

Knowledge and Marketing Mix Factors Influencing the Consumers' Purchasing Decision of the Environmental in Pathumthani Province

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ABSTRACT

The objectives of this research are to study (1) The personal characteristics affect the decision to buy the environmental products of consumers in Pathumthani Province. (2) The relationship between knowledge, marketing mix factors and consumer purchasing decisions the environmental products, and (3) The influencing factors to purchase decisions the environmental products of consumers. The sample group were 385 consumers who knew or used to buy the environmental products in Pathumthani Province which were collected by accidental sampling. The statistics for data analysis were percentage, frequency, mean, standard deviation, t-test, F-test, Scheffe's Comparison, Pearson Correlation and Multiple Regression. The research results found that: (1) Age, education level and different professions would have a different purchasing decision the environmental products. (2) Knowledge of the environmental products did not correlate to purchasing decision the environmental products. As for marketing mix factors: product place and promotion correlate with the decision to buy the environmental products in a medium positive level, while price had a low level. (3) Knowledge and marketing mix factors influenced on the purchasing decision the environmental products which could explain 61.8% of change in the purchasing decisions on the environmental products at the statistical significance level of .01 ($R^2 = .618$).

KEYWORDS: Knowledge, Marketing Mix Factor, Purchasing Decision, Environmental Products

Introduction

Thailand has continuously campaigned to reduce global warming. Both energy saving and the use of renewable energy, including production and consumption that are environmentally friendly, with emphasis on since the 11th National Economic and Social Development Plan (2012-2016) and then focus on Thailand to move towards low-carbon economic growth with regard to the importance of solving environmental problems and the need for restoration, promotion and conservation of environmental quality as fundamental (Department of Environmental Quality Promotion, 2020). Which adaptation to climate change can be done by reducing the impacts of the root cause, by reducing what is causing and contributing to climate change, such as reducing greenhouse gas emissions. Energy saving Caring for the forest Adaptation to clean technology Encouraging manufacturers to switch to environmentally friendly products and services, including there is a campaign to make consumers aware of environmental problems and disseminate knowledge about environmentally friendly products that It is a product that does not adversely affect both the environment and consumers. Since it is a product that is produced through processes and technology that care about the impact on the environment. From the selection of raw materials to the product to the consumer

which products and services are environmentally friendly? Consumers can be identified by the symbol that is an environmental standard (Eco-Label) on the package or on the product (Thailand Environment Institute, 2008). Most government campaigns emphasize the economic importance rather than the direct environment. As for the business sector, it has been focused on environmental conservation activities such as forest planting, but has not yet emphasized the importance of the environment through consumption. Until 2008, there was a serious campaign of global warming. In various forms, either by supporting the use of energy-saving chopsticks or electric appliances as well as at various companies, stores Inviting customers and the public to use cloth bags instead of plastic. It reflects the environmental movement in which businesses are engaged in promoting more environmentally friendly consumption behaviors (Assurut and Srisuphaolarn, 2010). In addition to manufacturers who have to pay attention to the environment Most consumers are alert to this as well. As a result, consumers today decide to buy products to consume, they have to consider that product must be more environmentally friendly.

Pathumthani Province became a popular province due to there are a lot of housing estate, Industrial plants and

agricultural area in this province. The researcher; therefore, was interested in selecting this province as the population and sample group in this research.

From the reasons mentioned above is Therefore making the researcher interested in researching the personal characteristics that affect the decision to buy the environmental products, to study the relationship between knowledge and marketing mix factors and consumer purchasing decision the environmental products and to study the influencing factors to purchase decision the environmental products of consumers in Pathumthani Province.

Purposes

1. To study the personal characteristics and the decision to purchase environmental products of consumers in Pathumthani Province.

2. To study the relationship between knowledge factors, the marketing mix factors and the decision to purchase environmental products of consumers in Pathumthani Province.

3. To study the factors influencing the decision to purchase environmental products of consumers in Pathumthani Province.

Benefit of Research

1. Entrepreneurs can use this research results to be information for product planning and development to better meet the purchasing needs of consumers.

2. Relevant organizations can use this information to plan and disseminate knowledge about environmentally friendly products more efficiently

Research Process

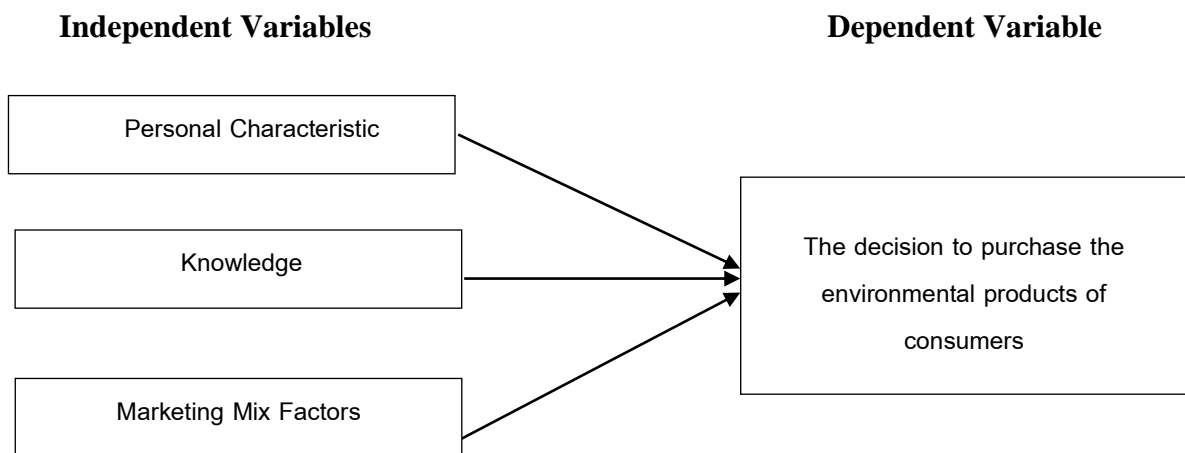


Figure 1: Conceptual Framework of research

Literature Review

1. Knowledge

The 6-step structure of knowledge goes from the simplest to the more complex one (Bloom et al., 1971, cited in Thanyawan Kerdsombat, 2008).

1. Knowledge
2. Comprehension
3. Application
4. Analysis
5. Synthesis
6. Evaluation

The knowledge of 6-step can evaluate from score of knowledge testing.

2. Marketing Mix

Marketing Mix factor (4P's) refers to the controlled marketing variables. Which companies use together to satisfy the target group contains the following tools (Kotler et al., 2001 cited in Phiboon Teepapal, 2002).

1. Product
2. Price







3. Place

4. Promotion

3. Environmental Products or Green Products)

It means products produced from processes and technologies that care about the impact on the environment, starting from the source, is the selection of the appropriate production materials and technology to make the product manufacturing process use the most energy-efficient until its completion. It is a product waiting to be packed ready to be delivered to the consumer. One of the most important aspects of eco-friendly products is that production waste must be recycled, thus making the waste to zero or as little as possible. This is to promote the most cost-effective use of limited resources. The consumers will be able to know that the products are environmentally friendly from the environmentally friendly product certification label as shown in Table 1

Table 1: Certification label of Environmental Products

Symbol	Explanation
	<p>Green label symbol Is a symbol that indicates that the product has appropriate controls for the release of chemicals or the release of toxic substances into the environment. Energy and resource savings through production, transportation and use processes, and are not burdensome for post-use disposal.</p>
	<p>Energy saving symbol 5 labels shows electricals performance level and electricity saving standard, at present, there are 8 products that have been tested and approved: refrigerators, air conditioners, lamps, chopsticks, ballasts, fans, and rice cockers.</p>
	<p>Organic product symbol is a symbol that represents products of various organic plants that meet the standards of Thailand (Organic Thailand's Brand).</p>
	<p>Food safety symbol is the Q standard symbol for quality agricultural and food products without chemicals and is safe for consumers and the environment. From production in factories that have good manufacturing standards (Good Manufacturing Practices: GMP) or Hazard Analysis and Critical Control Point (HACCP) standards that consumers both within the country and the trading partner countries can believe. Can be confident in agricultural products and food.</p>
	<p>Recycled material product symbol Is a symbol that indicates that the product made from recycled materials And can be recycled again without causing any negative effects to both consumers and the environment such as recycled plastic bottles, recycled plastic bags, recycled paper etc.</p>
	<p>Carbon Footprint Label is applied to products or products shows information to consumers that throughout its life cycle, how much greenhouse gas is released by those products?</p>

Source: Department of Environmental Quality Promotion Ministry of Natural Resources and Environment.

Paweena Kampukka (2013), which has been researching on the knowledge and attitudes that influence the purchasing

behavior of environmentally friendly products of consumers in the Northeast region and the research found

that consumers with different professions, it made the purchasing behavior of environmentally friendly products different.

Kanokorn Nilwanchanakul and Paweena Kampukka (2013), found that consumer price attitudes toward environmentally friendly products were positively correlated with purchasing behavior of green products as well.

Nakarin Janna (2011), which found that consumers with high opinions of place influenced the purchasing behavior of electrical appliances, energy saving labels and green labels.

The theory of Kotler and Keller (2009) said Factors that influenced buying behavior were several factors, which were beliefs and attitudes. It was a psychological factor resulting in different purchases.

4. Purchasing Decision

Purchasing or buying decision process consists of 5 steps as follows (Chattayaporn Samerjai, 2007);

1. Problem or Need -Recognition
2. Search for Information
3. Evaluation of Alternative
4. Decision Making
5. Post Purchase Behavior

Population and Sample

- Population is general consumer who has known or used to buy environmental products in Pathumthani Province who live in 7 districts: 1. Muang Pathumthani District 2. Thanyaburi District

3. Khlong Luang District 4. Sam Khok District 5. Lat Lum Kaeo District 6. Nong Suea District and 7. Lam Luk Ka District.

- The sample group is general consumers who have known or used to buy environmental products in Pathumthani Province who is living in 7 districts of Pathumthani Province. The researcher will calculate the sample size using W.G. Cochran formula (1963) (refer from Tirawut Akakun, 2000) the exact population is unknown by using the confidence of 95%, the acceptable error of not more than 5%, the sample size was approximately 385 people by choosing Accidental Sampling. The survey was conducted in May to June 2020.

Instruments

- The research tool is the questionnaire which consists of 4 parts as follows; -

Part 1 Questionnaire on Personal Characteristics

Part 2 Questionnaire on Knowledge Factors

Part 3 Questionnaire on Marketing Mix Factors

Part 4 Questionnaire about making purchasing decisions which are environmental products

Testing only the reliability and its reliability of the whole questionnaire was tried out of 30 samples and alpha Cranbach was 0.893 which was higher than 0.7, so this questionnaire was rather high reliability.

Data Analysis

- The statistics used for data analysis were percentage, frequency, mean, standard deviation. t-test, One-Way Analysis of

Variance (ANOVA), Scheffe's Multiple Comparison, Pearson Correlation Coefficient Analysis and Multiple Linear Regression Analysis.

Table 2 Criteria for interpretation of knowledge Opinion on factors and their importance in purchasing decisions

Knowledge Level		Opinions on factors/importance of factors to purchase decisions	
Total Knowledge Scores	Meaning	Average Range	Meaning
0 – 7	Low	4.21 – 5.00	Highest
8 – 11	Moderate	3.41 – 4.20	High
12 – 15	High	2.61 – 3.40	Moderate
		1.81 – 2.60	Low
		1.00 – 1.80	Lowest

Note: Knowledge score evaluated from the testing of knowledge.

Rating Scale of opinions/importance

Rating	Meaning
5	Highest
4	High
3	Moderate
2	Low
1	Lowest

Table 3 Criteria for Interpretation of the Correlation Coefficient

Correlation Coefficient	Meaning of Correlation
0.01 – 0.30	Very Low
0.31 – 0.50	Low
0.51 – 0.70	Moderate
0.71 – 0.90	High
0.91 – 1.00	Very High

Research Result

Most of the sample were 60.78% female and 39.22% male, aged 15-24 years, followed by age 25-43 years old, 35-44 years old, under 15 years old and older than 44 years old. Accounted for 36.88%, 21.30, 18.18, 15.84 and 7.79, respectively, with 65.71% single status classified by education level. It was found that the top 3 were at the bachelor's degree level, 28.57%, secondary education / vocational certificate, 26.23% and primary education

21.56%, respectively, classified by occupation. It was found that the top 3 were students (47.79%), employees of companies (21.30%), and served in government agencies / state enterprises (12.99%), respectively. When classified by average monthly income, the average monthly income was less than 5,000 Baht. The following were 5,001 - 10,000 Baht, 10,001–20,000 Baht and 20,001 Baht or more, accounting for 41.56%, 24.68%, 21.04% and 12.73% respectively.

Table 4 Knowledge in environmental products of consumers

Variable	Total Score	Number (Person)	%	Meaning
Knowledge in environmental products of consumers	0-7	302	78.44	Low
	8-11	76	19.74	Moderate
	12-15	7	1.82	High

Most of the sample group, 78.44%, had an overall score in the range of 0-7 and had a low level of knowledge of environmental products. Followed by 19.74% had the overall score in the range of 8-11, the knowledge of environmental products was moderate and 1.82% had the total score in the range of 12-15. Environmental products are at high level, details are shown in Table 4. the opinion of the overall marketing mix factor towards environmental products is at a high level ($\bar{X} = 3.81$, S.D. = 0.51). On

each side, it was found that the sample group had a high level of opinion on the 4 aspects of the market mix factor towards environmental products, namely product ($\bar{X} = 3.94$, SD = 0.64), price ($\bar{X} = 3.74$, S.D. = 0.60), place ($\bar{X} = 3.70$, S.D. = 0.61) and promotion ($\bar{X} = 3.87$, S.D. = 0.63) and purchasing decisions of environmental products. The sample group had a level of purchasing decision at high level ($\bar{X} = 3.73$, S.D. = 0.59), details are shown in Table 5.

Table 5 Opinion on Marketing Mix factors and Purchasing Decision the Environmental Products of consumers

Variables	\bar{X}	S.D.	Meaning
Opinion on the marketing mix factor for all aspect Of environmental products	3.81	0.51	High
*Opinion on product aspect	3.94	0.64	High
*Opinion on price aspect	3.74	0.60	High
*Opinion on place aspect	3.70	0.61	High
*Opinion on promotion aspect	3.87	0.63	High
Opinion on Purchasing decision the environmental product	3.73	0.59	High

The results of each objective

Objective 1: To study the personal characteristics and making purchasing

decisions the environmental products of consumers in Pathumthani Province.

The analysis results were shown in the details in Table 6.

Table 6 The results of comparing the differences in purchasing decisions on environmental products classified by personal characteristics

Personal Characteristic	Value	Sig.	Meaning
Sex	t = -0.64	0.71	No different
Age	F = 4.12*	0.02	Different
Marital Status	t = -1.51	0.24	No different
Educational Level	F = 6.86*	0.01	Different
Career	F = 6.03*	0.01	Different
Average monthly income	F = 3.31	0.11	No different

* Statistically significant level at the .05

According to the analysis results in Table 6, the decision to purchase environmental products did not differ depending on the individual gender, marital status and average monthly income but would vary according to age, education level and career. When testing the Scheffe's Multiple Comparison), it was found that the consumer groups aged 35-44 years had a purchasing decision the environmental products were statistically significantly higher than those of 15-24 years of age group at 0.05 level. Consumers with different educational levels had different purchasing decisions for environmentally products had statistical significance at a level of 0.05. When tested for the differences in

pairs, it was found that the consumer group with the Diploma, Bachelor and postgraduate degrees would have a higher decision to buy environmental products than consumers with secondary education / vocational education. Consumers with different career had a statistically significant difference in purchasing decisions on environmental products at 0.05 levels when tested for difference as a pair. It found that the consumer group was business owner, Government / state enterprise and company employees would have higher purchasing decisions for environmental products than housewives (Family care) at statistically significant level 0.05 as shown in Table 7.

Table 7 A pair comparison of age, educational level, career and purchasing decision the environmental products

Age (Year)	n	\bar{X}	≤ 15	15 – 24	25 – 34	35 – 44	≥ 44
≤ 15	30	3.64					
15 – 24	142	3.60				0.31* (.021)	
25 – 34	82	3.82					
35 – 44	70	3.91					
≥ 44	61	3.67					
Educational Level	n	\bar{X}	Primary	Secondary / Vocational	Diploma	Bachelor Degree	Postgraduate Degree
Primary	83	3.54					
Secondary/Vocational	101	3.51			0.37* (.018)	0.22* (.023)	0.25* (.015)
Diploma	54	3.88					
Bachelor Degree	110	3.73					
Postgraduate Degree	37	3.76					
Career	n	\bar{X}	Student	Business Owner	Corporate Employee	Government/ State enterprise	Housewives/ Family care
Student	184	3.73					
Business Owner	54	3.87					0.33* (.014)
Corporate employee	82	3.84					0.30* (.013)
Government/state enterprise	50	3.87					0.33* (.015)
Housewives/Family care	15	3.54					

* Statistically significant level at the .05

Objective 2 To study the relationship between knowledge factors, the marketing mix factors and the decision to purchase environmental products of consumers in

Pathumthani Province.

The analysis results were shown in the details in Table 8.

Table 8 Analysis of the correlation coefficients between knowledge factors, marketing mix Factors and purchasing decision the environmental products of consumers in Pathumthani Province

Variable	Y	X ₁	X ₂	X ₃	X ₄	X ₅
Purchasing decision the environmental products (Y)	1	0.061	0.535**	0.489**	0.609**	0.687*
Knowledge factors of the environmental products (X ₁)		1	0.083	0.012	-0.020	0.158*
Opinion on product (X ₂)			1	0.491**	0.472**	0.485**
Opinion on price (X ₃)				1	0.646**	0.494**
Opinion on place (X ₄)					1	0.612**
Opinion on promotion (X ₅)						1

**Statistically significant level at the .01

*Statistically significant level at the .05

From Table 8, the results of the analysis of the correlation coefficient between knowledge factors, the marketing mix factors and the purchasing decision the environmental products of consumers in Pathumthani Province found that knowledge of environmental products had no relationship with the decision to buy environmental products. The opinions of marketing mix factors were statistically significant ($r = 0.061$). For product, place and promotion aspects was a moderately positive

correlation with purchasing decisions the environmental products ($r = 0.535, 0.609$ and 0.687), while price correlated with a low positive correlation with purchasing decisions the environmental products ($r = 0.489$) was a statistically significant at level of 0.01.

Objective 3 To study the factors influencing the decision to purchase environmental products of consumers in Pathumthani Province.

The analysis results were shown in the details in Table 9.

Table 9 Multiple regression analysis of factors influencing purchasing decisions the environmental products of consumer in Pathumthani Province

Variables	B	SEb	Beta	t-test	p-value
Constant	.744	.178		4.017**	.002
Knowledge Factors of the environmental products (X_1)	-.0104	.011	-.033	-.836	.521
Opinion on product aspect (X_2)	.186	.058	.196	5.278**	.000
Opinion on price aspect (X_3)	.086	.056	.095	1.767	.284
Opinion on place aspect (X_4)	.197	.063	.212	4.006**	.001
Opinion on promotion aspect (X_5)	.432	.069	.533	10.013**	.000

$R^2 = .618$, SEE = 4231, F = 96.033, Sig. = .002

**Statistically significant level at the .01

The multiple regression analysis of factors influencing the purchasing decisions of environmental products of consumers in Pathumthani Province found that the knowledge factors of environmental products were found Marketing mix factor; product aspect, price aspect, place aspect and promotion aspects had F = 96.033 and a p-value of .002 which was less than 0.01 showed that all independent variables as shown in Table 9 had a statistically significant influence on purchasing

decisions the environmental products. The variability of the dependent variable was 61.8% ($R^2 = .618$), with the most influencing factor influencing the purchasing decision of the environmental products, namely, the marketing mix factor in promotion aspect (B_5) = .432, followed by place aspect ($B_4 = .197$) and products aspect ($B_2 = .186$), respectively.

Conclusion and Discussion

1) The personal characteristics and the purchasing decision the environmental products of the consumers in
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Pathumthani Province found that the consumers who had different in age, the educational level and career which consistent with the theory of Kotler and Keller (2009). That said, Personal Factors make purchases vary by age, education level, occupation, etc. Consumers of different ages had different purchasing decisions for environmentally friendly products. This would be consistent with the research of Rajadaporn Jaimun (2007), which was studied the Personal Characteristics towards Buying Behavior of Organic Vegetables and the research results showed that age has an effect on eco-friendly shopping habits as well. The results of this research found that personal characteristics in different educational levels. There would also be different decisions about purchasing environmentally friendly products. This would be consistent with the research of Sudarat Kantabutra (2011). By conducting research studies on Factors related to consumer purchasing decisions for environmental protection in Nakhon Ratchasima Province and the research findings were consumers with different educational levels also had different purchasing decisions for the environment and for the results of this research that consumers with different occupations, there were different decisions to buy environmental products. The research results would be consistent with the research of Kanokorn Nilwanjanakul and Paweena Kampukka

(2013), which has been researching on the knowledge and attitudes that influence the purchasing behavior of environmentally friendly products of consumers in the Northeast region and the research found that consumers with different professions, it made the purchasing behavior of environmentally friendly products different as well.

2) The knowledge of environmental products affecting consumers' purchasing decisions on environmental products in Pathumthani Province was found that consumers had low level of knowledge about environmental products and there was no relationship between the knowledge of environmental products and the consumers' decision to buy environmental products. Most of the samples had low knowledge of environmental products and had no significant relationship with their decision to purchase environmental products. By analyzing the responses of each sample group, the majority of the consumer answers were general knowledge questions about eco-friendly products, while the rest three questions were: 1) Environmental product category 2) Environmental product certification label and 3) Environmental product benefits. Most consumers could answer very little because the sample group relied on their prior knowledge to answer questions. From the research results, it was found that knowledge of environmental

products did not have a material relationship with the decision to purchase environmental products. but it might depend on individual preferences or habits. This was consistent with the research of Kanokorn Nilwanchanakul and Paweena Kampukka (2013), which found that knowledge of environmentally friendly products has no significant correlation with the purchasing behavior of the products that were environmentally friendly which was also consistent with research by Ahmad and Juhdi (2010). Which had said that consumers were aware of what was happening in their current environment. Ecological problems arising and most consumers were aware that organic food products had a beneficial effect on their health. There was a fact that the consumer's knowledge of organic food products could influence the intentions of purchasing organic food products but had a low level of knowledge of environmental products. The knowledge; general knowledge about environmentally friendly products, was only a preliminary knowledge. For the knowledge of the product category, the product standard label and the benefits of environmentally friendly products were minimal. For this reason, knowledge had no correlation to purchase decision of the environmental products in this research.

3) Factors affecting the purchase decision the environmental products of consumer in Pathumthani Province were

found that the sample group had a high opinion of the overall marketing mix factor towards environmental products which average value was 3.81. When considered in each aspect, it was found that the sample group had opinions in every aspect was also at a high level as follows: Product aspect had an average of 3.94, price aspect had an average value of 3.74, place aspect had an average value of 3.70 and promotion aspect had an average value of 3.87. The relationship between opinions of marketing mix factors towards environmental products and the purchasing decision the environmental products of consumers in Pathumthani Province was found that opinions on the environmental product in the overall and each four aspect of marketing mix factor were moderately positively correlated with the environmental product purchasing decisions in line with the theory of Kotler and Keller (2009) said Factors that influenced buying behavior were several factors, which were beliefs and attitudes. It was a psychological factor resulting in different purchases.

The above research results, the researcher was of the opinion that the opinions of consumers moderate positive correlation with purchasing decisions the environmental products because in choosing to buy the products, consumers would give priority or were considered in terms of quality, safety, reliability of brand, clarify certification label. Moreover, nowadays there

were developing more environmental products into the market products were more diverse and meet the needs of consumers. This opinion about the product itself influenced the purchase decision. As a result, consumers had a high level of product opinion. As a result, the environmental product attitude had a moderately positive correlation with the decision to buy environmental products. In accordance with the research of Nilobol Trisanejit (2010) found that product attitudes were related to environmentally friendly shopping behavior.

Consumers' opinions of place were moderately positively correlated with environmental products purchasing decisions. The researcher saw that consumers today had a fast-paced lifestyle and therefore focus on distribution channels that provided the convenience of their own purchasing and therefore consumers had a level of opinion on distribution channels. There was a moderately positive correlation with purchasing decisions the environmental products. This was in line with the research of Nakarin Channa (2011), which found that consumers with high opinions of place influenced the purchasing behavior of electrical appliances, energy saving labels and green labels.

Consumer promotion opinion had a moderately positive correlation with the decision to buy environmental products through advertising, public relations, which would have an effect on the interest of

consumers. There was a moderate positive correlation with the purchasing decisions the environmental products. According to Nakarin Channa (2011) research, consumers with high marketing promotion opinions affect the behavior of purchasing electrical appliances, energy saving labels and green labels.

As for price opinion, consumers had a low positive correlation with the purchasing decisions the environmental products. The researcher was of the opinion that In choosing to buy products, what consumers would consider is price, considering the price was reasonable or the value for the benefit to be achieved, so the consumer had a very high level of price opinion and low positively correlated with the purchase decisions the environmental products that was consistent with the research of Kanokorn Nilwanchanakul and Paweena Kampukka (2013), found that consumer price attitudes toward environmentally friendly products were positively correlated with purchasing behavior. Green products as well.

Recommendation

1. Recommendation from this research

1.1 From the research results, it can be seen that consumers in Pathumthani Province have knowledge about products that are friendly to environment is low level. Therefore, the relevant government agencies

have to play a role in educating more environmental products to people in Pathumthani Province. In particular, the characteristics of environmental products will be observed or seen from? How will they buy the environmental product to consume? What are the benefits to consumers?

1.2 The government sectors would also educate the consumers in Pathumthani Province about benefit to society in the future when everyone give corporate to consume the environmental products increasing.

1.3 From this research result If the related sector would like to promote

the consumers in Pathumthani Province for increased consuming, they might more concentrate to product, place, and promotion.

2. Recommendation for further research

2.1 Studying the other factors except knowledge and marketing mix factors Influence to purchase decision the environmental products of consumer in Pathumthani Province.

2.2 Should study the same topic but study in other provinces.

2.3 Might choose to study only the consumer environmental products excluding non-consumer environmental products in order to get more detail information and more advantages.

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