Key Factors Affecting Consumer Behavior in the Thailand Offline Marketing: Research Synthesis by Systematic Literature Review and Data Mining Techniques

ปัจจัยสำคัญที่ส่งผลต่อพฤติกรรมผู้บริโภคในตลาดออฟไลน์ของประเทศไทย: การสังเคราะห์งานวิจัยโดยการทบทวนวรรณกรรมอย่างเป็นระบบและการทำเหมืองข้อมูล

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Abstract

Researchers analyzed data using a systematic analysis methodology and data mining techniques to predict key factors influencing online buyers. The data set analyzed was based on 56 synthesizing literature of selected offline marketing research correlational studies. Relationship rules for data mining are explored to get a better predictive model. A analysis of 36 variables found that the top variables are consumer satisfaction, confidence, perceived value, repurchase, word-of-mouth, marketing mix, and loyalty. The data was analyzed using data mining. The model was trained on models of past research study data on 1) repurchase, word-of-mouth, and satisfaction 2) confidence, repurchase, and word-of-mouth with a 37.9% of all future research studies. The Predictive model can help researchers and marketers as a guideline for marketing research studies and can be used to study important factors that affect customer behavior.

บทคัดย่อ

การวิจัยนี้เป็นการศึกษาด้วยการทบทวนวรรณกรรมอย่างเป็นระบบและใช้เทคนิคการทำเหมืองข้อมูล เพื่อสร้างตัวแบบทำนายผลปัจจัยการตลาดออฟไลน์ในประเทศไทย ชุดข้อมูลเพื่อวิเคราะห์มาจากการสังเคราะห์งานวิจัยจำนวน 56 เรื่องที่ศึกษาความสัมพันธ์ของปัจจัยต่างๆทางการตลาดออฟไลน์ ด้วยกระบวนการทบทวนวรรณกรรมอย่างเป็นระบบ และเทคนิคสำหรับกฎความสัมพันธ์ของการทำเหมืองข้อมูลถูกนำมาใช้เพื่อสร้างแบบจำลองความสัมพันธ์และตัวแบบทำนายผล โดยพบว่าตัวแปร 36 ตัวแปรที่ถูกศึกษาบ่อยอันดับต้น คือ ความพึงพอใจของลูกค้า ความไว้วางใจ การรับรู้คุณค่า การซื้อซ้ำ การบอกต่อปากต่อปาก ส่วนผสมทางการตลาด และความภักดี ชุดข้อมูลจากวรรณกรรมถูกนำไปวิเคราะห์โดยการทำเหมืองข้อมูล ตัวแบบทำนายผล สามารถทำนายถึงกลุ่มตัวแปรที่ผู้วิจัยจะเลือกศึกษาในเวลาเดียวกันมากที่สุดในงานวิจัยการตลาดออฟไลน์ คือ 1) การซื้อซ้ำ-การบอกต่อปากต่อปาก-ความพึงพอใจ 2) ความไว้วางใจ-การซื้อซ้ำ-การบอกต่อปากต่อปากโดยมีโอกาสที่คู่/กลุ่มตัวแปรน่าจะถูกศึกษาในงานวิจัยในอนาคต 37.9% ตัวแบบทำนายผลนี้สามารถใช้เป็นแนวทางศึกษาวิจัยการตลาดออฟไลน์และศึกษาปัจจัยสำคัญที่มีอิทธิพลต่อพฤติกรรมผู้บริโภค

คำสำคัญ: ตัวแบบทำนายผล, กฎความสัมพันธ์, การทำเหมืองข้อมูล, การตลาดออฟไลน์

Introduction

Consumer buying behavior is a part of marketing analysis; the main goal is to study the consumer's previous experience, price, taste, and branding to help make a purchase decision (Kotler and Keller, 2012). Some kinds of businesses may use digital marketing (Jermsittiparsert, Thaiprayoon, Prianto, & Kurniasih, 2019). Offline marketing appears to be more traditional for bigger companies (Bhatti & Rehman, 2020). Offline marketing helps connect with consumers. Offline marketing is critical in marketing campaigns. They are the ones who engage with customers. (Maryanti, Suci, Sudiar, & Hardi, 2020). If business goes well, consumers get a good experience. Offline marketing is best achieved correctly (Kollmann, Kuckertz, & Kayser, 2012). Your clients will be reached by your company. You could lose customers if you don't advertise offline (Akalamkam & Mitra, 2018). Low quality goods and services will disappoint customers (Tirunillai & Tellis, 2017). The business will grow its audience. It is inhibited. Observe what people find in commodities. You did not have to lose yourself in the market. You will get a nice ROI (ROI). Offline marketing is easier. Print costs fell along with sales. Offline marketing campaigns frequently fail, are more expensive, and less successful (Franssen, Rombaut, Devroe, & Stevens, 2016).

Thailand has joined the modern era (Punpukdee, 2021). This has pushed companies in all industries to change (Chienwattanasook, & Jermsittiparsert, 2019). Businesses have evolved into online business models. Offline marketing can be important for some companies, but it may be more important to the company's overall profitability. Offline marketing is also relevant because it creates relationships with clients and enhances local followers (Jermsittiparsert, Siam, Issa, Ahmed, & Pahi, 2019). Online shopping has little influence (Tarsakoo, & Charoensukmongkol, 2019). To consider customer behavior from an offline marketing perspective is very helpful. Marketing is to recognize desires and wishes of the customer and fulfill it profitably; it's real because what else as the targeted consumer's behavior and desires is dominated

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by both external and internal stimulation and influences. In this increasingly evolving market world where communication technology, media has transformed how customers are encouraged to make new transactions and to avoid buying those goods. A number of scholars have performed a series of experiments on consumer behavior and have identified variables that affect consumer behavior.

Literature Review

It is determined by the various influences. Consumer behavior can be seen in prior behavior and by analyzing it, marketing can forecast consumer success in the sense of a decision (Kotler & Armstrong, 2010). The stimulus-response model is a well-established and validated model of buyer behavior. It is seen here in the diagram. The "black box" model focuses on consumers as thinkers and problem solvers who react to external and internal influences while determining what to purchase (Muzondo, 2016). *The external stimuli* that customers respond to include the marketing mix, environment, site characteristic, channel characteristic, and characteristics of web as a distribution channel (Rose, Hair, & Clark, 2011). The marketing mix is made up of stimuli such as the price, product, location, and promotion (Wu & Li, 2018). The environmental triggers include the economy, politics, and culture of society. External conditions (such as peer pressure) affect customer preferences (Platania, Platania, & Santisi, 2016). *The internal influences* affecting consumer decisions are defined as the "black box." It includes a number of factors within the mind (Ramya & Ali, 2016). Includes market traits, such as their values, mood, motivation, perceived worth, and so forth (Tyagi, 2018). In addition, the user must also understand how to better get a product in the most efficient way, if they know the problem. Our consumer's choices of environmental stimuli decide how they respond. If they buy, they buy. If they don't buy, they don't buy (Hopfe, McLeod, & Rollason, 2017).

Kotler, Meyer, Eagle, Zeithaml, Davies have all contributed a lot to the field of consumer behavior (Rajkumar, & Sinha, 2019). The most recognized influences affecting consumer behavior are (Panwar, Anand, Ali, & Singal, 2019). Marketing plays an important part in brand awareness and customer reactions. The goal of marketing strategy is to consider what goes on in the mind of the customer. Consumer's attributes affect how s/ he perceives the stimuli. Decision-making influences customer behavior. Understanding buyer behavior includes concentrating on the variables that decide buyer characteristics in the black box model. From the findings of the basic literature review, this thesis used this theoretical framework to establish a research methodology. (Figure 1)
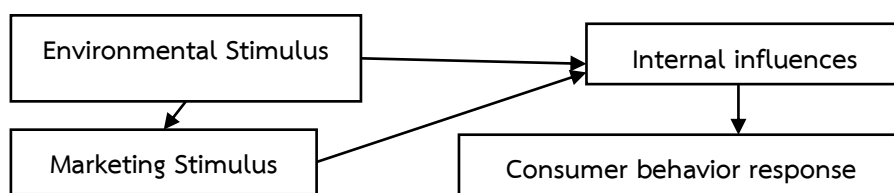

Figure 1 Theoretical framework for conceptual research framework

Source : Panwar, Anand, Ali & Singal (2019) and Deepak & Jeyakumar (2019)

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Research methodology

Data collection methods (Study eligibility and searching strategy)

The research uses electronic databases to search for 13 databases for the past 10 years from 2010 to the present.In flowchart of searching strategy adapted from (Bohner, Neto, Ahmed, Mori, Lagana & Sesma, 2016), the key words in the search for literature with the search term, which is a combination of important keywords in different groups. The researcher has specified the inclusion and exclusion criteria to get the literature that has context in terms of marketing and consumer behavior in Thailand. Covering research objectives Including cutting off unrelated literature the selection criteria are that literature must be published between 2010 and present by selecting only the research that uses statistics correlation, regression, or/and a causal model. As for the elimination criteria, the literature does not have a context on consumer behavior and is not a full literature.

Research quality evaluation and screening, the researcher chose to use the research quality evaluation form of the Secretariat of the Education Council. Ministry of Education, developed by Wonglorsaichon, Wongwanich, & Wiratchai (2014), the researcher applied the research quality evaluation form and the research quality evaluation criteria without any adjustment. The researcher has re-checked the quality of the equipment by finding inter-rater reliability by asking the cooperation of 2 experts who have at least 5 years of market research or related experience jointly study and understand in detail the scoring criteria for each level After that, the experiment was conducted to evaluate the research between the 3 assessors by randomly sampling 3 volumes and checking the consistency in grading using.
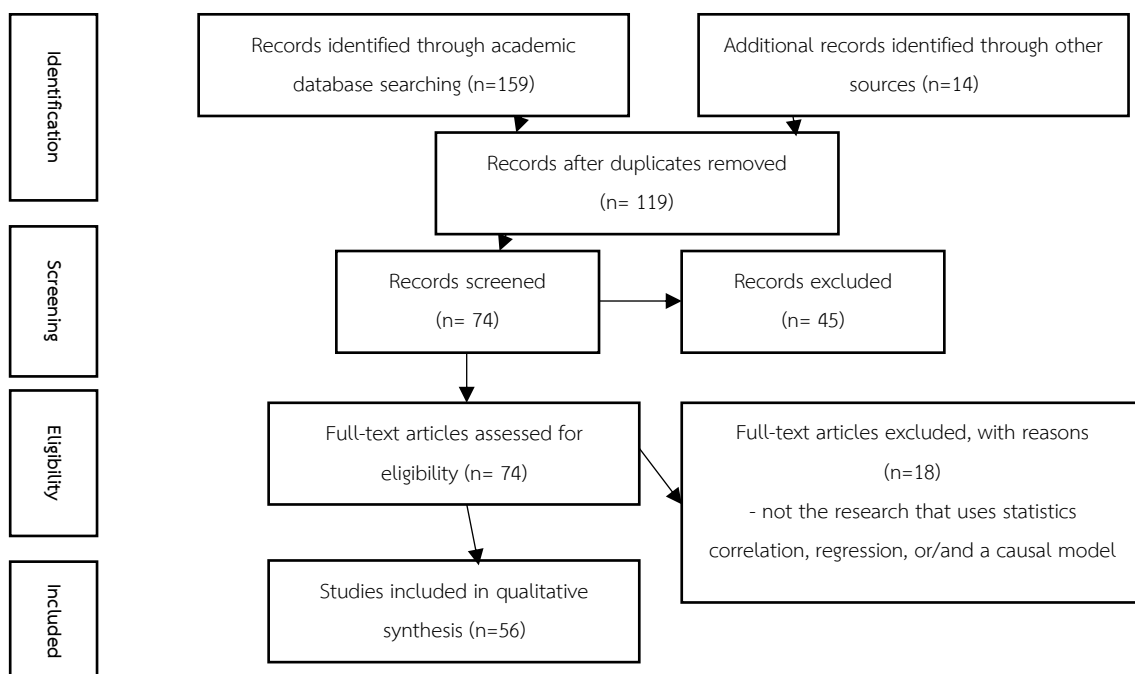
Figure 2 Flowchart of searching strategy

Source: Wonglorsaichon, Wongwanich, & Wiratchai (2014)

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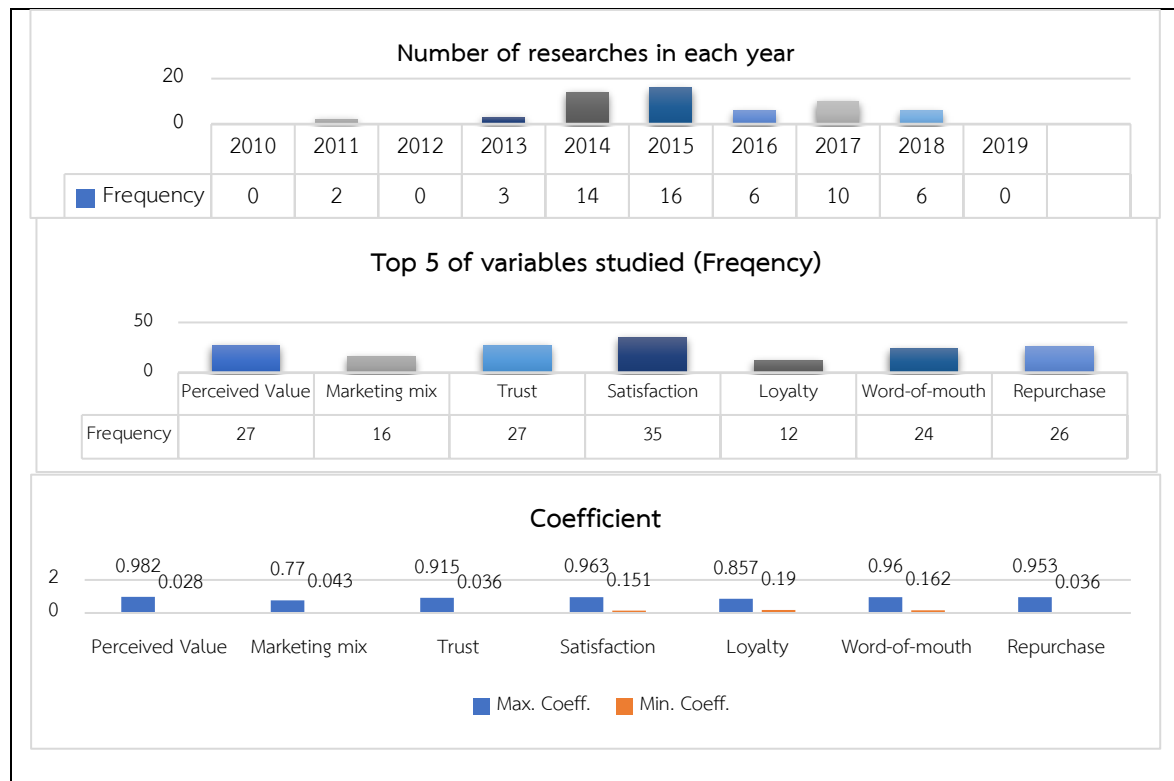
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She rechecked the reliability testing to validate the instruments. Through the 3 raters, quality of research was shown to be within 0.82-0.93 of each other. The consistency was found to be between 0.90 and 0.95. Therefore, the researcher will ascertain if the findings are correct by looking at the results using both tools. First is secondary screening, by reading the titles and abstracts of the books, then cut out the searched literature by reading the abstracts that can answer the research objectives, then synthesize information by using the content analysis by interpreting the conclusion by using the inductive method.

Data extraction is done here in this stage by using journal databases. Input data is stored in a database and then processed to the next level. The items being used are the journal ID, independent variables and dependent variables. The items name that aims to select what data can be used during the process of mining and the appropriate database for purposes of research. The model used in this analysis is the algorithm Frequent Pattern Growth (FP-Growth) since one significant factor in data mining is the presence of rules to find a high-frequency pattern among the itemsets. It is called Partnership. Association rules use FP-Growth (Hofmann & Klinkenberg, 2016). Based on this study, we have found a correlation between the disorder and the illness.

Result

From the study, it was found that the factors influencing the consumer buying behavior in the offline market from a marketing perspective in Thailand can be defined as: The main categories are external stimulus (environmental and marketing factors), internal influences, and consumer behavior response.

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Table 1 Descriptive 56 synthesizing literature and the factors affecting on the consumer behavior

Number of researches in each year

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Frequency	0	2	0	3	14	16	6	10	6	0

Top 5 of variables studied (Freqency)

	Perceived Value	Marketing mix	Trust	Satisfaction	Loyalty	Word-of-mouth	Repurchase
Frequency	27	16	27	35	12	24	26

Coefficient

	Perceived Value	Marketing mix	Trust	Satisfaction	Loyalty	Word-of-mouth	Repurchase
Max. Coeff.	0.982	0.77	0.915	0.963	0.857	0.96	0.953
Min. Coeff.	0.028	0.043	0.036	0.151	0.19	0.162	0.036

Source: Calculated from systematic literature review

Table 2 Example from 56 synthesizing literature

JID	Review of previous work	Research method (Statistics)
A2	Chokenukul, P. (2018). *A Causal Relationship Model of Fish Processing Product Purchasing Behavior of Consumer in Thailand.* (Doctoral dissertation). Songkla. Prince of Songkla University.	Correlational research (Causal model)

Source: Calculated from systematic literature review

From Tables 1 and 2, the results of 56 studies. The research studies in 2015, 2014, 2017, 2018, and 2016 took place, and so did those in 2013, 2011, and 2013. (1 research). Among the 56 studies, 36 were selected. That is frequently studied are perceived value (27 times, coefficient= 0.028-0.982), trust (27 times, coefficient= 0.036-0.915), satisfaction (35 times, coefficient= 0.151-0.960), word-of-mouth (24 times, coefficient= 0.151-0.960), and repurchase (26 times, coefficient= 0.036-0.953). The most frequently studied variable is social class (0.03), followed by family influence (0.382), social value (0.521), employee skills (0.093), fashion involvement (0.058), pleasure (0.424), brand equity (0.886), service innovation (0.120), marketing orientation (0.350), service orientation (0.290), quality of customer relation (0.490), media exposure (0.218), and advertising effectiveness (0.899).

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Using data mining, understanding the current data as well as the past data can still predict future trends of data. From machine learning techniques and data analysis, frequent itemsets are often found in the data. Knowing the basics of marketing data analysis helps you understand frequent itemsets. According to this study, there are a number of variables that have been studied in about 5 percent of all research studies. The most frequently studied variables are satisfaction, repurchase, word of mouth, and trust. There is a chance that research will be conducted on these variables as well.

Table 3 Example of Frequent Itemsets (FG-Growth)

Item Size	Support	Item 1	Item 2	Item 3	Item 4	Item 5
3	0.379	Satisfaction	Repurchase	Word-of-mouth		
4	0.345	Satisfaction	Trust	Repurchase	Word-of-mouth	

Source: Calculated from RapidMiner software

Develop predictive model of factors influencing consumer behavior

The second step is to find frequent itemsets. It will allow the useful association rules to be evaluated. Association rules find associations between transactions until finding association rules. The 6 factors of customer satisfaction are value, trust, perceived, repeat business, and word-of-mouth. In table 4, there are 5 important variables. These variables are ranked from highest to lowest by the researcher. They will look at Repurchase, Satisfaction, Word-of-mouth, and Trust. They have a 37.9% chance of seeing the future.

Table 4 Example association Rules (From total 166 association rules)

Premises (LHS)	Conclusion (RHS)	Support	Confidence	Lift
Repurchase, Word-of-mouth	Satisfaction	0.379	Infinity	Infinity
Trust	Satisfaction, Repurchase	0.345	Infinity	Infinity

Source: Calculated from RapidMiner software

Finding groups of similar attributes that differ from others. Clustering involves unsupervised learning. Clustering can be useful when trying to reach a buying audience. 84 factors can cluster behavior. Most frequently studied factors were 84. The centroid value is computed as a large mean, a minimum mean, and a mean (The frequency was studied with other variables, Correlation coefficient) Clustering is common in almost every field of studies. This business intelligence tool helps segment the customers. It puts a heterogeneous group of patients together. Research used clustering software. Researchers should cluster groups with K-Medoid analysis. More than 40 studies are related (0, 1, and 2). Cluster1 was studied the most, while cluster2 was studied the least.

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Table 5: Example of cluster analysis (K-Means clustering) using data mining

Cluster0 (H)	Times	Cluster1 (M)	Times	Cluster2 (L)	Times
Marketing mixed	16	Brand image	3	Employee Skills	1
Income	3	Trust	27	Fashion Involvement	1
Occupation	3	Satisfaction	35	experience	2

Source: Calculated from RapidMiner software

We performed analysis by creating a predictive model using the 31 best candidate rules from 29 other Association-rules factors and then applied a theoretical framework from Panwar et al. (2019) and to define factors based on frequency (Deepak & Jeyakumar, 2019). Marketers need to study consumer behavior to persuade them. For marketing purposes, the influence of external stimuli (cultural, social, personal and marketing) on buying behavior will provide clear understanding of buying patterns.
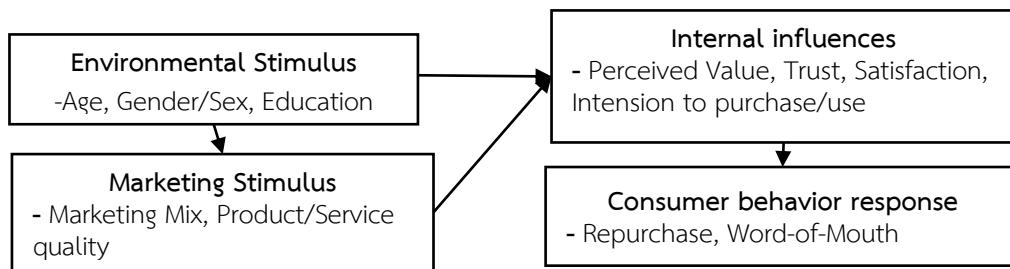

Figure 3 Predictive model for associated factors of consumer behavior in Thailand offline marketing
Source : Panwar, Anand, Ali & Singal (2019) and Deepak & Jeyakumar (2019)

The figure 3 (a) represents Thailand's online market. The social influence on offline market is suggested by four factors: external stimuli (gender, age, education), marketing stimulus (product quality, brand, service), and internal influences (persuasion, use), resulting in consumer behavior response (repurchase, word-of-mouth)

Conclusion and Finding

The study of buying behavior is necessary in Thailand because of the focus on the customer. The customers can select from a variety of options. The appeal of marketing has a great impact on consumers' buying behavior. In order to sell the product, the marketers have to study consumers. You can use external stimuli (marketing), internal stimuli (impulse buying) and consumer feedback to understand buying behavior. All the papers mention the various factors on offline consumers. Factors that influence consumers are marketing mix, trust, perceived value and satisfaction (repurchase and word-of-mouth). However, why people buy services are still unclear. The present offline shopping behavior in Thailand is poorly understood. He wants to do more research in the future. In this study, there were 5 variables that were researched. These are: satisfaction, trust, perceived value, repurchase, and word-of-mouth.

Discussion and Suggestion

This study contributes to the understanding of different factors on consumer buying behavior. Purchase behavior is identified based on several independent variables, such as cultural, social, personal, psychological and marketing mix factors. The papers looked at the different factors influencing offline consumers' buying behavior.

The major factors for marketing mix include the way a marketer portrays their product to consumers, as well as how marketers intend to sell their product to customers. Consumer behavior is a dynamic process. So, one must know the process, the elements, and the things that influence it. It is then possible to create a loyal customer.

In studies outside the US, similar to US offline studies, behaviors appear to be determined by economic and social variables. This shows how consumer studies and consumer environments can be integrated (De Mooij, & Hofstede, 2011). Consumer research performed in the Middle East show that social factors, physical factors, and marketing elements greatly affect consumer behavior. Key elements of gender, cultural, marketing mix, as well as social influences, are closely linked with consumers' behavior (Vijayalakshmi, & Mahalakshmi, 2013). In China, the study shows that the educational level, perceived product/service quality, environmental concern, and attitudes influence buying decisions. The study by Vijayalakshmi and Mahalakshmi, 2013 showed that Latin American consumers display distinct trends of consumer behavior. In Japan, consumer behavior differs from that in other societies in various dimensions (Synodinos, 2001). The cultural factors contribute to variables that directly influence buying behavior of all European Union countries. (See Table 6)

Table 6: Example study of offline marketing literature outcomes from the perspective of foreign countries

Contributors	Year	Country	Research design	Offline marketing
Ahn, T., Ryu, S., & Han, I .	2004	Korea	Correlation research	Internal influences User acceptance, usefulness, attitude, and intention to use
Andrews, R .L., & Currim, I .S .	2004	USA	Correlation research	External stimuli Brand names
Levin, A .M., Levin, I .P., & Weller, J .A.	2005	America	Correlation research	External stimuli Ability to see-touch-handle
Chu, J., Arce-Urriza, M., Cebollada-Calvo, J .J., & Chintagunta, P .K	2010	Spain	Correlation research	Consumers' response Price sensitive

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Contributors	Year	Country	Research design	Offline marketing
Furaiji, Čatuszyniak, & Wawrzyniak	2012	The Middle East	Systematic Literature review	External stimuli Socio-economic , Stresses, Physical environments, Marketing mix
Vijayalakshmi, & Mahalakshmi	2013	India	Systematic Literature review	External stimuli Gender, Cultural , Marketing Mix, Social Pressures
Synodinos	2001	Japan	Systematic Literature review	External stimuli Culture, Social , Psychological

Source: Calculated from systematic literature review

Future researchers or marketers require a deeper analysis of consumer behavior in off-line marketing in Thailand. Only a quantitative analysis study is necessary; qualitative research is also necessary. Since everyone is different, the same factors that influence consumption in one place are also present in another. A study of offline and online buying behavior will focus on studying the differences between these buyers. The new era of digitalization will place strict focus on consumer attention and search for products. Consumer behavior is dynamic process and to become a loyal customer it is necessary to learn consumer psychology and follow the right strategies.

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