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Empirical Study of Omnichannel Purchasing Pattern with Real Customer Data from Health and Lifestyle Company

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Abstract: This study examines the effect of omnichannel usage pattern on customers' purchasing amount by determining statistical significance of different purchasing amount occurred for online and offline channel usage pattern with empirical analysis. The data is collected from a health and lifestyle company operated by Major Pharmaceutical company in Korea, which sells health supplement and skincare products through their owned online and offline channels. The channel usage pattern of customers is categorized into four groups: Customer using online channel only, customer using offline channel only, customer first joined membership through online and use both on/offline channels and customers joined membership through offline channel and use both on/offline. Then, the trading period, total number of purchasing, average purchasing amount per transaction and total purchasing amount during trading period among the above four groups were analyzed. The result demonstrated the number of purchasing, average purchasing amount and total purchasing amount for the omnichannel customer groups who cross used on and offline showed statistical significance. However, the difference in purchasing amount between the group of customers who joined online membership and use offline channel and another customer group that joined offline membership and use online channel was not statistically significant. This study overcame the limitation of conventional studies used survey based data, by the application of empirical data from the real customers in on/offline channels, and provides meaningful insights based on empirical real data that group of customers with higher purchasing experience in both on/offline channels shows high performance.

Keywords: omnichannel; digital marketing; consumer behavior; retail industry; all other miscellaneous store retailers

1. Introduction

The offline channel is facing with dramatic decline while online channel through various digital channel such as mobile sales shows significant growth. From the perspective of traditional channel point of view, such situation is considered crisis [1]. There are many studies progressing about ways to strengthening the competitiveness of offline retail through specializing its own uniqueness under such circumstance where offline channel is facing with crisis [1,2]. However, witnessing the major retailers in US such as Toys 'R Us, RadioShack, Payless Shoes and others going bankrupt is the reality we face these days [3]. As the new channels such as internet, SNS, mobile and etc. rise and are offered to customers, the customer experience becomes even more digitalized and the traditional channel is multi channelized [4]. According to U.S. Census Bureau, e-commerce with less than 10% share of the retail market in US, 2017 is speculated to demonstrate 10% growth each year, and if such growth accelerates, the online channel will even more strengthened and is expected to take 50% retail market share by

2035. There are offline retails specializing their own competitiveness to show successful outcomes [3] and omnichannel strategy becomes the solution to overcome the current crisis of offline.

The focus of channel strategy in the current retail environment is the evolution of single channel to multi-channel and finally to omnichannel with the goal to provide consistent quality of service and experience to customers through both on/offline channel [5]. As the main goal of omnichannel is based on customer experience, studies on omnichannel are also conducted based on customer experience. The reason we focus on customer experience is because many studies of empirical analysis demonstrate customer experience in terms of customer satisfaction, customer loyalty [4,6], maintaining customer [7,8] and etc. is associated with successful relationship with customers.

From the perspective of channel, many studies say it is essential to consider and evaluate customer shopping experience not just from single channel perspective but from multi-channel point of view [9]. Despite such studies, it is still common to see many studies of customer experience based on single-channel mindset [9] or have the focus on retailer rather than channel [10,11]. There are studies evaluating customer experience in multi-channel environment [12–14], but they are mostly conceptual studies lacking empirical analysis. In the recent days, we see study result on omnichannel customer through empirical analysis of customer [1], but they are based on data collected from questionnaire or survey of customer and do not represent the real data from retailer which owns omnichannel; it is difficult to find any study conducted with empirical analysis done on the omnichannel environment.

Therefore, we selected health and lifestyle brand operated by No.1 Pharmaceutical company in Korea, collected paid-membership customer data from both on/offline channel, to conduct empirical analysis of purchasing pattern in omnichannel environment by customers introduced through online channel representing digital and offline representing traditional channel.

The study is designed as the following structure after this chapter. After literature review, Methodology is explained followed by Analysis of results and Discussion. In Conclusions, Managerial Implication as well as Practical/Social Implications are discussed and Limitations follows.

2. Literature Review

2.1. Concept of Omnichannel and Channel Categorization

The term Omnichannel retailing was known to be introduced in "Mobile Retailing Blueprint 2.0" by National Retail Federation on January 2011, but it was introduced through study done in 2009 by IDC's Global Retail Insight research unit [15]; the term omnichannel appeared when companies have continuously offered new channel to customers [16], customers becoming more tangible with various types of devices [17], and retailers interacting through various contact points with customer [18]. "Multi-channel", "cross-channel" and "omnichannel" are retail concepts without clear distinction of the meaning and are thus used as similar meaning [19], but the term omnichannel is now differentiated from cross-channel and defined as the status where the boundaries of online and offline between distribution and retail is disappearing [20]. In conceptual perspective, omnichannel refers to sound integration of online and offline channel, but it is rare to find any retail which achieved such level of integration [6].

The type of channel can be categorized into physical channel and virtual channel or offline channel and online channel [13,21]. Physical channel or offline channel are mode of communication based on physical infrastructure while virtual channel or online channel refer to mode of communication based on Information communication technology [13]. As the emphasis and focus of channel issue moved from channel expansion to channel integration, the definition of retail offering service via different channels is used without clear distinction. The similar issue is on-going even in the academic world; the concept of multichannel retail and omnichannel retail are not clearly defined from each other [19], and the word multichannel is used as representative term to refer cross-channel, omnichannel and other type of channel which is comprised of various channel type, sometimes compatibly used with omnichannel as Beck and Rygl suggested [19].

2.2. Customer Experience in Digital Era and Omnichannel

It is important to understand the brand image inside of customer's perception mechanism to better understand the customer experience. According to Reynolds and Gutman, brand image serves as helpful perception to make product and service differentiated from competitor [22] and Keller said brand image is the awareness of the brand reflected by perception in customer's memory [23]. In many related studies on Brand equity, brand image is defined as overall brand perception including subjective feelings and emotions through brand experience [24].

"Experience Is the New Brand" [25]. We are living in the era of "Experience Is the New Brand" [25] where the experience becomes highly emphasized compared to other historical times. Customer's brand experience is also categorized into process and result by sensory stimuli [26]. However, recent studies on customer experience suggest various components in customer experience are integrated harmoniously to make up overall brand experience which becomes foundation for establishing relationship with customer [27]. Such claims are also connected to existing studies [24] in terms of broader meaning.

Internet in Digital Age has changed the way of customer and brand interacting with each other completely. Customer who encountered information passively under traditional media controlled by manufacturer are changing into proactive customers who actively maintain relationship with brand and represent themselves as ambassadors to publically advertise or attack the products they purchase [28]. According to the definition by British Financial Times, digital marketing is much more extended term than internet marketing, reaching out to channels which do not require internet. It includes cell phone, social media, display ad, searching ad and other various forms of digital media [29] and whether the physical location of marketing is online or is using internet environment is not a matter of concern.

Customer experience happens from variety of direct and indirect encounter point between customer and company through products, communication, brand, sales person. [30], and it is evolving into a more digitalized multi-channel form with the introduction of new encounter point such as internet, mobile [4]. It is notable the emphasis of retail environment these days is shifting from single channel to omnichannel, and the purpose of omnichannel is to provide consistent service to customers so the experience from both online and offline are of same quality [5]. As variety of channel provides customer shopping experience these days, multi-channel must be taken into consideration [13,30,31].

In omnichannel environment, customer goes in and out of different channels to use the benefits of each channel offers rather than staying with one type of channel [14]. It is possible customer loyalty for online and offline channel can exist separately when they choose to utilize various channels for different transaction, but in the omnichannel environment where customer can use all channels simultaneously, their loyalty is not restricted to certain channel. For the customer using multi-channel, the availability for different channel can result in their purchasing decision and loyalty in other channel. This means the presence of offline channel can enhance the loyalty for online channel of a retailer [32–34].

2.3. Behavior Analysis of Omnichannel Usage

Customers in omnichannel environment in a given retailer show behavior to utilize strong point from each different channels rather than remaining in one specific channel [14]. It is possible to observe customer loyalty for online channel as well as offline channel separately existing when a customer is capable of using various channels for each transaction occasion. However, customer loyalty is not restricted in one specific channel because he/she can use different channels simultaneously and have integrated experience in omnichannel environment. For customer using both on/offline together, the purchasing behavior or loyalty in one channel can change if the other channel does not exist [33]. It means the presence of offline channel could increase customer loyalty for retailer operated via online channel [34].

According to recent study conducted on 46,000 shoppers, online-only shoppers are 7%, store only shoppers 20% and the remaining majority of 73% represents users of multiple channels [1]. This study shows omnichannel users spend 4% more in the store, 10% more online when compared to single-channel users. More channels a customer use, more spending is observed as well. Moreover,

the study shows spending is increased by 13% when omnichannel customer learns more about the channel through online before visiting offline channel. However, this research is not based on real data of customer from channel but was carried out based on survey of questionnaire thus has certain limitation.

3. Research Design and Methodology

3.1. Hypothesis

3.1.1. Theoretical Background

Retail loyalty is defined as customer's tendency for repeated purchase in certain retailer during a given period [35]. As customers can easily move across different channels under the current channel environment, retailers use the synergy created by different characteristics of various channels to maintain and satisfy variety of needs for omnichannel customers [36]. The loyalty for channel is categorized into loyalty for online and offline [37], and the loyalty per channel is summed up for conceptualization [38]. However, the halo effect resulted from one type of channel owned by retailer can spread to other channel [39], and loyalty for online and offline can interact with each other [33,34,40]. Therefore, it is difficult to measure loyalty separately for each channel in omnichannel. The loyalty for channel is defined as customer selecting specific channel and use it to make repeated purchase [37], but, the loyalty in multi-channel compared to single channel happens when customer uses different channel under the same retailer during the course of shopping for purchasing which means it is not just repeated purchase in a single channel but the use of different channel should also be taken into account [38]. Therefore, we will set up Hypothesis through investigating customer purchasing pattern from the customer group making separate purchase in online and offline, and the other customer group who are introduced to the brand through online or offline separately but use both channels.

3.1.2. Research Model and Hypotheses

This study is carried out using the data of real customer purchase instead of using survey written by customer, to conduct empirical analysis of the effect of customer's omnichannel usage pattern on purchase amount, and to determine the purchase amount according to such usage pattern of online and offline channel provides insightful difference.

To conduct the study, the purchase data from paid-membership customer of a health supplement/skincare brand in Korea which owns both online and offline channel in Korea was collected and analyzed. Figure 1 below is a schematic conceptual study model and Hypothesis of the study.

The purchase per day of customers who joined paid-membership between April 2018 and July 2019 were integrated and categorized into four different groups according to usage pattern of channel: (Group 1) customers using online channel only, (Group 2) customers using offline channel only, (Group 3) customers first joined membership in online channel and then used online and offline channels together, (Group 4) customers first joined membership in offline channel and then used on/offline channel. Then the four groups were analyzed to find out if there's insightful statistical difference among the groups according to total purchase number during trading period, average purchasing amount per transaction and total purchasing amount during trading period.
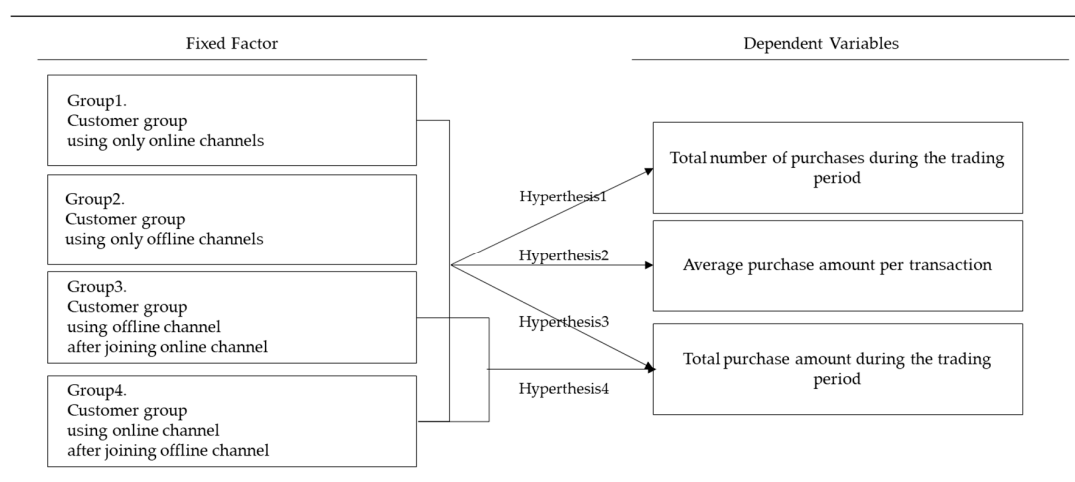
Figure 1. Research Model.

Hypothesis 1. *It is speculated the total number of purchase during the trade period by the omnichannel users who cross-use both on/offline channels, will be higher.*
(trading period: a period referring to the moment of 1st encounter of the brand shop to the current)

Hypothesis 2. *It is speculated the average purchase amount per transaction by the omnichannel users who cross-use both on/offline channels, will be higher during the trading period.*
(trading period: a period referring to the moment of 1st encounter of the brand shop to the current)

Hypothesis 3. *It is speculated the total purchase amount by the omnichannel users who cross-use both on/offline channels, will be higher during the trading period.*
(trading period: a period referring to the moment of 1st encounter of the brand shop to the current)

Hypothesis 4. *It is speculated the total purchase amount by a group of customer who visits offline channel first and then join online channel will be higher compared to the total purchase amount by a group of customer who joins online channel first and visit offline channel.*

3.2. Sample and Data Collection

To achieve the purpose of the study, 12,336 transaction data (1946 online transaction, 10,372 offline transaction) representing 2000 customers who joined paid-membership offered by a health supplement/skincare brand in Korea during approximately 15 months period from 4 April 2018 to 31 July 2019 a health supplement/skincare brand in Korea was selected.

The population of paid-membership customers in this study is selected as the sample group and they were characterized as active purchaser, thus providing enough data on purchase history (i.e., product list, price information, time/date/location of each purchase, & etc.) for the study. The membership of the brand selected offers and maintains fixed price discount policy which means the effect from external condition including promotion, additional discount or other promotional events is controlled or minimized.

The data used in this study consists of gender and age of customer, date of joining membership, pattern of omni purchase (i.e., purchasing pattern from online and offline channel), purchasing pattern per each store type (i.e., multi-purpose store which is comprised of café, restaurant and retail zones combined together, retail-only store, online store), number of store type experienced, total transaction during trading period, total purchasing amount, average purchasing price per transaction, and all variables during trading period which is August 2018.

The original purchase history is set of data sorted per transaction for each customer and aggregated with Python3.0 into customer-based data according to each customer's own membership number,

to calculate usage pattern, number of transaction, total purchasing amount and average purchasing amount per transaction.

3.3. Sample Characteristics

The total sample of 2000 customer is categorized into four different groups according to omnichannel purchasing pattern, and Table 1 shows N and N% for each group. Group 1 shows 181 (10.1%) customers with online channel experience only while Group 2 represents 1513 (77.3%) customers using offline channel only. Group 3 with 65 (3.3%) customers represents those who joined membership via online channel first and used both on/offline channels. Group 4 shows 183 (9.3%) customers who joined membership via offline channel first and used both on/offline channels.

Table 1. N and N% per Group, categorized according to four types of omnichannel purchasing pattern.

Groups according to Omnichannel Purchasing Pattern	N	N%
Group 1 [1]	181	10.1
Group 2 [2]	1513	77.3
Group 3 [3]	65	3.3
Group 4 [4]	183	9.3
TOTAL	2000	100

[1] Group of customers with online channel experience. [2] Group of customers with offline channel experience. [3] Group of customers who joined membership via online channel and then used both on/offline channels. [4] Group of customers who joined membership via offline channel and then used both on/offline channels.

3.4. Definition of Variable for Resarch

The variables used for research design and analysis are (1) type of omnichannel purchasing pattern: this variable is categorized into four different groups based on customer's purchasing pattern in on/offline channel. (2) Number of purchasing: Total number of purchasing made by customer in on/offline channel during the period from joining membership to current. Any purchase made for multiple products per transaction is counted as one purchasing. (3) Total purchasing amount: Total purchasing amount made by customer in on/offline channel during the period from joining membership to current. For any purchasing made for multiple products per transaction, the total sum value is counted as the purchasing amount per transaction. (4) Average purchasing amount per transaction: Average purchasing amount per transaction made by customer in on/offline channel during the period from joining membership to current. (5) Trading period: The period counted from the day when customer joined membership to current. As the membership join date for each customer varies, the trading period is different per customer which means longer the trading period is, there is more statistical significance. Thus, it is controlled as covariant. Table 2 shows definition of the variables related to this.

Table 2. Definition of the variables related literature.

Variables	Type	Type (2)	Definition
(1) Type of omnichannel purchasing pattern	Independent Variables	Nominal	Customer categorized into groups according to different purchasing patterns in on/offline channel
(2) number of transaction	Dependent Variables (1)	Numeric	Total number of transaction made by customer during the period from joining membership to current in on/offline channel
(3) total purchasing amount	Dependent Variables (2)	Numeric	Total purchasing amount made by customer during the period from joining membership to current in on/offline channel
(4) average purchasing amount per transaction	Dependent Variables (3)	Numeric	Average purchasing amount per transaction made by customer during the period from joining membership to current in on/offline channel (2)/(3)
(5) trading period	Co-variables	Numeric	Period counted from the day of joining membership to current for each customer

3.5. Descriptive Statistics

Table 2 shows descriptive statistics on gender, age, trading period, number of transaction, total purchasing amount, average purchasing amount per transaction for each group.

Group 1 shows 33.0% (N = 63) male and 66.5% (N = 127) female, Group 2 with 16.8% (N = 258) male and 83.2% (N = 1,276) female, Group 3 with 19.4% (N = 13) male and 80.6% (N = 54) female and Group 4 with 11.1% (N = 23) male and 88.9% (N = 185) female; Group 1 shows higher percentage of male compared to other groups.

The age for each group is as follows; Group 1 with Mean = 43.1 and SD = 8.8, Group 2 with Mean = 46. and SD = 11.0, Group 3 with Mean = 43.2 and SD = 8.0, and Group 4 with Mean = 43.6 and SD = 8.0. The average age for Group 2 is the highest.

The trading period for each group shows Mean = 6.0 and SD = 3.6 for Group 1, Mean = 5.8 and SD = 3.0 for Group 2, Mean = 6.6 and SD = 3.4 for Group 3, and Mean = 6.7 and SD = 2.9 for Group 4. Since the trading period for each group varies and such condition will have impact on total purchasing amount and number of transaction, the trading period is considered as covariance in ANVOVA.

The number of purchasing for each group is as following: Group 1 with Mean = 3.9 and SD = 4.2, Group 2 with Mean = 3.2 and SD = 3.3, Group 3 with Mean = 6.5 and SD = 4.8, and Group 4 with Mean = 6.2 and SD = 4.8. The purchasing numbers for Group 3 and Group 4 are high.

The purchasing amount for each group is as following: Group 1 with Mean = 409,960 KRW, Group 2 with Mean = 309,141 KRW, Group 3 with Mean = 644,733 KRW and Group 4 with Mean = 549, 651 KRW; The purchasing amount for Group 3 and Group 4 are high. The average purchasing amount per transaction for each group is as follows: Group 1 with Mean = 88,958 KRW, Group 2 with Mean = 98,003 KRW, Group 3 with Mean = 93,825 KRW and Group 4 with Mean = 82,744 KRW; the average amount per transaction among the groups do not show much difference.

3.6. One-Way ANCOVA

The ANCOVA approach provides a straightforward method for evaluating the effect of the categorical fixed factor on the dependent variable [41]. To evaluate difference in total purchasing amount for each group which had been categorized according to omnichannel purchasing pattern, Analysis of covariance (ANCOVA) was used. The ANCOVA approach provides a straightforward method for evaluating the effect of the categorical fixed factor on the dependent variable [41]. The membership period for each individual is different, therefore the difference in trading period was set as covariance when ANCOVA was conducted.

To evaluate the effect of omnichannel usage pattern on number of purchase, average purchasing amount per transaction and total purchasing amount, the trading period was set as covariate to use One-way ANCOVA.

4. Analysis of Results

4.1. Hypothesis 1

It is speculated the total number of purchase during the trade period by the omnichannel users who cross-use both on/offline channels, will be higher.

To test Hypothesis1, A one-way ANCOVA was conducted to determine a statistically significant difference among four different groups categorized according to omnichannel usage pattern on total number of purchase controlling for trading period. The ANCOVA model was generated using a general linear modeling(GLM) procedure. The covariate, trading period, was significantly related to the total number of purchase, ($F_{(11,995)} = 157.782$, $p = 0.000$, $\alpha = 0.05$). The model was significant ($F_{(31,995)} = 50.523$, $p = 0.000$, $\alpha = 0.05$) with an associated r-square of 0.145 (see Table 3).

Table 3. Descriptive statistics of omnichannel purchasing pattern per each group and variable.

			Four Different Groups Categorized by Omnichannel Purchasing Pattern			
			Group 1	**Group 2**	**Group 3**	**Group 4**
Gender	Male	N	63	258	13	23
		N%	33.0%	16.8%	19.4%	11.1%
	Female	N	127	1276	54	185
		N%	66.5%	83.2%	80.6%	88.9%
		N	1	0	0	0
		N%	0.5%	0%	0%	0%
Age		Mean	43.1	46.8	43.2	43.6
		Var	76.7	120.4	63.4	64.5
		SD	8.8	11.0	8.0	8.0
		Max	72.0	88.0	68.0	69.0
Trading Period		Mean	6.0	5.8	6.6	6.7
		Var	12.8	9.0	11.8	8.2
		SD	3.6	3.0	3.4	2.9
		Max	17.0	16.0	16.0	17.0
Number of Purchasing		Mean	3.9	3.2	6.5	6.2
		Var	17.7	10.9	23.4	22.9
		SD	4.2	3.3	4.8	4.8
		Max	28.0	30.0	30.0	30.0
Purchasing Amount (KRW)		Mean	409,960	309,141	644,733	549,651
		SD	687,896	444,764	675,099	631,785
		MAX	4,985,000	6,318,500	4,617,950	5,083,540
Average Purchasing Amount per transaction (KRW)		Mean	88,958	98,003	93,825	82,744
		SD	69,982	78,741	48,213	55,425
		MAX	450,400	690,000	228,298	529,700

There is a significant effect of omnichannel usage pattern on the total number of purchase after controlling for trading period. Planned contrasts reveal that Group 1 significantly decreased the total number of purchase compared to having a control (Group 4), t = −5.944, *p* = 0.000, α = 0.05 and Group 2 significantly decreased the total number of purchase compared to having a control (Group 4), t = −10.528, *p* = 0.000, α = 0.05, but not compared to Group 3, t = 0.752, *p* = 0.452, α = 0.05 (see Table 4).

Table 4. Tests of Between-Subjects Effects. (Total number of purchasing by Groups) Dependent Variable: Total number of purchasing.

Source	Type III Sumof Squares	df	Mean Square	F	Significance	Partial Eta Squared
Corrected Model	4192.052 [a]	4	1048.013	85.414	0.000	0.146
Intercept	2308.666	1	2308.666	188.159	0.000	0.086
Trading Period	1935.943	1	1935.943	157.782	0.000	0.073
Group	1859.695	3	619.898	50.523	0.000	0.071
Error	24,478.140	1995	12.270			
Total	55,286.000	2000				
Corrected Total	28,670.192	1999				

[a] R^2 = 0.146 (adjusted R^2 = 0.145).

To evaluate the difference among the four groups, the analysis result from pairwise comparisons among the groups based on Bonferroni correction (See Table 5).

Table 5. Parameter Estimates. (Total number of purchasing by Groups) Dependent Variable: Total number of purchasing.

Prameter	B	Std.Error	t	Sig.	95% Confidence Interval		Partial Eta Squared
					Lower Bound	Upper Bound	
Intercept	4.029	0.297	13.575	0.000	3.447	4.612	0.085
Trading period	0.322	0.026	12.561	0.000	0.271	0.372	0.073
[Group = 1]	−2.089	0.351	−5.944	0.000	−2.779	−1.400	0.017
[Group = 2]	−2.735	0.260	−10.528	0.000	−3.245	−2.226	0.053
[Group = 3]	0.370	0.492	0.752	0.452	−0.595	1.335	0.000
[Group = 4]	0 [a]						

[a] This parameter is set to zero because it is redundant.

4.2. Hypothesis 2

It is speculated the average purchase amount per transaction by the omnichannel users who cross-use both on/offline channels, will be higher during the trading period.

To test Hypothesis2, one-way ANCOVA was conducted to determine a statistically significant difference among four groups categorized according to omnichannel usage pattern on the average purchasing amount per transaction controlling for trading period. The ANCOVA model was generated using a general linear modeling (GLM) procedure. The covariate, trading period, was not significantly related to the average purchasing amount per transaction, ($F_{(11,995)} = 1.296$, $p = 0.255$, $\alpha = 0.05$). The model was significant ($F_{(31,995)} = 2.861$, $p = 0.036$, $\alpha = 0.05$) with an associated r-square of 0.005 (see Table 6).

Table 6. Pairwise Comparisons (total number of purchasing by Groups) Dependent Variable: Total number of purchasing.

Group(I)	Group(J)	Mean Difference (I–J)	Std.Error	Sig. [a]	95% Confidence Interval	
					Lower Bound	Upper Bound
1	2	0.646	0.269	0.098	−0.064	1.356
	3	−2.459 *	0.498	0.000	−3.773	−1.145
	4	−2.089 *	0.351	0.000	−3.017	−1.161
2	1	−0.646	0.269	0.098	−1.356	0.064
	3	−3.105 *	0.438	0.000	−4.261	−1.950
	4	−2.735 *	0.260	0.000	−3.421	−2.049
3	1	2.459 *	0.498	0.000	1.145	3.773
	2	3.105 *	0.438	0.000	1.950	4.261
	4	0.370	0.492	1.000	−0.929	1.670
4	1	2.089 *	0.351	0.000	1.161	3.017
	2	2.735 *	0.260	0.000	2.049	3.421
	3	−0.370	0.492	1.000	−1.670	0.929

Based on estimated marginal means; * The mean difference is significant at the 0.05 level; [a] Adjustment for multiple comparisons: Bonferroni.

There is a significant effect of omnichannel usage pattern on the average purchasing amount per transaction after controlling for trading period. Planned contrasts only reveal that Group 3 significantly increased the average purchasing amount per transaction compared to having a control (Group 1), t = 2.645, $p = 0.008$, $\alpha = 0.05$ and but not compared to Group 4, t = 0.768, $p = 0.443$, $\alpha = 0.05$, and not compared to Group 2, t = 1.045, $p = 0.296$, $\alpha = 0.05$ (see Table 7).

Table 7. Tests of Between-Subjects Effects. (Average purchasing amount per transaction by Groups) Dependent Variable: Average purchasing amount per transaction.

Source	Type III Sumof Squares	df	Mean Square	F	Significance	Partial Eta Squared
Corrected Model	5.909×10^{10}	4	14,772,331,135.863	2.627	0.033	0.005
Intercept	2.439×10^{12}	1	2.439×10^{12}	433.773	0.000	0.179
Trading Period	7,285,127,364.465	1	7,285,127,364.465	1.296	0.255	0.001
Group	48,255,461,925.717	3	16,085,153,975.239	2.861	0.036	0.004
Error	1.122×10^{13}	1995	5,622,696,630.596			
Total	2.948×10^{13}	2000				
Corrected Total	1.128×10^{13}	1999				

$R^2 = 0.005$ (adjusted $R^2 = 0.003$).

To evaluate the difference among the groups, the pairwise comparisons among the groups based no Bonferroni correction was used. The result showed the difference between average purchasing amount per transaction for Group 2 and Group 4 showed statistical significance (see Table 8). Therefore, Hypothesis 2 was rejected.

Table 8. Parameter Estimates (average purchasing amount per transaction Groups) Dependent Variable: Average purchasing amount per transaction.

Prameter	B	Std.Error	t	Sig.	95% Confidence Interval		Partial Eta Squared
					Lower Bound	Upper Bound	
Intercept	86,901.891	6354.356	13.676	0.000	74,440.021	99,363.761	0.086
Trading period	−624.045	548.239	−1.138	0.255	−1699.226	451.136	0.001
[Group = 1]	5777.803	7524.475	0.768	0.443	−8978.849	20,534.456	0.000
[Group = 2]	14,709.550	5561.562	2.645	0.008	3802.472	25,616.628	0.003
[Group = 3]	11,011.608	10,533.601	1.045	0.296	−9646.405	31,669.620	0.001
[Group = 4]	0 [a]						

[a]. This parameter is set to zero because it is redundant.

4.3. Hypothesis 3, Hypothesis 4

In Hypothesis 3, It is speculated the total purchase amount by the omnichannel users who cross-use both on/offline channels, will be higher during the trading period. In Hypothesis 4, It is speculated the total purchase amount by a group of customer who visits offline channel first and then join online channel will be higher compared to the total purchase amount by a group of customer who joins online channel first and visit offline channel.

To test Hypothesis 3 and 4, one-way ANCOVA was conducted to determine a statistically significant difference among four groups categorized according to omnichannel usage pattern on total purchasing amount controlling for trading period. The ANCOVA model was generated using a general linear modeling (GLM) procedure. The covariate, trading period, was significantly related to total purchasing amount, ($F(1,1995) = 119.355$, $p = 0.000$, $\alpha = 0.05$). The model was significant ($F(3,1995) = 18.606$, $p = 0.000$, $\alpha = 0.05$) with an associated r-square of 0.088 (see Table 9).

There is a significant effect of omnichannel usage pattern on total purchasing amount after controlling for trading period. Planned contrasts reveal that Group 1 significantly decreased total purchasing amount compared to having a control(Group 4), $t = −2.89$, $p = 0.022$, $\alpha = 0.05$ and Group 2 significantly decreased the total purchasing amount compared to having a control(Group 4), $t = −5.68$, $p = 0.000$, $\alpha = 0.05$, but not compared to Group 3, $t = 1.444$, $p = 0.148$, $\alpha = 0.05$ (see Table 10).

Table 9. Pairwise Comparisons (average purchasing amount per transaction by Groups). Dependent Variable: Average purchasing amount per transaction.

Group(I)	Group(J)	Mean Defference (I–J)	Std.Error	Sig. [a]	95% Confidence Interval	
					Lower Bound	Upper Bound
1	2	−8,931.747	5754.428	0.725	−24,128.567	6265.073
	3	−5,233.804	10,651.914	1.000	−33,364.355	22,896.746
	4	5,777.803	7524.475	1.000	−14,093.518	25,649.125
2	1	8,931.747	5754.428	0.725	−6265.073	24,128.567
	3	3,697.943	9368.267	1.000	−21,042.633	28,438.518
	4	14,709.550 *	5561.562	0.049	22.069	29,397.031
3	1	5233.804	10,651.914	1.000	−22,896.746	33,364.355
	2	−3697.943	9368.267	1.000	−28,438.518	21,042.633
	4	11,011.608	10,533.601	1.000	−16,806.491	38,829.706
4	1	−5777.803	7524.475	1.000	−25,649.125	14,093.518
	2	−14,709.550 *	5561.562	0.049	−29,397.031	−22.069
	3	−11,011.608	10,533.601	1.000	−38,829.706	16,806.491

Based on estimated marginal means. * The mean difference is significant at the 0.05 level; [a] Adjustment for multiple comparisons: Bonferroni.

Table 10. Tests of Between-Subjects Effects (total purchasing amount by Groups) Dependent Variable: Total purchasing amount.

Source	Type III Sumof Squares	df	Mean Square	F	Significance	Partial Eta Squared
Corrected Model	4.586×10^{13}	4	1.147×10^{13}	47.925	0.000	0.088
Intercept	1.494×10^{13}	1	1.494×10^{13}	62.440	0.000	0.030
Trading Period	2.856×10^{13}	1	2.856×10^{13}	119.355	0.000	0.056
Group	1.335×10^{13}	3	4.451×10^{12}	18.606	0.000	0.027
Error	4.773×10^{14}	1995	2.393×10^{11}			
Total	7.753×10^{14}	2000				
Corrected Total	4.586×10^{13}	4	1.147×10^{13}	47.925	0.000	0.088

$R^2 = 0.088$ (adjusted $R^2 = 0.086$).

To evaluate difference among the four groups, the pairwise comparisons among the groups based on Bonferroni correction was used. The result showed the total purchasing amount by Group 3 and Group 4 who cross used omnichannel was higher with statistical significance compared to Group 1 and 2 with either online or offline usage. Therefore, Hypothesis 3 was accepted. However, the difference observed between Group 3 and Group 4 was not statistically significant, thus Hypothesis 4 was rejected (See Tables 11 and 12).

Table 11. Parameter Estimates (total purchasing amount by Groups) Dependent Variable: Total purchasing amount.

Prameter	B	Std.Error	t	Sig.	95% Confidence Interval		Partial Eta Squared
					Lower Bound	Upper Bound	
Intercept	289,307.892	41,450.185	6.980	0.000	208,017.704	370,598.080	0.024
Trading period	39,070.185	3576.225	10.925	0.000	32,056.658	46,083.712	0.056
[Group = 1]	−112,336.728	49,083.003	−2.289	0.022	−208,596.045	−16,077.411	0.003
[Group = 2]	−206,080.865	36,278.697	−5.680	0.000	−277,228.970	−134,932.761	0.016
[Group = 3]	99,428.030	68,711.876	1.447	0.148	−35,326.528	234,182.588	0.001
[Group = 4]	0 [a]						

[a] This parameter is set to zero because it is redundant.

Table 12. Pairwise Comparisons (total purchasing amount by Groups) Dependent Variable: Total purchasing amount.

Group(I)	Group(J)	Mean Defference (I–J)	Std.Error	Sig. ^{a}	95% Confidence Interval	
					Lower Bound	Upper Bound
1	2	93,744.137	37,536.786	0.076	−5,386.442	192,874.716
	3	−211,764.758 *	69,483.645	0.014	−395,263.528	−28,265.989
	4	−112,336.728	49,083.003	0.133	−241,959.613	17,286.156
2	1	−937,44.137	37,536.786	0.076	−192,874.716	5,386.442
	3	−305,508.895 *	61,110.265	0.000	−466,894.476	−144,123.314
	4	−206,080.865 *	36,278.697	0.000	−301,888.968	−110,272.763
3	1	211,764.758 *	69,483.645	0.014	28,265.989	395,263.528
	2	305,508.895 *	61,110.265	0.000	144,123.314	466,894.476
	4	99,428.030	68,711.876	0.888	−82,032.581	280,888.641
4	1	112,336.728	49,083.003	0.133	−17,286.156	241,959.613
	2	206,080.865 *	36,278.697	0.000	110,272.763	301,888.968
	3	−99,428.030	68,711.876	0.888	−280,888.641	82,032.581

Based on estimated marginal means. * The mean difference is significant at the 0.05 level; ^{a}. Adjustment for multiple comparisons: Bonferroni.

5. Discussion

Among the Hypothesis established in this study, Hypothesis 1 and 3 are accepted while Hypothesis 2 and 4 are rejected (See Table 13). The implication of such result is the total purchasing amount and number of transaction of customer groups who used both on/offline channel are high and statistically significant, but the difference in purchasing amount and number of transaction between customers who first joined online versus offline is not statistically significant. In addition, the average purchasing amount for customer groups who used both on/offline channel is not high. This means the total purchasing amount seems to be high due to the increased number of transaction through various experience customers engage in each channel and the omnichannel makes it possible for brand to encounter customer through diversified channels.

Table 13. Summary of Hypothesis test.

	Hypotheses	Remark
H1	It is speculated the total number of purchase during the trade period by the omnichannel users who cross-use both on/offline channels, will be higher.	Accept
H2	It is speculated the average purchase amount per transaction by the omnichannel users who cross-use both on/offline channels, will be higher during the trading period.	Reject
H3	It is speculated the total purchase amount by the omnichannel users who cross-use both on/offline channels, will be higher during the trading period.	Accept
H4	It is speculated the total purchase amount by a group of customer who visits offline channel first and then join online channel will be higher compared to the total purchase amount by a group of customer who joins online channel first and visit offline channel.	Reject

According to the study on omnichannel of 46,000 shoppers by Sopadjieva, E., the omnichannel users compared to single-channel users spent 4% more in the store and 10% more online [1]. The single-channel users are defined as customers using online (Group 1) and offline (Group 2) separately while omnichannel users are categorized into two different groups where one group of omnichannel users first introduced to the brand through online (Group 3) and the other group through offline (Group 4). The result from analysis shows Group 3 in comparison to Group 1 spent 57.3% more, 47.9% more compared to Group 2 while Group 4 with 74.6% more compared to Group 1 and 77.8% more compared

to Group 2. The omnichannel users from Group 3 and Group 4 did not show significant difference in spending regardless of which channel they were first introduced to the brand. As this study was carried out with a focus target in Health and lifestyle brand store, there is some limitation. However, the data analysis of the study in comparison with the survey-based study by Sopadjieva, E. shows the omnichannel users shows more spending in the empirical study. Such finding has significant insight at this moment when the online is emphasized much more and offline is fading behind. It also provides implication the digital marketing should not just cover the online, but the entire omnichannel. For further study, we will conduct interview with the customers whose data were used for the analysis, investigating the reason for omnichannel users spending more compared to the single-channel users and finally to match the factors influencing brand loyalty with the real data for further investigation.

6. Conclusions

This study proves the number of purchasing, average purchasing amount per transaction and total purchasing amount during trading period of omnichannel customer who cross use online and offline channels are high based on the empirical data. The conventional studies were based on components of customer channel experience or even if such studies were supported by empirical data, they were based on survey which only showed comparisons of customer purchasing amount, therefore this study makes progressive step forward compared to the conventional studies conducted previously. To promote and pursue sustainable and competitive operation of channel and digital marketing, applying the insights that customer experience can be more enriched with omnichannel approach to the operation of company will result in more effective outcome.

In the future studies, the factors studied and proved to be influencing customer experience in this study will be matched with the corresponding customer and his/her purchasing history data used for this study and will be interviewed to further investigate the most influential factor on omnichannel experience and purchasing to expect more practical result.

6.1. Managerial Implication

Sustainability of company determines the destiny of the company. As explained in the introduction, many companies these days are concerned about strategic direction to counteract the crisis of offline channel due to dramatic growth of online channel. Companies with business heavily focus on offline now face with crisis due to the insensitivity shifting to online based, while offline-focused companies facing risk is gearing towards cost-reduction operation through reduction of workforce or education once offered to employees. Such strategic decision sometimes opens up new possibility for company survival, but we know there are many cases where such decision can inhibit the competitiveness of a company once had. There are numerous companies faced the end of destiny due to the insensitivity towards the new change, and their presence wiped out. This study demonstrates customers cross using online and offline channels contribute more to company through empirical analysis. Companies with offline-based business can have opportunity of contributing sales increase from customer by expanding online channel while enhancing offline experience for customers. For companies with online-based business, creating offline channel such as flagship store and etc. which may serve as contact point for customer experience can give positive influence to build loyalty. The recent takeover of Wholefoods by Amazon with the purpose to create direct contact point with customer can be evaluated as part of such strategy. Expansion of online channel is unavoidable fate of company. However, companies already owning the strength of offline channel can increase their competitiveness by offering more direct contact point and experience to customers while utilizing the online channel. In pursuit of company's sustainable operation, expansion to omni channel can open up a new opportunity of enhancing customer value to all companies.

6.2. Practical/Social Implications

We noticed the limitation of many studies done on omnichannel due to their survey-based structure and found out there are not many analyses covering the real data from customers using online and offline channel. It is particularly difficult to secure and utilize such real data due to regulations in Korea. We were able to secure the customer data from a premium lifestyle brand store in Korea which owns on/offline channel and is operated as omnichannel and conducted empirical analysis. This particular premium lifestyle brand has owned online channel for customers using PC and mobile connection, offering brand introduction and sales promotion while providing F&B service, events for customer, promotion and other various activities in on/offline to assist customer's understanding of the brand. Through membership service, the brand secures customers data and monitors their purchasing activity.

It is difficult to find companies who own online channel, offering integrated offline experience (e.g., F&B service, offline customer event, promotion policy for paid-membership, tailor-made SMS for customer, conceptual interior of offline store with approximately 200 sqm of display zone and conceptual mood). In addition, conducting empirical analysis on real market data is very challenging due to Information and Communication Act and Personal Information Protection Act in Korea. The non-identifying personal information is allowed to be used for the purpose of study, but such data on customer is considered as corporate asset owned by each company, thus it is not shared by them. Due to such challenge where customer data from various industries and from different companies within the same industry is difficult to acquire, the empirical analysis conducted specific to a company has limit of generalization. However, this study can provide insights to companies in the similar industry with or without omnichannel to establish channel and marketing strategy enhancing customer experience.

6.3. Limitations

It was difficult to extend the study to further investigate the effect of more diverse variables which have impact over customer purchase by obtaining customer's demographic, economic and social variable information. The customer data used in this study is not from survey written by customer but is using the actual information customer filled out when they joined membership in on/offline store. Therefore, the consideration for variables (income, self-efficacy, marital status, parental status and etc.) that effect reason for purchasing by customer is insufficient. However, the different length of membership period for each customer provides statistically significant difference in customer purchasing amount, therefore controlled as covariant for analysis. For further study, the customers whose date is analyzed in this study will be interviewed with survey to determine brand loyalty, brand preference and brand experience quantitatively and to integrate such qualitative result with actual purchasing amount data. Through such procedure, more diverse variables will be included for the study to conduct analysis difference in customer purchasing pattern and purchasing amounts.

Conflicts of Interest: The authors declare no conflict of interest.

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