses, we ran the experiment in two phases, each with its corresponding experimental condition and data-collection. Following are the details.

3.1 Participants

E-book customers aged 15 to 24 tend to demonstrate high acceptance levels of e-books download and selling sites. Therefore, this study selected university students as the participants for this experiment. We solicited participation by distributing posters and flyers throughout a university in Northern Taiwan. A total of 197 students participated in the experiment. Each participant was a registered student at the university and so had an account on the university’s e-book website. Five incomplete or invalid questionnaires were removed, resulting in 192 valid responses. An equivalent number of males and females participated: 98 males (51.04%) and 94 females (48.96%).

3.2 e-Book website

The website for the experiment was developed by the bookstore of a Taiwanese university which provides students a platform to select and purchase e-books. The website functions were similar to one offered by a popular e-books download and selling site: bookstore.emome.net. The e-book purchasing system was identical to common Taiwanese e-books download and selling sites where members pay using membership points. Each dollar was equivalent to one point. Each participant was required to have at least 100 points in their account in order to participate. To help offset personal costs to the student, we paid each participant 6 US dollars. Therefore, each participant had sufficient membership points to purchase six e-books (at a cost of 10 points per e-book) from the experimental website.

3.3 e-Books

To meet the objectives of the experiment, the e-books used for the experimental and control conditions had to be similar in content. Therefore, the selected e-books were published by the Information Service Industry Association of the R.O.C. The e-books fit two genres: leisure and how-to. The e-books in the leisure category were all related to gourmet food and travel (e.g., “The Creative Traveler’s Handbook: One-hour Sightseeing in Taitung”; “Skittles: Fun and Easy”). The e-books in the how-to category were related to website management and e-commerce (e.g., “Making Money is Really Easy”; “Social Networking Website Marketing”). We selected 10 e-books where the content was divided into 20 to 36 independent sections. So, for example, one of the gourmet cookbooks was divided into 36 independent sections, with each section focusing on one specific dish. Likewise, a travel book had 25 independent

sections, each one focused on a specific site in Taitung. For this experiment, we separated each e-book into similar section groups to create 40 e-books. We then applied one experimental condition (free preview, time reference) per e-book to two e-books per genre. Each experimental and control e-book was able to stand on its own as an independent e-book. The final 40 e-books were evaluated by 20 target-population testers to ensure that the e-books to be used for the experimental and control conditions were similar and that the topics and writing style were similar. Similar e-books were then randomly distributed to the participants.

In the experiment, the 40 e-books were equally divided between four shelves, each shelf containing 10 e-books. Each phase of the experiment contained two shelves with e-books corresponding first to the two e-book genres (leisure and how-to), and then within each shelf the e-books further corresponded to the two experimental conditions (free preview; time reference in title). The e-books were paired on each bookshelf based on the experimental condition: for example, one gourmet cookbook had a preview of the first 15 pages; the other did not. The dependent variables in both experimental conditions were purchase intentions and purchase behavior. To test the hypotheses related to free previews, five e-books on each genre shelf included a free-preview service comprising the first 15 pages of each book; another five e-books did not. To test the hypotheses related to including a reference to time in the e-book title, five e-books on each genre shelf included a reference to time in the e-book title; another five e-books did not.

3.4 Procedures

At the beginning of the experiment, all participants were asked to watch a 10-minute introductory video describing their tasks and explaining how to operate the online e-book system. Following the introductory video, the participants were presented with the e-book sales platform, where they could enter the eStore to browse through and select e-books.

For Experiment 1, 192 subjects read 8 kinds of e-books: free How-to type e-books with free preview service, priced How-to type e-books with free preview service, free leisure type e-books with free preview service, priced leisure type e-books with free preview service, free How-to type e-books without free preview service, priced How-to type e-books without free preview service, free leisure type e-books without free preview service, and priced leisure type e-books without free preview service. We provided 5 e-books per type. Once participants indicated that they were through browsing for e-books, the experimental system randomly selected 20 e-books with the experimental condition and 20 e-books without for Experiment 1: free e-book preview. Participants were then asked to complete a short survey indicating their purchase intentions. Upon completion of the survey, participants were asked to purchase three e-books for download (for priced e-books, users were required to pay by using the points available in their member account).

Participants were then directed back to the e-book sales platform to again browse through and select e-books as part of Experiment 2: time reference in title. Like Experiment 1, 192 subjects read 4 kinds of e-books, including how-to type e-books with time included in the title, leisure type e-books with time included in the title,

Table 1 The effect of e-books with/without a free preview on participants' purchase intentions

Construct	Free preview service	Sample size	Mean	SD	SEM	<i>t</i> value	<i>p</i> value
Purchase intention	Yes	768	3.537	3.918	0.283	7.532	0.000***
	No	768	3.158	3.900	0.281		

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

how-to type e-books without time included in the title, and leisure type e-books without time included in the title. We provided 5 e-books of each type. Again, once participants indicated that they were through browsing for e-books, the experimental system randomly selected 20 e-books with the experimental condition and 20 e-books without. Participants again completed a survey and were asked to purchase three e-books.

4 Research results

Section 4.1 and 4.2 describe data results associated with (a) providing free e-book previews and (b) providing time references in the e-book titles, respectively. For each experimental condition, we first examined the overall influence of the independent variable on both the participant's intention to download and/or purchase and then the participant's actual download/purchase. We then refined the data analysis for each experimental condition to examine the influence of the independent variable associated with two types of e-books: free/priced and how-to/leisure, respectively.

4.1 Experiment 1: free e-book preview

The constructs of reliability and validity of the instrument were evaluated. For free and priced books, the factor reliability of participants' purchase intentions as represented by Cronbach's α were from 0.894 to 0.916, exceeding 0.8. Reliability from the sample showed a reasonable level of reliability ($\alpha > 0.70$) (Cronbach, 1970). Factor analysis was also measured to confirm adequately the construct validity of the scales. Construct validity was examined using the principal components method with varimax rotation. Bagozzi & Yi (1988) suggested that factor loadings for each item should be over 0.6 to be valid. The factor loadings for all items were all larger than 0.8 from 0.897 to 0.951 (exceeding 0.6), indicating that the individual items also had discriminant validity.

A paired-samples *t*-test (Table 1) indicated that providing a free preview exerted a positive, significant effect on purchase intentions ($p = 0.000 < 0.01$). The actual download/purchase behavior results were similar to those obtained for purchase intentions. Participants were asked to download (and purchase, if the e-book was priced) three e-books. Figure 1 illustrates the download/purchase of e-books that included a free preview. Almost 71% of the participants selected two or more e-books for which a free preview was offered. The results support H1 and indicate that providing free e-book previews significantly improves participants' purchase intentions and purchase behavior.

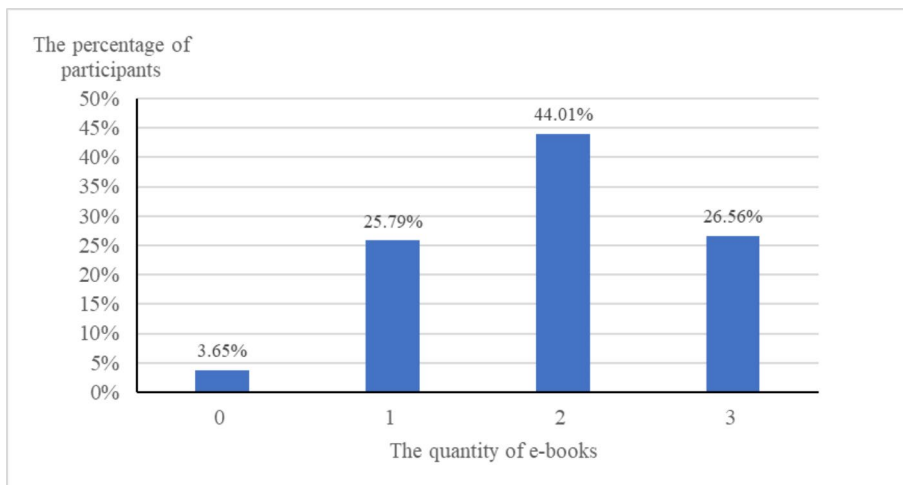


Fig. 1 The quantity of e-books (with free previews) downloaded/purchased

Table 2 The effect of a free preview on participants' purchase intentions

Construct	Free preview service	Sample size	Mean	SD	SEM	<i>t</i> value	<i>p</i> value
Free	Yes	192	3.709	1.586	0.114	6.256	0.000***
	No	192	3.198	1.611	0.116		
Priced	Yes	192	3.193	1.742	0.126	0.091	0.928
	No	192	3.185	1.638	0.638		

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

We further analyzed the “free preview” data to investigate the effect of a free preview on the participants' purchase intentions and purchase behavior for two e-book types (free and priced). The results illustrated in Table 2 indicate that when the e-books were free, providing a free preview exerted a positive and significant effect on the participants purchase intentions ($p=0.000$). Conversely, providing a free preview for priced e-books had no effect on the participants' purchase intentions ($p=0.928$).

The download/purchase behavior results were similar to those obtained for purchase intentions. Figure 2 illustrates the download/purchase of both free and priced e-books that included a free preview. Whereas the data indicate that some participants chose not to download any ebooks with a free preview and some explored the feature by downloading or purchasing a single ebook, the most interesting data—and the focus of this research—was in multiple purchases. While 82.81% ($N=159$) of the participants downloaded two or more free e-books that contained a free preview, only 58.33% ($N=112$) purchased two or more priced e-books with a free preview. These results indicate that when e-books are free, providing a free preview improves the purchase behavior more remarkably compared with such a service for priced e-books. The results support H2: providing free e-book previews improves the purchase intentions and purchase behavior among participants, and this improvement is more marked for free books than for priced books.

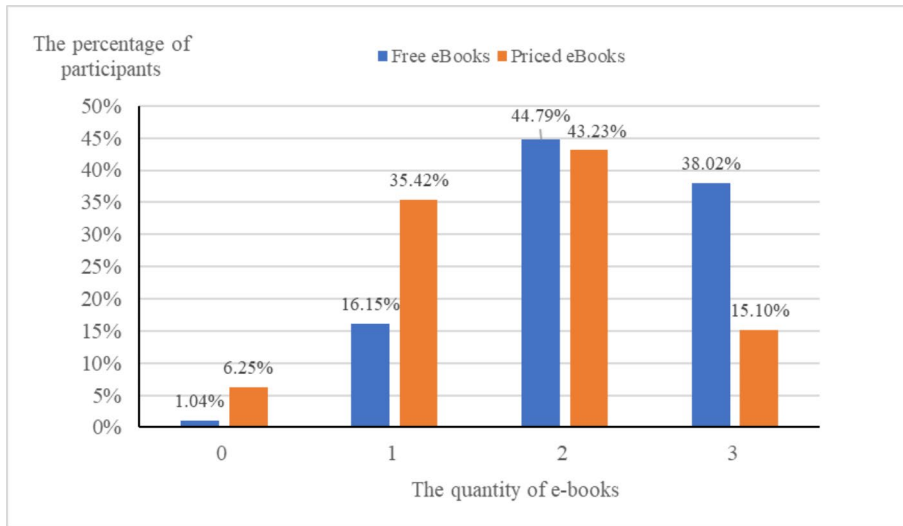


Fig. 2 The quantity of e-books (with a free preview service) downloaded/purchased

Table 3 The effect of including a time reference in the title on participants' purchase intentions

Construct	Time included in the title	Sample size	Mean	SD	SEM	<i>t</i> value	<i>p</i> value
Purchase intention	Yes	384	3.280	2.443	0.176	3.446	0.001***
	No	384	3.071	2.294	0.166		

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

4.2 Experiment 2: time reference in title

For the second experimental condition, the participants were again directed to download (and purchase, for priced books) three e-books. This time, however, our focus was on the incorporation of a time reference in the e-book title. A reliability analysis of participants' purchase intentions for the two e-book types resulted in a reliability between 0.899 and 0.912, greater than 0.8. Reliability from the sample showed a reasonable level of reliability ($\alpha > 0.70$) (Cronbach, 1970). Factor analysis was also measured to confirm adequately the construct validity of the scales. Factor loadings for each item should be over 0.6 to be valid (Bagozzi & Yi, 1988). The factor loadings for all items were larger than 0.9 (from 0.905 to 0.942, exceeding 0.6), thereby indicating that the individual items also had discriminant validity. The correlation coefficient between the items and the dimensions were all greater than 0.9, indicating favorable questionnaire reliability.

A paired-samples *t*-test (Table 3) indicated that including a time reference in the title exerted a significant effect on purchase intentions ($p = 0.001 < 0.01$). The actual download/purchase behavior results were again similar to those obtained for purchase intentions. Figure 3 illustrates the download/purchase of e-books that included a time reference in their titles. When asked to download and/or purchase three e-books, 66% of the participants selected two or more e-books that included a time reference

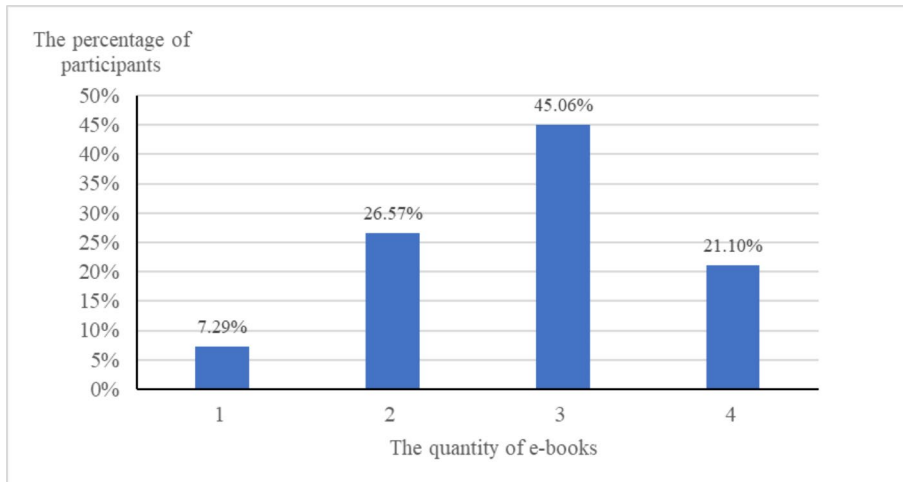


Fig. 3 The quantity of e-books (that included a time reference in their titles) purchased

Table 4 The effect of including a time reference in a book title on participants' purchase intentions for how-to and leisure type e-books

Purchase Intention Construct	Time included in the title	Sample size	Mean	SD	SEM	<i>t</i> value	<i>p</i> value
How-to type e-books	Yes	192	3.228	1.541	0.111	1.716	0.087*
	No	192	3.094	1.492	0.108		
Leisure type e-books	Yes	192	3.331	1.655	0.119	3.402	0.001***
	No	192	3.047	1.615	0.117		

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

in their titles. The results support H3 and indicate that including a time reference in the e-book title significantly improves both the participants' purchase intentions and their purchase behavior.

We then further analyzed the "time reference" data to investigate the effect of a time reference in the e-book title on participants' purchase intentions and purchase behavior for the two different e-book types (how-to and leisure). The results illustrated in Table 4 indicate that a time reference in the title of a how-to e-book exerted a small but significant effect on the participants purchase intentions ($p = 0.087 < 0.1$). The effect of a time reference in leisure e-book titles was comparatively more significant ($p = 0.001 < 0.01$).

The download/purchase behavior results were similar to those obtained for purchase intentions for e-books that included a time reference in their titles. Figure 4 illustrates the download/purchase of both how-to and leisure types of e-books. 72% of the participants selected two or more leisure e-books; 60% of the participants selected how-to type books. The results support H4: including a time reference in e-book titles improved purchase intentions and purchase behavior among participants, and this improvement was more marked (although minimally) for leisure type e-books than for how-to type e-books.

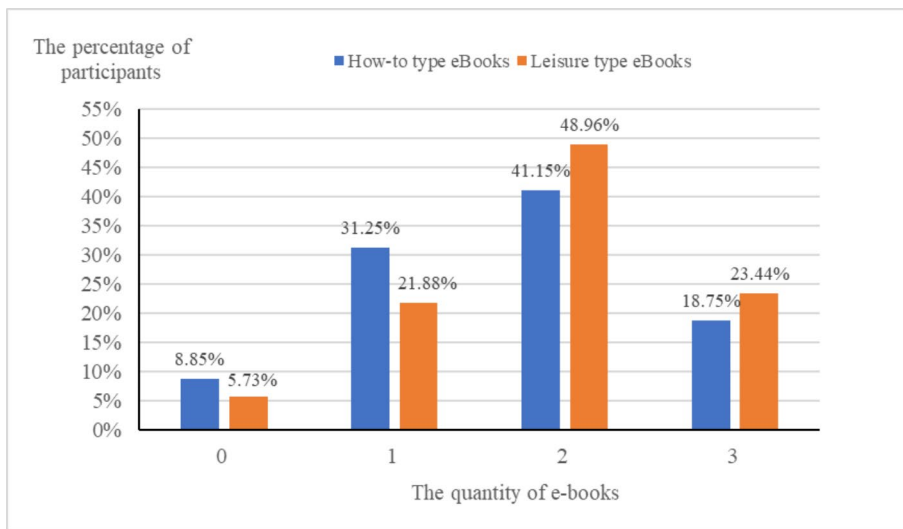


Fig. 4 The number of e-books (including a time reference in the title) purchased by the participants

5 Discussion

Creating a memorable consumer experience is a key goal of service-dominant logic. In the tourism industry, consumers derive pleasure from activities related to planning and arranging holidays (Shaw et al., 2011). Reading e-book previews could be considered a pleasurable activity—much like browsing through books in a bookstore. Our research demonstrated a significant increase in download/purchase behaviors associated with use of a free preview service for free e-books. Given the plethora of free e-books, a free preview is an essential and cost-effective way for authors and publishers to increase distribution.

Providing a free preview for free e-books is a service that could increase distribution (Choi et al., 2019). With the plethora of e-books of varying quality available for download, e-book publishers need a competitive mechanism for increasing downloads and purchases. Our data clearly indicates that a free preview is such a mechanism—especially for free e-books. We anticipate increased consumer expectation for free e-book previews for both free and priced e-books. Given that the consumer's experience is with e-books in general, services provided for free e-books will likely be expected with priced e-books. We therefore recommend that authors and publishers implement this simple information technology solution to increase e-book consumption for both free and priced e-books.

Reciprocal value is a key factor aligned with service-dominant logic. In the case of e-book consumption, consumers derive value from interacting with e-books prior to downloading and/or purchasing them. Authors and publishers could derive value by tracking which features consumers use prior to downloading an e-book and then integrate those features into future e-books (assuming the consumer's e-reader supports such features). Features could include a previews and key-word searches, at a minimum. The level of consumer participation is dependent upon the availability of

relevant resources (Chathoth et al., 2013). Therefore, organizations should ensure that the resources they provide match the level of expected consumer participation in co-creation activities.

Another way to increase e-book consumption is to include, if possible, a numbered time reference in the e-book title. The data demonstrated very clearly a consumer preference for numbered time references in e-book titles. Unlike the Gunasti & Ross (2010) research, we compared numbers versus no numbers. The time references all used low numbers. An interesting research idea for the future is to evaluate purchase behaviors associated with the use of high-low numbers (e.g., One-hour Sightseeing in Taitung versus 100 Things to do in Taitung).

Another interesting finding from this research was that consumers purchased almost as many how-to e-books with time-references in their titles as they did leisure e-books. Although our hypothesis that consumers would download/purchase more leisure than how-to books was supported, the results suggest a shift in attitude toward the use of lower time-reference numbers in how-to e-books. That is, either authors are doing a better job of constraining book content to what can be realistically accomplished in a lower time frame, or consumers are becoming more savvy about seeing through the time-reference hype and making an estimate of required time commitment based on their own level of expertise, or both. In either case, including a time reference in the e-book title led to increased consumption, so we recommend utilizing this simple but effective, non-technological approach to increasing e-book consumption.

6 Conclusions

This research identified a strong trend toward increased e-book publication and consumption. The preponderance of individual publishers removes the quality assurance check provided by publishers, resulting in a wide spectrum of quality in e-books. Furthermore, many e-books are free, thereby removing price as a quality indicator. This research demonstrated that an information technology approach of providing a free e-book preview provides consumers with the ability to ascertain quality prior to download/purchase—especially in the absence of a price indicator. Additionally, this research indicated that a simple, non-technological strategy of including a numbered time reference in the e-book title led to increased e-book consumption. We recommend authors and publishers consider both strategies to increase e-book consumption.

Several key factors influence consumer participation in co-creation activities, including their expertise with the technology and activity, the amount of discretionary time to participate, their desired level of involvement with the co-creation activity, and their desired level of control, and perceived economic benefit (Shaw et al., 2011). The current research focused on the economic benefits associated with utilizing a free preview to discern e-book value or using a time-reference to determine time investment. Future research could focus on other factors of the co-creation experience and increase the categories to examine the e-book consumption model.

Supplementary Information The online version contains supplementary material available at <https://doi.org/10.1007/s11082-023-04000-0>.

[org/10.1007/s10660-022-09585-1](https://doi.org/10.1007/s10660-022-09585-1).

Acknowledgements Hsiu-Li Liao and Su-Houn Liu would like to acknowledge the Start-Up Fund provided by the Ministry of Science and Technology (NSC 100-2410-H-033-003-). We would like to thank Prof. Jean A. Pratt's helps and revises making the work stronger and clearer.

References

- Asai, S. (2016). Format choice for popular fiction books in Japan. *Publishing Research Quarterly*, 32(2), 75–83
- Bagozzi, R. P., & Yi, Y. (1988). On the evaluation of structure equations models. *Academic of Marketing Science*, 16, 76–94
- Bawa, K., & Shoemaker, R. (2004). The effects of free sample promotions on incremental brand sales. *Marketing Science*, 23(3), 345–363
- Bounie, D., Eang, B., Sirbu, M., & Waelbroeck, P. (2013). Superstars and outsiders in online markets: An empirical analysis of electronic books. *Electronic Commerce Research and Applications*, 12(1), 52–59
- Chathoth, P., Altinay, L., Harrington, R. J., Okumus, F., & Chan, S. W. (2013). Co-production versus co-creation: A process based continuum in the hotel service context. *International Journal of Hospitality Management*, 32(1), 11–20
- Chiang, H. S., & Chen, C. C. (2014). Exploring switch intention of users' reading behaviour: An e-book reader case study. *The Electronic Library*, 32(4), 434
- Choi, A. A., Cho, D., Yim, D., Moon, J. Y., & Oh, W. (2019). When seeing helps believing: The interactive effects of previews and reviews on e-book purchases. *Information Systems Research*, 30(4), 1164–1183
- Cronbach, L. J. (1970). *Essentials of psychological testing*. New York: Harper and Row
- de Oliveira Mota, M., & Gomes, M. O. (2011). D. An analysis of consumer behaviour when adopting technological innovation: A Brazilian perspective of e-books. *International Journal of Technology Marketing*, 6(2), 101–115
- Greenfield, J. (2014). *Ebook publisher power rankings: Top publishers of 2014... So far*. The United States: Forbes publishing
- Grönroos, C. (2008). Service logic revisited: Who creates value? And who co-creates? *European Business Review*, 20(4), 298–314
- Grönroos, C., & Gummerus, J. (2014). The service revolution and its marketing implications: Service logic vs service-dominant logic. *Managing Service Quality*, 24(3), 206–229
- Gunasti, K., & Ross, W. T. (2010). How and when alphanumeric brand names affect consumer preferences. *Journal of Marketing Research*, 47(6), 1177–1192
- Hua, G., Cheng, E., & Wang, S. (2011). Electronic books: To “E” or not to “E”? A strategic analysis of distribution channel choices of publishers. *International Journal of Production Economics*, 129(2), 338–346
- Jiang, Y., & Katsamakos, E. (2010). Impact of e-book technology: Ownership and market asymmetries in digital transformation. *Electronic Commerce Research and Applications*, 9(5), 386–399
- Jiramahapoka, N., & Loh, A. (2019). Factors influencing e-book purchase intention of thai internet users: A case study of mobile e-book company. *Panyapiwat Journal*, 11(1), 183–193
- Jou, M., Tennyson, R. D., Wang, J., & Huang, S. Y. (2016). *A study on the usability of E-books and APP in engineering courses: A case study on mechanical drawing* (pp. 92–93). Computers & Education
- Karpen, I. O., Bove, L. L., & Lukas, B. A. (2012). Linking service-dominant logic and strategic business practice: A conceptual model of a service-dominant orientation. *Journal of Service Research*, 15(1), 21–38
- Kostick, A. (2011). The digital reading experience: Learning from interaction design and UX-usability experts. *Publishing Research Quarterly*, 27(2), 135–140
- Lai, J. Y., & Chang, C. Y. (2011). User attitudes toward dedicated e-book readers for reading. *Online Information Review*, 35(4), 558–580
- Landoni, M. (2006). EbookCrossing as a way to study e-book usability. *International Journal of the Book*, 3, 121–126

- Lichtenstein, D. R., Ridgway, N. M., & Netemeyer, R. G. (1993). Price perceptions and consumer shopping behavior: A field study. *Journal of Marketing Research*, 30(2), 234–245
- Lusch, R. F., & Nambisan, S. (2015). Service innovation: A service-dominant logic perspective. *MIS Quarterly*, 39(1), 155–175
- MacWilliam, A. (2013). The engaged reader. *Publishing Research Quarterly*, 29, 1–11
- McNeish, J. E., & Hazra, U. (2014). Interpreting simultaneous use of an existing technology and its replacement innovation. *International Journal of Technology Marketing*, 9(4), 376–391
- Min, S., Overby, J., & Im, K. S. (2012). Relationships between desired attributes, consequences and purchase frequency. *The Journal of Consumer Marketing*, 29(6), 423–435
- Mussinelli, C. (2011). Editech 2011: ebooks and much more in Europe. *Publishing Research Quarterly*, 27(3), 288–295
- Polo Peña, A. I. P., Frías Jamilena, D. M., & Rodríguez-Molina, M. (2014). Á. Value co-creation via information and communications technology. *Service Industries Journal*, 34(13), 1043–1059
- Ratten, V. (2011). Emotional connections to books and technological innovations: An e-book perspective. *International Journal of Technology Marketing*, 6(3), 272–286
- Richardson, J. V. Jr., & Mahmood, K. (2012). eBook readers: User satisfaction and usability issues. *Library Hi Tech*, 30(1), 170–185
- Shaw, G., Bailey, A., & Williams, A. (2011). Aspects of service-dominant logic and its implications for tourism management: Examples from the hotel industry. *Tourism Management*, 32(2), 207–214
- Shrimplin, A. K., Revelle, A., Hurst, S., & Messner, K. (2011). Contradictions and consensus - Clusters of opinions on e-books. *College & Research Libraries*, 72(2), 181–190
- Srirahayu, D. P., Nurpratama, M. R., Handriana, T., & Hartini, S. (2021). Effect of gender, social influence, and emotional factors in usage of e-Books by Generation Z in Indonesia. *Digital Library Perspectives*, 37(4), 325–327
- Tian, X., & Martin, B. (2011). Impacting forces on ebook business models development. *Publishing Research Quarterly*, 27(3), 230–246
- Torres, R., Johnson, V., & Imhonde, B. (2014). The impact of content type and availability on ebook reader adoption. *Journal of Computer Information Systems*, 54(4), 42–51
- Vargo, S. L., & Lusch, R. F. (2004). Evolving to a new dominant logic for marketing. *Journal of Marketing*, 68(1), 1–17
- Vargo, S. L., & Lusch, R. F. (2008). Service-dominant logic: Continuing the evolution. *Journal of the Academy of Marketing Science*, 36(1), 1–10
- Waheed, M., Kauer, K., Ain, N., & Sanni, S. A. (2015). Emotional attachment and multidimensional self-efficacy: Extension of innovation diffusion theory in the context of eBook reader. *Behaviour & Information Technology*, 34(12), 1147–1159
- Wallenberg, F. (2009). *Judging a book by its cover - Online previews and book sales, escholarship*. The United States: University of California

Publisher's Note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.