

*Comparative Analysis of Purchasing Behavior at Physical and Online Bookstores
by University Students*

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Abstract

This study conducts a comparative experiment on the purchasing behavior of students from mid-tier private universities in Tokyo at both physical and online bookstores. Recently, the spread of the Internet has changed people's lifestyles and their purchasing behavior. Given the presence of large online bookstores, this also applies to book purchasing behavior. In particular, this study uses university students—the so-called neo-digital native generation—to conduct a comparative experiment on purchasing behaviors at physical and online bookstores and to examine the differences in both purchasing behavior and the characteristics of the two types of bookstores. We draw empirical conclusions regarding the purchasing behavior of this generation and aspects of their lifestyle. We also wish to gain some basic insights regarding the future evolution of physical and online bookstores.

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1. Introduction

Recently, the spread of the Internet has greatly changed people's lifestyles and their purchasing behavior. Books are no exception. The advent of large-scale online bookstores has enabled people to shop for and purchase books from their homes at any time.

Online bookstores differ from physical bookstores as they have their own systems. These systems center on recommendations, rankings, and search features, and guide the user's purchasing behavior. Therefore, online purchasing behaviors have different characteristics than purchasing behavior at physical bookstores.

Indeed, purchasing behavior at online bookstores differs, depending on the purchaser's age and his or her proficiency with the systems. Recently, we have seen the emergence of the so-called neo-digital natives, who feel more comfortable with mobile phones than with PCs (Hashimoto et al., 2010). We can assume that this generation has its own characteristics as it relates to online purchasing behavior.

In this study, we conducted an experiment to compare purchasing behavior at physical bookstores with that at online bookstores. Our participants were students at mid-tier private universities in the Tokyo region. The goal was to examine the usage of both physical and online bookstores by neo-digital native generation, to empirically demonstrate one aspect of that generation's lifestyle, and to provide fundamental insights regarding the evolution of physical and online bookstores. This study is organized as follows. Section 2 presents the related research. Section 3 describes the experimental methodology. Section 4 discusses the results. Section 5 presents our conclusions.

2. Related Research

Many studies on marketing theory have examined both online and physical purchasing behavior (e.g., Bucklin and Sismeiro, 2003; Degeratu, Rangaswamy and Wu, 2003). Studies on purchasing in bookstores include Kobayashi et al. (2008), who used a market survey to analyze the behavior of users in physical and online bookstores. Our study provides new insights through an actual experiment and interviews of the neo-digital native cohort.

Moreover, many studies involved experiments on participants and conducted interviews to analyze the information behavior of library users (e.g., Sugie et al., 2010). This study provides insights that contribute to the information behavior analysis in libraries.

3. Experimental Methodology

We performed a subject-based experiment on purchasing behavior in both physical and online bookstores, and subsequently conducted interviews. The test participants included nine students of both genders, ranging in age from 18 to 22, from mid-tier private universities in the Tokyo region. We asked them to shop on the same day in both physical and online bookstores. The bookstores were visited in a fixed order, the physical bookstore first and the online bookstore second, with one to two hours between visits.

For the physical bookstore, we used a large bookstore in Tokyo. We imposed no time limit. The participants shopped as freely as they normally would in a bookstore. The participants were accompanied by a researcher who recorded their path, the books

they looked at, the things they said, and the time they spent browsing.

For the online bookstore, we used Amazon. We imposed no time limit, and we had the participants shop as freely as they normally would on the Internet. The experiment was conducted in the university lab on PCs. The operating system was Windows 7, the browser was Firefox, and no login was required. We recorded the session and documented the path of participants, the books they clicked on, the things they said, and the time they spent browsing.

After these experiments, we interviewed the participants. The questions were as follows:

- (1) Please state your gender and your year in university.
- (2) How often do you usually read books?
- (3) How often do you visit physical bookstores and make purchases there?
- (4) How often do you visit online bookstores and make purchases there?
- (5) Was there a particular book you wanted to buy before this experiment?
- (6) What books did you want to (or actually) buy?
- (7) For each book you looked at or thought you wanted to buy, what were the reasons?
- (8) What thought process led you to those books?
- (9) Have you ever seen a book in a physical bookstore, and then purchased it online, or vice versa?
- (10) Is there any difference in how or why you use physical bookstores and online bookstores?
- (11) Did you find it easier to purchase or find items in the physical bookstore or the online bookstore?

These questions enabled us to learn regarding the experiment participants' personal attributes, typical frequency of using bookstores, and purchasing frequency, as well as to explore their thought processes when they were using physical or online bookstores.

4. Results and Findings

Table 1 shows the basic data for the participants, based on the interview results, including year at university, gender, typical book-reading frequency, typical frequency of visiting both physical and online bookstores, and typical frequency of purchases at both physical and online bookstores. Table 2 shows whether the participants had a specific book they wanted to purchase before the experiment, the number of books they picked up to look at (or clicked on) during the experiment, the amount of time spent browsing (physical and online), and the number of books they wanted to purchase (or actually purchased), for both the physical and online bookstore. Table 3 tabulates the books picked up (or clicked on) at the physical and online bookstores, into categories (A) specific books the participants wanted to purchase before the experiment, (B) books the participants found interesting in terms of content or appearance, and (C) books picked up (or clicked on) at random.

Table 1 shows that, for most of the participants, both typical visiting and purchasing frequencies were higher at the physical bookstores than at the online ones. Table 2 shows that a majority of the participants picked up (or clicked on) more books at the physical bookstore than at the online one. A majority of the participants also spent more time browsing at the physical bookstore than at the online one. The foregoing indicate that the number of books picked up (or clicked on) corresponded almost directly with the time spent browsing, and that both of these also had a certain

correspondence with typical frequency of visits.¹ More participants found books they thought they wanted to purchase at the online stores than at the physical ones. For these participants, we can conclude that the information, reviews and rankings, and recommendations at the online store succeeded in making them more inclined to buy a book. On the other hand, no participants actually made a purchase from the online bookstore during the experiment. Based on the opinions we heard from the participants, where they noted that they would purchase the book from a physical bookstore after getting information and reviews about it online, we may conclude that, for the participant cohort in this study, an increase in the inclination to buy does not necessarily lead directly to an online purchase.

Table 3 reveals wide variations among individuals in terms of inclination to make purchases at physical and online bookstores. A quick glance shows no general trend. However, looking at the participants who had no specific book in mind (3, 5, 7, 8, 9), for four of the five, the percentage of books they picked up to look at (or clicked on) was higher in the physical bookstore than in the online bookstore. This group just browsed throughout the bookstores with no clear objective, more often picking up books they somehow noticed at the physical bookstore. In online bookstores, however, it is more common to find books by searching keywords, recommendations, and rankings. This indicates a tendency toward a book being easier to pick up (or click on) if its content or appearance is found to be interesting.

5. Conclusions

In this study, we conducted a comparative experiment of the purchasing behavior of students from mid-tier universities in Tokyo at physical and online bookstores.

The results of the experiment and the interviews showed that while the neo-digital native cohort visits physical bookstores more often than they do online ones, some participants become more inclined to purchase books when they are at online bookstores, but they generally make their actual purchases at physical bookstores. Also, when not looking for a specific book, for some reason they will pick up a book in a physical bookstore more often than they will click on a book in an online bookstore.

This study used a small number of participants and, as such, its findings are still limited. We hope to supplement our findings by conducting additional experiments and follow-up interviews. Our study also suggests that the sequence of the experiment had an effect on the outcome. Here also, we hope to complete additional experiments that will supplement our results.

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¹ For this experiment we used a fixed test order: the physical bookstore was visited first, the online bookstore next. We plan to conduct additional tests in the future to determine whether the order has any impact on the test results.

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Appendix 1

表1. 被験者の基礎データ

被験者	学年	性別	本の閲覧頻度	利用頻度		購入頻度	
				リアル	オンライン	リアル	オンライン
1	3	女	年に数冊	1か月に1回程度	ほとんどなし	半年に1・2冊	ほとんどなし
2	3	女	月に2冊	週に3回	週に1・2回時間のある時	月に2冊	ほとんどなし
3	4	男	月に3冊	月に5回	一週間に2回程度	月に2冊	ほとんどなし
4	2	女	雑誌を月に1冊	行かない	半年に1・2回	買いたい本があった時	半年に1・2回
5	4	女	月に2冊	月に1・2回	見ない	ほぼなし	買ったことがない
6	2	男	雑誌を月に1冊	月に1回	必要な時だけ(半年に1回)	ほとんどなし	必要な時だけ(半年に1回)
7	1	女	雑誌を3冊	月に2回	必要な時だけ(半年に1回)	買わない	必要な時だけ(半年に1回)
8	1	男	月に1冊か2冊	月に3・4回	週に1回	一か月に1冊	買わない
9	1	女	月に2・3冊	月に2回	あまり見ない	月に1冊	買わない

Table 1. Basic Data on Participants

Participants	Year	Gender	Reading frequency	Usage frequency		Purchase frequency	
				Physical	Online	Physical	Online
1	3	F	Several books per year	About 1 time per month	Almost none	1-2 books per six months	Almost never
2	3	F	2 books per month	3 times per week	1-2 times per week when time permits	2 books per month	Almost never
3	4	M	3 books per month	5 times per month	About 2 times per week	2 books per month	Almost never
4	2	F	1 magazine per month	No visits	1-2 times per six months	When there's a book I want to purchase	1-2 times per six months
5	4	F	2 books per month	1-2 times per month	No visits	Almost never	Have never purchased
6	2	M	1 magazine per month	1 time per month	Only when necessary	Almost never	Only when necessary

					(1 time per six months)		(1 time per six months)
7	1	F	2 books per month	2 times per month	Only when necessary (1 time per six months)	Do not purchase	Only when necessary (1 time per six months)
8	1	M	1 or 2 books per month	3–4 times per month	1 time per week	1 book per month	Do not purchase
9	1	F	2–3 books per month	2 times per month	Rarely	1 book per month	Do not purchase

表2. 実験結果1

被験者	目的の本	手に取った冊数		購入冊数		時間(分)	
		リアル	オンライン	リアル	オンライン	リアル	オンライン
1	あり	10	4	2	0	15	10
2	あり	15	6	2 (1)	0	20	6
3	なし	21	9	2	1	30	10
4	あり	15	16	0 (2)	3	30	30
5	なし	21	10	1	0	30	10
6	あり	14	2	1	2	30	9
7	なし	7	3	0	3	15	7
8	なし	8	6	0	0	20	15
9	なし	26	26	0	5	35	37

Table 2. Experimental Results 1

Books considered

Books purchased

Time (minutes)

Participants

Desired book

Physical

Online

Yes Yes No Yes No Yes No No No

表 3. 実験結果 2

Table 3. Experimental Results 2

	Physical bookstores			Online bookstores		
Participants	Number of As	Number of Bs	Number of Cs	Number of As	Number of Bs	Number of Cs
1	4	11	11	1	11	11
2	11	11	11	11	11	11
3	11	11	11	11	11	11
4	11	11	11	11	11	11
5	11	11	11	11	11	11
6	11	11	11	11	11	11
7	11	11	11	11	11	11
8	11	11	11	11	11	11
9	11	11	11	11	11	11
10	11	11	11	11	11	11
11	11	11	11	11	11	11
12	11	11	11	11	11	11
13	11	11	11	11	11	11
14	11	11	11	11	11	11
15	11	11	11	11	11	11
16	11	11	11	11	11	11
17	11	11	11	11	11	11
18	11	11	11	11	11	11
19	11	11	11	11	11	11
20	11	11	11	11	11	11
21	11	11	11	11	11	11
22	11	11	11	11	11	11
23	11	11	11	11	11	11
24	11	11	11	11	11	11
25	11	11	11	11	11	11
26	11	11	11	11	11	11
27	11	11	11	11	11	11
28	11	11	11	11	11	11
29	11	11	11	11	11	11
30	11	11	11	11	11	11
31	11	11	11	11	11	11
32	11	11	11	11	11	11
33	11	11	11	11	11	11
34	11	11	11	11	11	11
35	11	11	11	11	11	11
36	11	11	11	11	11	11
37	11	11	11	11	11	11
38	11	11	11	11	11	11
39	11	11	11	11	11	11
40	11	11	11	11	11	11
41	11	11	11	11	11	11
42	11	11	11	11	11	11
43	11	11	11	11	11	11
44	11	11	11	11	11	11
45	11	11	11	11	11	11
46	11	11	11	11	11	11
47	11	11	11	11	11	11
48	11	11	11	11	11	11
49	11	11	11	11	11	11
50	11	11	11	11	11	11

Physical bookstores

Online bookstores

Participants

Number of As

Number of Bs

Number of Cs

Number of As

Number of Bs

Number of Cs