JMSS Journal of Multidisciplinary in Social Sciences

Journal of Multidisciplinary in Social Sciences
Journal homepage : http://jmss.dusit.ac.th

The Consumer Decision Making Style Influencing SKU Rationalization within Higher Education Institutions in Amphoe Mueang, Nakhon Pathom

Nathawan Samakachan* & Athisarn Wayuparb

School of Logistics and Supply Chain, Naresuan University, Phitsanulok, 65000 Thailand

Article info

Article history:
Received : 16 October 2019
Revised : 10 December 2019
Accepted : 20 December 2019

Keywords:
Consumer Styles Inventory, SKU Rationalization, Confirmatory Factor Analysis

Abstract

The purpose of this research were (1) to study the relationship of confirmatory factor analysis of the consumer decision making style influencing Stock Keeping Unit (SKU) rationalization within higher education institutions in Amphoe Mueang, Nakhon Pathom and (2) to study the decision making approach for selecting appropriate amount of SKUs for products or goods in the convenience store business. Furthermore, the samples in this study were collected which including students and staff who are in the higher education institutions in Amphoe Muang, Nakhon Pathom with a total number of 660 persons and data were collected by using questionnaire. The statistics used in this study consisted of descriptive statistics which are frequency, percentage, average, standard deviation and statistical hypothesis testing, structural equation modelling (SEM), relationship model between consumer decision making style and SKU Rationalization by AMOS program.

Introduction

Currently, convenience store business is a modern retail business with the most market share from the traditional retailers. The major cause of changes is changing the lifestyle of consumers which currently exphasizes on convenient and modernity of lifestyles, high quality and variety of products, quick services, rushing through life, and size of family changed to a small size which lead to change in consumer behavior. Furthermore, consumers may buy more products from convenience stores in the future, thus, the convenience store business has a high expansion and competitive rate to compete for market share. Effective management is a key factor that makes the convenience store business success by modifying strategies in various fields to change the consumption habits of the target audience in order to meet the needs of consumers and the sustainable competitiveness.

Inventory management is one of the key strategies of logistics that will enhance the competitiveness of the convenience store business. Furthermore, convenience stores have restrictions on the size of the area (limited space) resulting in the selection of products to be sold, which regards to consumer demands. The selection of products that do not meet the needs of consumers which makes the goods unable to be sold out at the right amount, resulting in excessive inventory. According to the previous studies (Malinowski, Karwana, Sunb & Pintoc, 2018; Hübner, 2017), selecting products the can meets the needs of consumers must have a variety of goods

* Corresponding Author
e-mail: nathawan.aom@gmail.com

SKU in the right quantities. SKU refer to the number of unique identification products for the purpose of inventory management. Besides, the products that have few SKUs or unable to meet the needs of consumers resulting in the loss of profits and lack of trust. On the other hand, excessive SKUs can cost in the administrative expense system. The product variety management is therefore becoming an essential research topic and is often analyzed from the perspective of SKU rationalization. Particularly in convenience stores where space is limited, the selection of goods for sale must have a SKU for continuous flow and maximize profits.

However, it is not easy to find the appropriate quantity of each product because there are diversity in demand and behaviour of consumers. Thus, the selection of products that meet the needs of each consumer group is relied on the consumer decision making style, which is considered as a tool that helps to better understand the behavior and needs of consumers. Furthermore, the consumer decision making style are permanently attached to the character or personality of the consumer as well. The concept is similar to the concept of psychological or personality trait of humans (Sproles & Kendall, 1986; Walsh, Hennig-Thurau, Wayne-Mitchell & Wiedmann, 2001; Tai, 2005). In 1986, Sproles and Kendall developed a tool to measure and evaluate consumer decision-making behaviors called the Consumer Styles Inventory (CSI). The consumer decision-making behaviors can be described in 8 forms which are Perfectionism, brand consciousness, novelty-fashion consciousness, recreational, price-value consciousness, impulsiveness, confused by over choice and brand-loyal/habitual. Identifying the consumer characteristics can make convenience store to create profiles of each consumer decision that able to fulfill customer needs.

As mentioned above, researcher believes that selling in convenience stores is important which is also considered as a way to improve the efficiency of convenience store management. Therefore, in this study the researcher studies the consumer decision making style in convenience store business within higher education institutions by studying the different individual factors that affect consumer purchasing decisions and the relationships that affect the consumer decision making style in 8 forms using structural equation modeling (SEM). Finally, the purpose of this study is to understand consumer decision making style and to analyze the appropriate number of SKUs for goods in a convenience store business.

Objectives

1. To study the relationship of confirmatory factor analysis of the consumer decision making style influencing SKU rationalization within higher education institutions in Amphoe Mueang, Nakhon Pathom.

2. To study the decision making approach for selecting appropriate amount of SKUs for goods in the convenience store business.

Conceptual Framework

The research of the Consumer Decision Making Style Influencing SKU Rationalization within Higher Education Institutions in Amphoe Mueang, Nakhon Pathom has scopes of content are listed as follow.

1. Consumer Styles Inventory (CSI), this measurement model analysis consists of 8 observe variables which are Habitual and Brand loyal (CSI1), Brand conscious/ Price Equals Quality Consumer (CSI2), Price and Value-for-money shopping consciousness (CSI3), Recreational/ Hedonistic (CSI4), Impulsive/ Careless Consumer (CSI5), Novelty-fashion consciousness (CSI6) Confused by over-choice (CSI7), and Perfectionist/ High quality conscious (CSI8).

2. SKU rationalization (SKU), this measurement model analysis consists of 3 observe variables which are factor in Product Assortment (SKU1), factor in Product Availability (SKU2), and factor in Customer satisfaction (SKU3) as shown in figure 1.

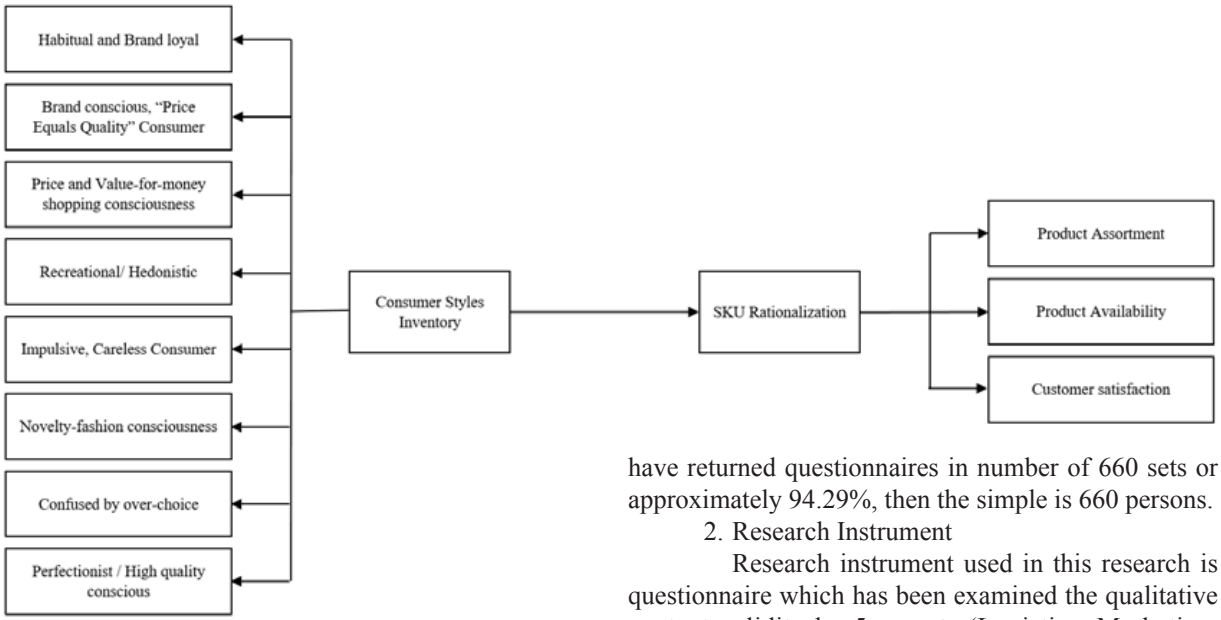


Figure 1 Conceptual Framework

Research methodology

1. Population and Sample

Population in this research are students and staff in the higher education institutions in Amphoe Muang, Nakhon Pathom in the academic year of 2018 which are including Nakhon Pathom Rajabhat University and Silpakorn University, Sanam Chandra Palace Campus, with the total number of 35,651 persons. For determining the suitability of the samples used in this research, the researcher has considered the size of the sample that is appropriated for analyzing data with the AMOS program by using Structural Equation Modeling (SEM), the technical statistics tool. The sample is defined by following the rule of thumb theory as suggested by Schumacker & Lomax (1996); Hair, Anderson, Tatham & Black (1998). Therefore, the size of samples approximately 10-20 persons per one variable (Wirachai, 1999). In this study, the researcher has observe variables in the model of 11 variables, the appropriate and sufficient size of samples should be at least 10 x 11 = 110 to 20 x 11 = 220. In this study, the researcher has observed variables in the model of 11 variables, the appropriate and sufficient size of samples should be at least 10 x 11 = 110 to 20 x 11 = 220. So, the size of sample in this research is 220 persons. However, the researcher has distributed more than a sample size of 700 sets to prevent unresponsive questionnaires. The respondents have returned questionnaires in number of 660 sets or approximately 94.29%, then the simple is 660 persons.

2. Research Instrument

Research instrument used in this research is questionnaire which has been examined the qualitative content validity by 5 experts (Logistics, Marketing, Statistics, Questionnaire and Research methodology) in order to appraise for the IOC (Item of objective congruence index) between questions and attributes according to the objectives of the research to measure the consistency of the text with the operational definition. The results from consistency analysis by the experts found that from the 33 questions, all questions have ranged from 0.6 to 1.0, which is greater than 0.5 and considered as validation (Rovinelli & Hambleton, 1977; Osterlind, 2002). Then, the researcher measured reliability and internal consistency with Cronbach's Alpha Coefficient by applying the questionnaires that have been revised, following the instructions of the elders, to try it out with the samples of 33 persons, which was not a sample of research by selecting the questions with alpha values from 0.70 and above, and the total is 0.942.

3. Collection of Data

Researcher used data collection through questionnaire and online inquiry about the opinion of consumer decision making style influencing SKU rationalization from the students and staff within Higher Education Institutions in Amphoe Mueang, Nakhon Pathom with the total number of 660 persons.

4. Data Analysis

The data were analyzed by statistical software and the statistical methods use in data analyze which mean ($\bar{x}$), standard deviation (S.D.), skewness, kurtosis, correlation coefficient, confirmatory factor analysis, and structural equation modeling.

Results

The respondents have a comment on the consumer decision making style and SKU rationalization from the characteristics of observe variable statistical analysis found that the factor of the consumer decision making style and SKU rationalization has high level of an average and the standard deviation (S.D) has an average not exceeding 1, from the values indicate that the data is closely distributed to an average. Furthermore, the skewness or asymmetry of the distribution as a whole, it can see that the variable in the model mostly are in the upper left corner (negative deviation) which indicates that the data of most variables are higher than the average, the values of skewness are between -0.673 to 0.096. For the value of kurtosis or the height of the distribution, it can see that the value in the model mostly has the value of kurtosis lower than normal (Platy Kurtic). However, the value of calculated kurtosis are less than zero or negative which indicates that the observe variable is distributed in a fair obtuse configuration or slightly curved or considerably distributed of information. Moreover, the values of skewness are between -0.514 to 0.197. Nevertheless, when considering the skewness and kurtosis values found that those values have only a minor difference from zero, thereby can be implied that they are closed to zero and has a normal distribution. Therefore, it is appropriate for structural equation model analysis which is shown in table 1.

Table 1 The average values of consumer decision making style and SKU rationalization

	Average	S.D.	Result	Skewness	Kurtosis
Consumer Styles Inventory					
(CSI1) Habitual and Brand loyal	4.30	0.61	Always	-.673	-.079
(CSI2) Brand conscious, "Price Equals Quality" Consumer	3.54	0.78	Usually	-.069	-.120
(CSI3) Price and Value-for-money shopping consciousness	3.97	0.73	Usually	-.489	.197
(CSI4) Recreational/ Hedonistic	3.19	0.98	Occasionally	-.073	-.344
(CSI5) Impulsive, Careless Consumer	3.03	1.00	Occasionally	.069	-.490
(CSI6) Novelty-fashion consciousness	3.21	0.91	Occasionally	.096	-.329
(CSI7) Confused by over-choice	3.71	0.66	Usually	.018	-.078
(CSI8) Perfectionist / High quality conscious	2.95	1.02	Occasionally	.042	-.514
Total Average	**3.49**	**0.84**	**Usually**		
SKU rationalization					
(SKU1) Product Assortment	3.61	0.79	Usually	-.075	-.221
(SKU2) Product Availability	3.35	0.85	Occasionally	-.123	.159
(SKU3) Customer satisfaction	3.76	0.85	Usually	-.336	-.167
Total Average	**3.57**	**0.83**	**Usually**		

Results of passive variables confirmatory factor analysis

1. The development of consumer decision making style

This model analysis of measurement consists of 8 observe variables which are Habitual and Brand loyal, Brand conscious/Price Equals Quality Consumer, Price and Value-for-money shopping consciousness, Recreational/Hedonistic, Impulsive/Careless Consumer, Novelty-fashion consciousness, Confused by over-choice and Perfectionist /High quality conscious. First affirmative element analysis result of consumer decision making style by confirmatory factor analysis to confirm the indication of the variable's element in the measurement model indicated that the weight of the composition of all variables were statistically significant (P<.01) as an important indicator that indicates the consumer decision making style within higher education institutions in Amphoe Mueang, Nakhon Pathom. As a result, the mentioned variables have element weight values in range between 0.20 to 0.82 which can be implied that the variables are in an excellent condition. In the meantime, the value of R-squared can be found in range between 0.04-0.67 which is shown that the derived model can be explained the variation of the response variable value as well which is shown in figure 2 and table 2, respectively.

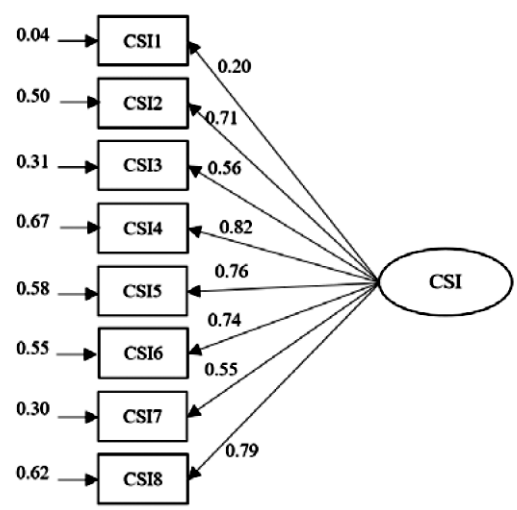


Figure 2 Consumer decision making style measurement model

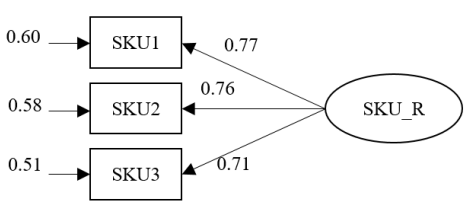
Table 2 The element weight value of the latent variable to the observe variable of independent variables

Latent Variable	Observe Variable	Element Weight Value
Consumer Styles Inventory	1. Habitual and Brand loyal	0.197
	2. Brand conscious, "Price Equals Quality" Consumer	0.709
	3. Price and Value-for-money shopping consciousness	0.557
	4. Recreational/ Hedonistic	0.817
	5. Impulsive/Careless Consumer	0.764
	6. Novelty-fashion consciousness	0.744
	7. Confused by over-choice	0.552
	8. Perfectionist / High quality conscious	0.789

From table 2, when considered about consumer decision making style, we can see that Recreational/ Hedonistic (CSI4) has an element weight value of 0.817 which is the most influence. Second is Perfectionist/High quality conscious (CSI8) has an element weight value of 0.879. Lastly, the least influence value is Habitual and Brand loyal (CSI1) which has an element weight value of 0.197.

2. The development of SKU Rationalization

The SKU Rationalization model analysis includes 3 observe variables which can be classified as product assortment, product availability, and customer satisfaction. First affirmative element analysis result of SKU Rationalization by confirmatory factor analysis to confirm the indication of the variable's element in the measurement model indicated that the weight of the composition of all variables were statistically significant (P<.01) as an important indicator that indicates the SKU Rationalization. The values of mentioned variables are in range between 0.71 to 0.77 which can be implied that the variables are in an excellent condition. Moreover, the value of R-squared can be found in range between 0.51-0.60 which is shown that the derived model can be explained the variation of the response variables as well which is shown in figure 3 and table 3, respectively.



Chi-Square=0.083, Chi-Square /df=0.083, df=1, p=0.774

Figure 3 SKU Rationaliztion measurement model

Table 3 The element weight value of the latent variable to the observe variable of dependent variables

Latent Variable	Observe Variable	Element Weight Value
SKU Rationalization	1. Product Assortment	0.773
	2. Product Availability	0.760
	3. Customer satisfaction	0.714

From table 3, when considered SKU Rationalization, we can see that the first component is Product Assortment (SKU1) has an element weight value of 0.773 which is the most influence among others. Second is Product Availability (SKU2) which has an element weight value of 0.760. Lastly, the least influence value is Customer satisfaction (SKU3) which has an element weight value of 0.714.

The analysis of structural equation model based on assumptions

The researcher has analyzed the relationship models between consumer decision making style and a factor of SKU Rationalization by AMOS program with the purpose to compare the harmony and influence between the developed model with empirical data. Furthermore, the criteria that used to determine the consistency of the model with empirical data composes of index of Chi-Square, Chi-Square /df, CFI, GFI, RMSEA, NFI, and TLI which the researcher showed the overall consistency index analysis in figure 4 and table 4, respectively.

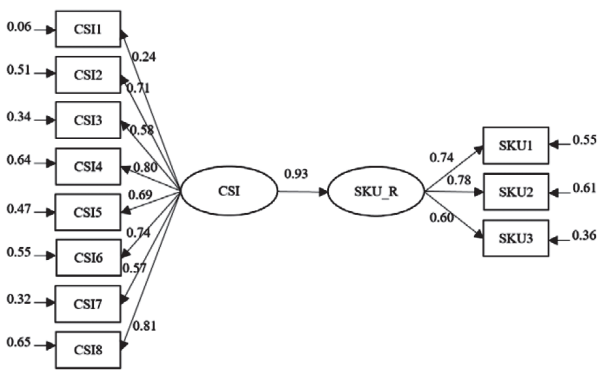


Figure 4 The influence of overall model analysis

Table 4 The consistency index of overall model analysis

Consistency Index	Criteria	Measured Index	Result
p-value of Chi-Square	> 0.05	0.107	Passed
Chi-Square /df	≤ 3	1.440	Passed
CFI	≥ 0.90	0.998	Passed
GFI	≥ 0.90	0.993	Passed
RMSEA	≤ 0.08	0.026	Passed
NFI	≥ 0.90	0.994	Passed
TLI	≥ 0.90	0.993	Passed

Discussion

The research of the Consumer Decision Making Style Influencing SKU Rationalization within Higher Education Institutions in Amphoe Mueang, Nakhon Pathom composed of 2 consistency variables which is consistent with this research which are (1) consumer decision making style including of 8 observe variables which are variables of Habitual and Brand loyal, Brand conscious/Price Equals Quality Consumer, Price and Value-for-money shopping consciousness, Recreational/ Hedonistic, Impulsive/Careless Consumer, Novelty-fashion consciousness, Confused by over-choice (CSI7), and Perfectionist/High quality conscious (CSI8). (2) SKU rationalization including of 3 observe variables which are factors of Product Assortment, Product Availability, and Customer Satisfaction. Consequently, these two variables are correlated between the statistical data empirical data. Hence, the direct influence value of of customer decision making style to SKU Rationalization is 0.93 as shown in figure 4.

Moreover, from figure 4 which shows about the consideration of all factors, the observe variables can be described as follow the consumer decision making style has 3 priorities of variables which are formats of Perfectionist/High quality conscious, Recreational/ Hedonistic, and Novelty-fashion consciousness, respectively. There are similarities with regards to consumer decision making style of the students and staff in the higher education as compared to other researches which are Tarnanidis, Frimpong, Nwankwo & Omar (2015); Tanksale, Neelam & Venkatachalam (2013); Sam & Chatwin (2015). The most important decision-making behaviors identified is perfectionist/ high quality conscious. This factor indicates that students and staff preference for best quality products because it is related to healthcare product and use in daily life. SKU Rationalization has a priority of variables which are Product Availability, Product Assortment, and Customer Satisfaction, consecutively, which is consistent with Grubor & Milicevic (2015); Chernev (2012); Usman (2008).

Suggestions

In the next research, researcher should be studied variables in other factors that might influence with SKU Rationalization such as fulfillment consciousness, recommendation consciousness, and so forth.

Policy suggestion

Modern retail industry should have studied the diversity and factors that affect customer consumption in order to provide knowledge in management and also to increase the potential of modern retail industry.

Management suggestion

Modern retail industry, especially the convenience store business, is able to use the information as a guideline for defining policies and defining guidelines for allocating products to store as well as the basis for monitoring the business performance.

Academic suggestion

The study of the Consumer Decision Making Style Influencing SKU Rationalization as the first priority in product selection that will be available in the store and quantity of SKU Rationalization results in the ability to increase competitiveness to the business.

References

Chernev, A. (2012). Assortment and consumer choice: an interdisciplinary review. *Foundations and Trends in Marketing, 6*(1), 1-61.

Grubor, A., & Milicevic, N. (2015). The analysis of FMCG product availability in retail stores. *Inzinerine Ekonomika-Engineering Economics, 26*(1), 67-74.

Hair, J. F., Anderson, R. E., Tatham, R. L., & Black, W. C. (1998). *Multivariate Data Analysis (5th ed)*. Prentice Hall, Upper Saddle River, New Jersey.

Hübner, A., (2017). A decision support system for retail assortment planning. *International Journal of Retail & Distribution Management, 45*(7/8), 808-825.

Malinowskia, E., Karwana, M. H., Sunb, L., & Pintoc, J. M., (2018). Packaged gas supply chain planning with network-wide SKU rationalization. *International Journal of Production Economics, 204,* 346-357.

Osterlind, S. J. (2002). *Constructing Test Items: Multiple-Choice, Constructed-Response, Performance, and Other Formats* (2nd ed.). Spring St, New York: Kluwer Academic

Rovinelli, R. J., & Hambleton R. K. (1977). On the use of content specialists in the assessment of criterion referenced test item validity. *Dutch Journal of Educational Research*, *2,* 49-60.

Sam, K. M., & Chatwin, C. (2015). Online consumer decision-making styles for enhanced understanding of Macau online consumer behavior. *Asia Pacific Management Review, 20*(2), 100-107.

Schumacker, R. E., & Lomax, R.G. (1996). *A beginner's guide to structural equation modeling.* Lawrence Earlbaum Associates, 10 Industrial Ave Ste 3 Mahwah, New Jersey.

Sproles, G. B., & Kendall, E. (1986). A methodology for profiling consumers' decision making styles. *The Journal of Consumer Affairs, 20*(2), 268-279.

Tai, S. (2005). Shopping styles of working Chinese female. *Journal of Retailing and Consumer Services, 12*(3), 191-203.

Tanksale, D., Neelam, N., & Venkatachalam, R. (2013). Consumer decision making styles of young adult consumers in India. *Procedia-Social and Behavioral Sciences, 133*(3), 211-218.

Tarnanidis, T., Frimpong, N. O., Nwankwo, S., & Omar, M. (2015). A confirmatory factor analysis of consumer styles inventory: Evidence from Greece. *Journal of Retailing and Consumer Services, 22,* 164-177.

Usman, K. (2008). *Determination of drivers of stock-out performance of retail stores using data mining techniques* (Doctoral dissertation). Massachusetts Institute of Technology.

Walsh, G., Hennig-Thurau, T., Wayne-Mitchell, V., & Wiedmann, K. (2001). Consumers' decision-making style as a basis for market segmentation. *Journal of Targeting, Measurement and Analysis for Marketing, 10*(2), 117-131.