



**BARRIERS TO ADOPTION OF ENVIRONMENTALLY
DEGRADABLE PLASTIC CUP AMONG
COFFEE SHOPS IN BANGKOK**

BY

MISS JARASPORN NIMKITTIKUL

**AN INDEPENDENT STUDY SUBMITTED IN PARTIAL
FULFILLMENT OF
THE REQUIREMENTS FOR THE DEGREE OF
MASTER OF SCIENCE PROGRAM IN MARKETING
(INTERNATIONAL PROGRAM)
FACULTY OF COMMERCE AND ACCOUNTANCY
THAMMASAT UNIVERSITY
ACADEMIC YEAR 2016
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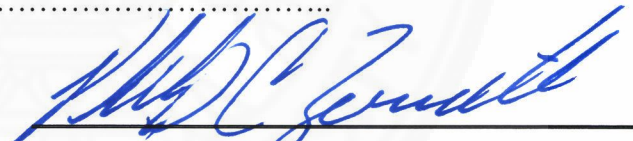
ENTITLED

BARRIERS TO ADOPTION OF ENVIRONMENTALLY DEGRADABLE
PLASTIC CUP AMONG COFFEE SHOPS IN BANGKOK

was approved as partial fulfillment of the requirements for
the degree of Master of Science Program in Marketing (International Program)


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Degree	Master of Science Program in Marketing (International Program)
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Independent Study Advisor	Professor James E. Nelson, Ph.D.
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ABSTRACT

“Barriers To Adoption of Environmentally Degradable Plastic (EDP) Cup Among Coffee Shop in Bangkok” was chosen to be an independent study topic as it has strong relevance to key societal issues we face today, namely climate change, and investigates how we, as humans, impact the environment through our daily purchasing decisions. This is a contemporary topic in applied marketing.

The objectives of this study were defined and scoped in a way that allows for the exploration of, firstly, the drivers behind coffee shop owners’ decision-making process and purchasing patterns; secondly, the general awareness of coffee shop owners towards environmental issues; thirdly, the barriers to purchasing EDP cups; fourthly, the acceptable price range of EDP cups, and lastly, the assessment of potential strategies and their effectiveness in diminishing the barriers to the adoption of EDP cups at coffee shops.

Secondary research was conducted through a variety of sources including published journals, newspapers, television, and radio. Qualitative data were collected over a series of 16 face-to-face interviews with coffee shop owners, six of which were in-depth interviews, and the remaining 10 being short interviews. Quantitative data were obtained through a standardized online questionnaire, which was distributed to 150 coffee shop owners across Bangkok. Responses to the questionnaire were

collected and analyzed using Statistical Package for the Social Science (SPSS) for statistics.

The findings clearly demonstrate coffee shop owners' attitudes towards the purchasing of EDP cups, and explain the key reasons why they do not purchase EDP cups. The findings can also be used as a guideline to implement a strategy aimed at diminishing the barriers towards purchasing EDP cups.

Keywords: Degradable cup, Environmentally friendly, Coffee Café, Coffee shop



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Miss Jarasporn Nimkittikul

TABLE OF CONTENTS

	Page
ABSTRACT	(1)
ACKNOWLEDGEMENTS	(3)
LIST OF TABLES	(7)
LIST OF FIGURES	(8)
CHAPTER 1 INTRODUCTION	1
1.1 Introduction to the study	1
1.2 Objectives	2
CHAPTER 2 REVIEW OF LITERATURE	3
CHAPTER 3 RESEARCH METHODOLOGY	7
3.1 Research design	7
3.1.1 Secondary research	7
3.1.2 Short interview	7
3.1.3 In-depth interview	8
3.1.4 Descriptive research	8
3.2 Identification of key research variables	9
3.3 Target population	9
3.4 Data collection plan	9
3.4.1 Secondary research	9
3.4.2 Short interview	10
3.4.3 In-depth interview	10
3.4.4 Descriptive research	10

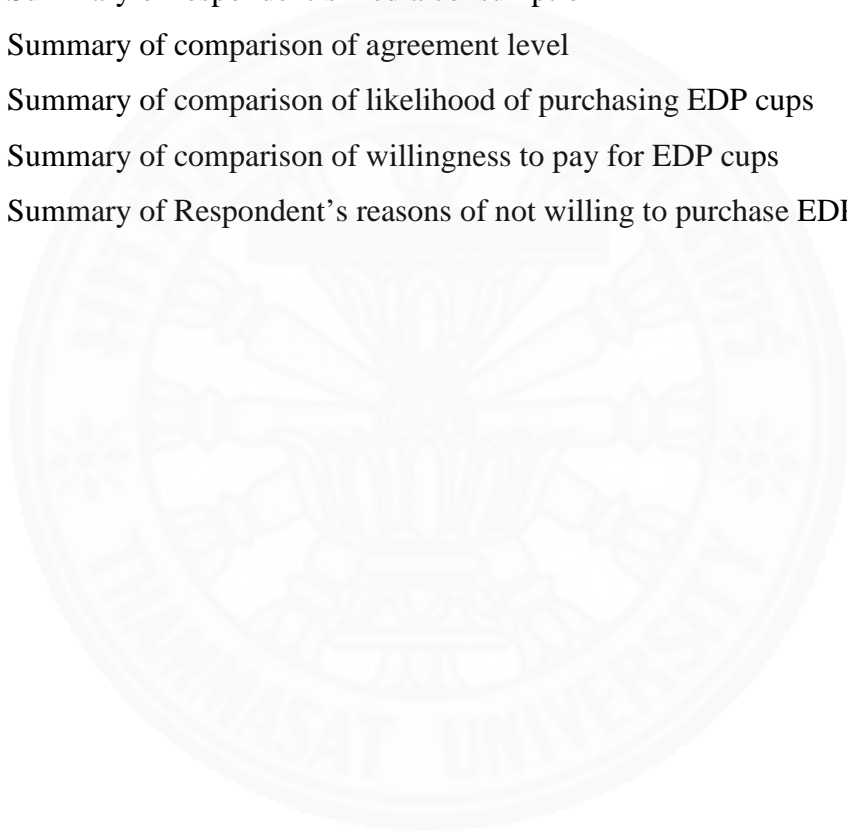
3.5 Data analysis plan	11
3.5.1 Qualitative data analysis	11
3.5.2 Quantitative data analysis	11
CHAPTER 4 RESEARCH FINDINGS	12
4.1 Qualitative results	12
4.1.1 Secondary research	12
4.1.2 Short interview	12
4.1.3 In-depth interview	13
4.1.3.1 Purchasing behaviors	13
4.1.3.2 Media consumption	14
4.1.3.3 Perception towards environmental issues	14
4.1.3.4 Perception towards EDP cup	15
4.1.4 Observation key findings	15
4.2 Quantitative results	16
4.2.2 Comparison of agreement level of environmental issue	20
4.2.3 Comparison of likelihood of purchasing EDP cup	21
4.2.4 Comparison of willingness to pay for EDP cup	22
4.2.5 Respondent's reasons of not willing to purchase EDP cup	22
CHAPTER 5 CONCLUSIONS AND RECOMMENDATIONS	24
5.1 Conclusions	24
5.1.1 The group with awareness	24
5.1.2 The group without awareness	25
5.2 Recommendation	25
5.2.1 Pricing	26
5.2.2 Communication	26
5.2.3 Delivery service	26
5.3 Limitations of the Study	27
REFERENCES	28

APPENDICES	31
APPENDIX A Questions for short interview	32
APPENDIX B Questions for in-depth interview	33
APPENDIX C Questionnaire	34
APPENDIX D Summary of Respondents' demographic in relation to buying action	37
BIOGRAPHY	38



LIST OF TABLES

Tables	Page
4.1 Summary of respondent's demographic	17
4.2 Summary of respondents' demographic in relation to buying action	18
4.3 Summary of respondent's demographic regarding buying decision-making	18
4.4 Summary of respondent's demographic regarding to important of delivery	19
4.5 Summary of respondent's media consumption	20
4.6 Summary of comparison of agreement level	21
4.7 Summary of comparison of likelihood of purchasing EDP cups	21
4.8 Summary of comparison of willingness to pay for EDP cups	22
4.9 Summary of Respondent's reasons of not willing to purchase EDP cup	23



LIST OF FIGURES

Figures	Page
3.1 Research framework	7



CHAPTER 1

INTRODUCTION

1.1 Introduction and objectives

The coffee shop industry is growing at around 5.4 percent every year, with the market valued at nearly 20,000 million baht. In general, the coffee shop industry in Thailand is made up of three key categories - stand-alone shops, kiosks, and carts (Bangkok Biz News, 2017).

Stand-alone shops can be sub-categorized into two types - coffee shops and coffee cafés. Coffee shops usually focus on coffee drinks, and a small portion of their space is dedicated to serving baked goods. Their main target audiences include the new generation of working young adults and students, who are typically busy and always 'on-the-go'. Therefore, most of the time, drinks are served in disposable plastic cups for convenience. As a whole, the stand-alone shop market is valued at 8,540 million baht, growing at a rate of 10 percent each year. Most large coffee shop chains, such as Starbucks, Amazon café and True coffee, capture approximately 75 percent of this market, valued at 6,337 million baht (Bangkok Biz News, 2017).

Coffee cafés normally serve both coffee and cooked food. Although coffee is always a part of their menus, their market position is more akin to that of restaurants that serve coffee, rather than a place that specializes in good coffee. Hence, the drinks are normally filled in reusable, washable cups. The target groups for this segment of the market include families, friends or colleagues gathering for a meal. Although the market value is 3.6 percent larger than coffee shops, it shrinks every year due to the proliferation of the coffee shop segment (Bangkok Biz News, 2017).

This paper focuses on coffee shops, where the pace of growth directly affects the adoption rate of plastic cups. Currently, the monthly usage of plastic cups is over 5,000 tons, and this is growing at a rate of over eight percent per year. Because these cups are non-biodegradable, the plastic accumulates over time and likely finds its way to a landfill at the end of its useful life.

Despite knowledge of the harmful impacts of overusing plastic, Environmentally Degradable Plastic (EDP) cups, an environmentally-friendly alternative to plastic cups, still account for less than 1 percent of total cup usage (Thai Bioplastics Industry Association – Overview of bioplastic in Thailand 2016, 2016). This low market penetration may be due to some perceived barriers in the minds of coffee shop owners – particularly among stand-alone coffee shop owners. This paper will guide readers through these barriers, and suggest ways of minimizing them.

1.2 Objectives

Definition: Environmentally Degradable Plastic cup in this study means the means petroleum-based plastics that can physically and molecularly degrade when it exposes to sun, heat, and oxygen. The complete degradation of substrates must result in 70 percent of CO₂ gas release and 30 percent of biomass formation or cell growth.

The research aims to investigate some of the key barriers to the adoption of EDP cups among coffee shops in Bangkok. The findings allow companies to formulate a strategy to reduce the barriers and increase the usage of EDP cups in Bangkok.

In order to reach the purpose, four main objectives were considered:

- 1.2.1 To explore the background of the shop's owner, and the factors that impact their decision making and purchasing pattern of plastic coffee cups.
- 1.2.2 To study consumers' general knowledge about environmental issue
- 1.2.3 To access the purchasing intentions of green product
- 1.2.4 To assess the strategies and their effectiveness to diminishing the barriers to adoption of EDP cups.

CHAPTER 2

REVIEW OF LITERATURE

According to the Guardian, one of the world's leading newspapers, the world's ocean contains over five trillion pieces of plastic, and by putting a net into the ocean for five minutes, you can catch more plastic than marine life. The total weight of all this plastic is estimated at almost 269,000 tons. This causes enormous problems along the entire food chain as well as the maritime tourism industry. However, the volume of plastic in oceans is expected to continuously increase due to the rise in production of disposable plastic packaging. The researcher suggests that the only ways of solving this issue are to either implement policy to increase recycling rates, or educate people to understand more about this issue (Milman, 2014).

Environmental issues are caused by the shared actions from many people, yet individual people are reluctant to take responsibility for it. Even between developed and developing countries, the arguments are still ongoing about which countries should respond to the issues. While developed countries argue that developing countries should be held accountable since they are building their infrastructure and economies, developing countries beg to differ (Broto, 2013).

Instead of waiting for policy to take shape, the best feasible way is to educate individuals to take personal responsibility for preserving the environment and their own surroundings. Research from Ng and Law (2015) suggests that it is important to make individuals realize that each personal contribution is able to improve the environment, and that everyone has the ability to change the environmental outcome. With this sense of empowerment and collective belief, people will naturally become more engaged and conscious about how their daily activities impact the environment.

Despite common knowledge of the problems that plastic garbage have created for the environment, the adoption rate of EDP cups as an alternative to plastic cups is extremely low. The production of traditional plastic in 2015 registered at 322

million tons, and the number continues to grow by approximately 8.5 percent annually (Plastics – the Facts 2014/2015, 2015). In stark contrast, the total global production of EDP is only 1.7 million tons, with a growth rate of around 5 percent per year (S. Tandio, personal communication, April 23, 2015). Currently, the potential for growth in EDP production is exponential, and an expansion in EDP production can be easily achieved. Assuming EDP production growth rate is correlated to environmental awareness, then the abovementioned data suggests that people are not doing enough to actively mitigate the impact of plastic on the environment.

Upon further examination of the reasons for slow adoption of EDP cups, the Washington post, an American daily newspaper, reveals that 40 percent of adults have never heard about the effects that plastic garbage can have on climate change. The newspaper further states that education is the best influence factor globally to improve such awareness (Harvey, 2015).

However, among those who were aware of the issue, the seriousness of perceived risks from climate change is different in each region. For example, in China, people associate risk with the air and water quality. Meanwhile in the United States, greater risk is associated with the weather and temperature. Therefore, the harsh reality of climate change only sets in when people feel the temperature this year is warmer than previous years. As a result, in order for climate change education to succeed, the message sent to people should vary according to local situations, language, values and culture (Harvey, 2015).

However, convincing individuals to understand and believe that their actions can improve the environment is challenging. The study from (Lasuin and Ching, 2014) reveals that communications should focus on emotional aspects, rather than rational aspects. The content should be visualized in easy-to-understand ways that increase engagement and encourage change. It can focus on enhancing a person's self-image and reinforcing social influence, as these two areas are positively related to environmental concern and 'green' purchasing intention. It is believed that if society talks more about environmental issues, the recognition will be more widely spread

throughout larger populations and eventually increase the engagement and purchase intention for 'green' products such as EDP cups.

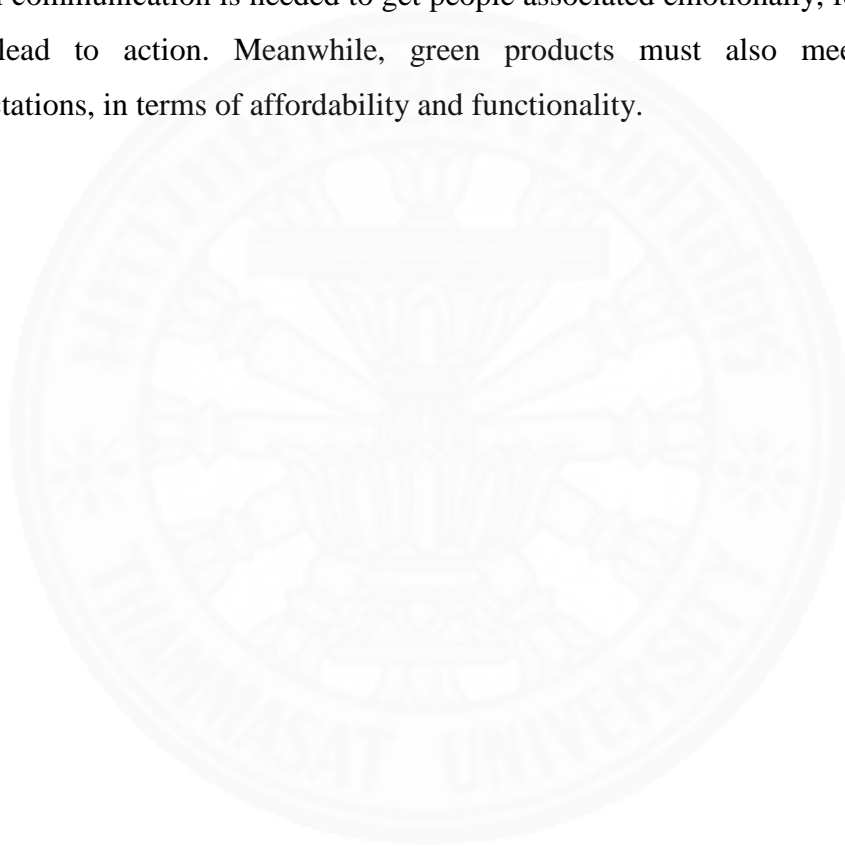
Besides communication, product attributes play an important role in purchasing decisions. Consumers are not willing to compromise the functionality and affordability that are usually associated with 'going green'. However, customers are willing to spend extra money when they understand how a 'green' product could help solve environmental issues or desirable social concepts such as environmentalism. The study further states that different degrees of concern towards environmental issues can lead to different levels of purchasing intention. For example, highly concerned groups usually purchase based on emotion. They have unconditional intention of purchase, which means functionality does not feature too highly for them. For moderately concerned groups, they look for functionality in addition to emotion. In contrast, groups with low concern or no concern only care for pure benefit or purchase by accident (Sharma, 2015).

In low involvement buying decisions or purchases with no planning or previous thoughts, customers choose the brands they have 'top of mind' recall for. Searching activity is rarely done for this type, and customers often decide with emotion rather than rationality. Moreover, they find it difficult to explain why they chose the particular brand (Chernatony, McDonald, & Wallace, 2011).

In order to persuade customers to have higher involvement, four techniques are usually used. Firstly, the product should be linked to an engaging issue. Secondly, the product should be linked to a personal situation. Thirdly, emotion related to personal value or ego is the trigger point; hence the advertising should be designed for such purpose. Lastly, important features should be added to increase the involvement (Kotler & Keller, 2012).

The communication of low involvement products should be conveyed emotionally and motivationally, such as humor, warmth, fear or special effects. These techniques are believed to increase the awareness of the brands since they capture attention and build image in people's mind (Keller, 2013).

In summary from all literature reviewed, the problem about garbage is getting severer. Nevertheless individual people still ignore this on-going problem, although they are aware of environmental issues. It was founded that the reasons of ignorance could be from little or no linkage to their personal lives. Consequently, there is no feeling of responsibility or personal accountability towards the issue. Then, people do not perceive the importance of using green products and somehow do not believe that using such items could contribute to save the environment. To raise the responsibility, visual communication is needed to get people associated emotionally, feel responsible and lead to action. Meanwhile, green products must also meet consumer's expectations, in terms of affordability and functionality.



CHAPTER 3

RESEARCH METHODOLOGY

3.1 Research Design

In order to achieve the research objectives, data were collected from various sources, such as secondary and primary research. They were collected through both qualitative methods from short interviews and in-depth interviews, as well as quantitative methods via offline and online surveys (*see Exhibit 1 shown below*).

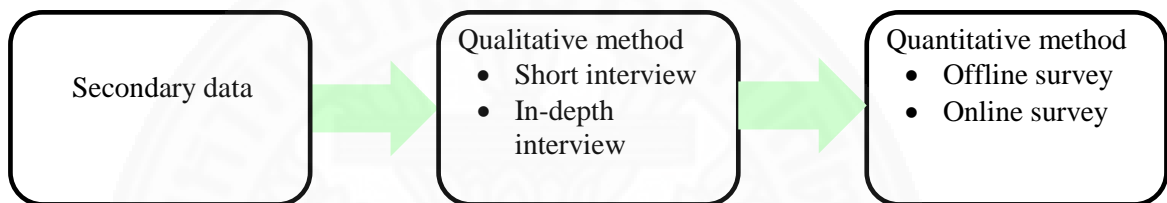


Figure 3.1 Research framework

3.1.1 Secondary Research

Secondary data were done to explore information, such as market background of plastic cups and opinions towards environmental issues and ‘green’ products. They were collected through various reliable sources, such as research journals, magazines, trade associations, newspapers, books, and interviews. Then, the data from secondary research were reaffirmed with information from the short interviews and used to develop questions for in-depth interviews and surveys.

3.1.2 Short Interview

The short interviews with 10 coffee shop owners were conducted at the very first stage in order to better understand and identify patterns relating to their decision-making and purchasing of plastic coffee cups. Each interview took only 10 minutes to complete. The selected coffee shops were owned by the researcher’s friends. The characteristics of these coffee shops were modern and stylish. The sample questions were, “Where and when do you buy plastic cups?” and “Why do you choose this type

of cup?” This information was later developed into guidance for secondary research (Appendix A).

3.1.3 In-depth Interview

The in-depth interviews with 10 coffee shop owners were conducted to examine the decision-making and purchasing pattern of plastic coffee cups, their level of knowledge and awareness about environmental issues, and assess the possible strategies to diminish the barriers of adoption of EDP cups.

Each interview took around 50 minutes. The questions were guided from the secondary data (Appendix B). Each interview was held across three sessions. The first session was about background and decision-making and purchasing behaviors. Then the second session evaluated the awareness, attitudes, beliefs and intentions of improving the environment and buying EDP cups. The sample questions were:

“What causes overflow garbage?”

“What is a ‘green’ product in your opinion?”

“How closely is your lifestyle related to environmental issues?”

Then the proposed strategies to increase the involvement to the environment were shown in three concepts - tree plantation, garbage reduction, and carbon dioxide reduction. They were asked in sentences. Thereafter, the scale of likelihood of purchase was asked. During this session, recommendations from interviewees were encouraged to help shape more effective questions in the surveys.

3.1.4 Descriptive Research

The research was conducted after an in-depth interview by using offline and online platforms. The purpose of this survey was to gather purchasing pattern, to measure awareness, to measure the likelihood of purchasing EDP cups, and assess their willingness to pay for EDP cups.

Before launching the questionnaire, the pilot run was tested within a small group to ensure the understanding and clarity of all questions. For the offline platform, 65 surveys were done through phone calls. The appropriate calling appointments were set for 10 minutes, during which we asked all questions from the

survey and filled in data on the online platform. For the online platform, it was distributed directly to the coffee shops' websites, emails and Facebook pages. The location was limited to be within Bangkok, and this was confirmed by a screening question asking for their shop's location (Appendix C).

3.2 Identification of Key Research Variables

There are four key variables used in this research:

- 1) Demographic information
- 2) Shop owner's awareness, attitudes and beliefs towards environmental issue
- 3) Shop owner's awareness, attitudes and beliefs towards 'green' products
- 4) Key factors influencing shop owners' decision making and purchasing pattern include level of involvement, influence from marketing and non-marketing sources, supplies, price, design and function.

3.3 Target Population

This study was focused on Bangkok, and targeted the owners of stand-alone coffee shops that used Polyethylene Terephthalate (PET) cups and sold drinks above 65 baht per cup. Such shops normally were decorated cozily and warmly. Once customers stepped in, they would smell the coffee smell and see coffee bean as a part of the decoration. They had their own concepts to be an inviting space for customers to come and relax. These criteria were used in order to capture a sample of 'trendy' coffee shops that exhibit those characteristics. Also, with each drink selling for at least 65 baht, it is reasonable to assume there is potentially enough margin for the purchase of EDP cups.

3.4 Data Collection Plan

3.4.1 Secondary Research

Data of the plastic industry were collected from Plastics Europe Association, Thai Plastic Industries Association (TPIA) and Thai Bioplastics Industry Association

(TBIA). These associations gathered data and trends on plastic from conferences around the globe, and made this information available on their websites.

For the current awareness, attitudes, beliefs towards environmental issues and packaging, numerous studies were conducted earlier in other regions and across different cultures. These data can be accessed from online library.

3.4.2 Short Interview

The 10 short interviews were conducted through calls. The target interviewees were acquaintances from researcher. Each call took around five to 10 minutes with the purpose of only getting to know purchasing pattern of owners. The questions were open-ended.

3.4.3 In-depth Interview

The in-depth interviews with 10 shops were randomly recruited at the coffee shops. The author approached prospect stores, told them about the purpose and length of the interview and asked if the owners were willing to have the interview. The stores were selected from many criteria, namely store's concept, price range, and number of branches. The interviewees were divided into two groups as follows to compare the result.

Store Concept	Price THB	No. Of branch	No. Of shops recruited
Show the concern for environment	Above 65 THB	Max 5	15
Does not show the concern for environment	Above 65 THB	Max 5	15

3.4.4 Descriptive Research

For the offline survey, the questionnaire form was prepared in hard copy and distributed to 120 coffee shop owners around Bangkok. The target owners were those who belong to the younger generation, inspired to have their own business and passionate about coffee. The questionnaire was distributed during non-peak hours by the interviewer and the survey took around 20 minutes to complete. In addition, some coffee shops would be asked by phone calls in case that the locations were not easily accessible, or the owners were busy filling the questionnaire.

The online questionnaire link was shared by two ways, which were snowball sampling and judgment sampling. For snowball sampling, to ensure that only those who answer owned coffee shops and the location was in Bangkok, there were screening questions for these purpose. For judgment sampling, interviewers searched for target coffee shops, contacted them to ask if they could do online questionnaire. If yes, the link would be distributed to them.

The total number surveyed at 150 shops is buffered at 35 percent for those who do not pass the criteria set forth.

3.5 Data Analysis Plan

The data analysis plans were applied in both qualitative and quantitative research.

3.5.1 Qualitative Data Analysis

In qualitative research, in-depth interviews, short interviews and secondary research were conducted to find patterns of attitude, behavior and to design the questionnaire.

3.5.2 Quantitative Data Analysis

In quantity research, the result from the survey was interpreted by the program called SPSS (Statistical Package for Social Science) which was used as an analysis tool. This program also analyzed frequency, mean comparison, standard deviations, correlation coefficient, cross-tabulations, custom table, independent t-test and ANOVA.

CHAPTER 4

RESEARCH FINDINGS

Results from qualitative research and quantitative research were analyzed and interpreted. The qualitative research was conducted through in-depth interviews with both owners and customers of coffee houses. The quantitative research comprised the results from the questionnaire survey. The findings are summarized as follows:

4.1 Qualitative Results

4.1.1 Secondary research

The issue of climate change was not well-known throughout the whole society, and therefore there is no critical mass in terms of environmental awareness. It was well-known only within specific groups of consumers, but even amongst them, climate change was perceived to be irrelevant to them since there was no direct connection to their daily lives. There were many 'green' products available in the market, but consumers would only purchase those products if they were both affordable and functional. They would not compromise on either aspect. In order to change the mindset of this issue, education was strongly recommended. Such issue must be enlightened from individual level to order to do an action.

4.1.2 Short Interview

Ten short interviews revealed that purchasing cups was the very last decision owners have to make. They usually occupied with construction, decoration, coffee machine and equipment, and employee hiring. Then two to three weeks before opening, owners usually checked out information about cups. They normally checked out the material at the physical store, rather than online, because they would like to touch and hold the cups. Some of them hesitated between plastic cup and paper cup. While, plastic cup was transparent, paper cup gave better feeling when holding. They normally checked at bakery store, wholesaler nearby, or wholesale hypermarket. Printing on cups was optional if the minimum requirement was below 3,000 pieces and price did not increase above 1.80 baht. When asked about EDP cups, all of them never heard of it before. They were willing to use if the price was acceptable.

4.1.3 In-depth interview

Ten in-depth interviews with coffee shop owners were conducted through phone calls and at their shops. Eight respondents were moderately aware of environmental issues. Two respondents were fully aware of environmental issues and believed our actions can help. The results can be categorized into topics as follows:

4.1.3.1 Purchasing behaviors

Interviewer asked them to recall the first time they bought plastic cups, and they answered simply that they looked at wholesalers nearby, or searched online through a search engine. They usually compared price and texture between two to three suppliers. Some of them were actually interested in using EDP cups, however the price three to four years ago was almost six baht per cup and did not come with a delivery service.

“I recalled calling one company to check on price. I roughly remembered 16 oz. cup was six baht and I had to pick up by myself, said one respondent.”

They added that they would not mind buying EDP cups if the price was capped at 15 percent higher than regular plastic cups.

For the two persons with full awareness, they filtered only suppliers that offered EDP cup. They found one supplier that offered acceptable price and with delivery service.

Before making the purchasing decision, they usually visited shops or talked with salesperson first to get to know the best offers and minimum order per one time. Screening logo on cups was also in the consideration. If the price did not increase over 1.60 baht with the minimum within 5,000 cups, there was higher tendency to choose that particular supplier.

With the minimum requirement, they could use the stock for over five months.

Once the supplier was selected, they usually bought from the same supplier until they had a new offer. They commented that this approach was very convenient because the close distance from the supplier to their shops resulted in less transport and lower storage space required. Normally coffee shops at this scale, there were limited space for storage and cups used plenty of space when comparing to coffee bean. Delivery service for them was nice-to-have option, but not always necessary

because of the small amount of each order. The order cycle was around one time per week if wholesaler was nearby. Meanwhile, the coffee shops can stock for one month if ordered with the delivery service.

When asked about materials, most respondents could not answer the exact name of the plastic type. They usually recalled only the attribute of cups, such as shape, thickness and shatterproof. Some could uncertainly refer the word PET. Respondents were also asked how do they liked the texture of paper. All of them prefer the texture, but not the opaque white. It made their drinks less favorable.

4.1.3.2 Media consumption

Most of respondents rarely consumed any types of media as owning coffee shops already occupy most of their time. When asked about any particular sources of media they followed, no name was recalled in their minds. However, they constantly followed websites or pages about coffee to update their knowledge. Sometimes, suppliers were also a source of media to them, as they tend to trust their suppliers for market intelligence. Moreover, they know that the suppliers can find newly launched items for them.

4.1.3.3 Perception towards environmental issues

The majority of respondents were aware of environmental issues, especially with global warming. However, when asked about carbon dioxide release level, or involvement of trees to carbon dioxide, they had no idea about these issues.

When stating such sentences, they were unsure since they did not have information available. When questions were asked relating to taking action to help the environment, they accepted to contribute to some level that would not disrupt their daily lives tremendously. For example, they would not cycle to work everyday in order to help reduce carbon dioxide. Some of them actually mentioned that climate change was the issue for the government or multi-national companies that produced massive waste annually.

When speaking of plastic garbage, there was a stronger connection to themselves and they could relate more easily, especially with sentences that compare the amount of garbage with tourist destinations. However, some of them believe that

plastic garbage from their shops were insignificant compared to coffee shop chains. If using EDP cups meant more cost or less convenience, they would be less convinced to use it. When interviewer described the linkage between garbage and global warming as a result of inappropriate garbage disposal methods such as incineration, they understood better and show slightly more interest in some feasible solutions to better our environment.

Among all respondents, there were two persons who were truly aware of this issue. One person used to work in organic coconut farming, where he became alert of this issue. The other interviewee lived in beach area, where he saw the change in environment. From then on, they slowly adapted their lives to have least impact to the environment. For example, one person only purchased coffee ingredients with organic certificate.

4.1.3.4 Perception towards EDP cup

All respondents accepted the texture and shape of EDP cups. When proposing the price as 20 percent higher than a regular plastic non-degradable cup, only two persons who were truly concerned about the environment accepted. The lower increase in price, the more respondents were willing to use. After respondents listened to all the statements, one person was willing to purchase at 15 percent above the price of a regular plastic cup. However, he mentioned that EDP cups would be served only with expensive drinks. For normal drinks, such as water or soft drink, non-degradable cups would still be used because of the cheaper price.

4.1.4 Observation key findings

In Thailand, some companies sold EDP cups at 5 baht without communicating the positive link it had with the environment. Within a short period of time, it failed to capture the Thai market. Users reported that the reasons for the market failure were mostly about cost and durability.

From interviewer's observation, owners of small coffee shop often suggested that chain coffee shops should have used EDP cup because they can afford to do so. Meanwhile, purchasing department in chain coffee shops declined to use with the

reason of limited budget. One assumption was that if there was one well-known company used EDP cup and publicly announced, would it make a trend in our society?

Similar observation happened with wholesaler. Since no awareness group usually purchased cups from wholesaler, searchers approached three wholesalers to their opinion towards selling EDP cups. Responses were about if other wholesalers carried this item, they would follow.

In summary from in-depth interviews, the purchasing patterns were relatively similar in terms of information search, decision making and repeating order. Coffee café owners in general spend less time on buying cups when comparing to other elements in one café. Therefore, sale person or other type of information feeding is important to them. The source must be reliable, precise, and company's contact information. The important features for coffee café owners are material and price. If these two dimensions are fulfilled, they are willing to adopt to degradable plastic cup. However, the willingness to adopt also depends the difference of price increase. If the offer remains the same price, the most they would like to switch. The maximum price according to the in-depth interview group is 15 percent for the group with no awareness of environmental issue. While, the group with awareness mentioned that the increase of 20 percent is still acceptable.

4.2 Quantitative Results

4.2.1 Respondent Profile

Data were collected through a survey and was analyzed using Statistic Package for Social Sciences (SPSS). Based on results from 101 respondents, 63% sell drinks at 66 -120 THB on average, 48% use paper cups, 94% use plastic cups, and only 10% use EDP cups. This indicates that majority of coffee shops use plastic cups, although some of those that use plastic cups also use paper cups. In terms of monthly usage, 63% of shops use less than 1,000 cups, and 33 % use between 1,000 to 5,000 cups. It further shows that 81% have only one outlet, while 19% have two to three branches. (*See table 4.1*).

Table 4.1 Summary of Respondent's demographic (n = 101)

Respondents' demographic		Total	
		n	%
Avg price of drink	Below 65 THB	25	25%
	66- 120 THB	64	63%
	Above 120 THB	12	12%
Type of cup - Paper	No	53	52%
	Yes	48	48%
Type of cup - Plastic	No	6	6%
	Yes	95	94%
Type of cup - EDP cup	No	91	90%
	Yes	10	10%
Monthly usage	Less than 1,000 pcs	64	63%
	1,000 - 5,000 pcs	33	33%
	More than 5,000 pcs	4	4%
Number of branch	1 branch	82	81%
	2 - 3 branches	19	19%

To summarize the findings among the 101 respondents:

- 64 people, or 63% of respondents, have no awareness of EDP cups, and therefore have never bought EDP cups before
- 24 people, or 24% of respondents, are aware of EDP cups but have never bought them before
- 10 people, or 13% of respondents, have previously bought EDP cups. (Appendix D)

Looking at the first two groups, which have never bought EDP cups, Table 4.2 shows frequency and percentage among each type of demographic, such as average price of drink, type of materials for cup, monthly usage and number of branch. All data between these two groups were almost similar, for example the majority of both groups priced of drinks on average between 66 to 120 baht and used plastic up. There was no significant difference shown.

Table 4.2 Summary of Respondents' demographic in relation to buying action
(n = 88)

Respondents' demographic		No awareness (n=64)		Have awareness (n=24)	
		n	%	n	%
Avg price of drink	Below 65 THB	19	30%	4	17%
	66- 120 THB	38	59%	18	75%
	Above 120 THB	7	11%	2	8%
Type of cup - Paper	No	35	55%	12	50%
	Yes	29	45%	12	50%
Type of cup - Plastic	No	2	3%	0	0%
	Yes	62	97%	24	100%
Type of cup - EDP cup	No	64	100%	24	100%
	Yes	0	0%	0	0%
Monthly usage	Less than 1,000 pcs	40	63%	14	58%
	1,0000 - 5,000 pcs	21	33%	9	38%
	More than 5,000 pcs	3	5%	1	4%
Number of branch	1 branch	51	80%	20	83%
	2 - 3 branches	13	20%	4	17%

To gain a deeper understanding of the differences among respondents, they were asked for the factors of buying decision-making, importance level of delivery service and types of media consumption.

Among the no awareness group, service was the most important factor [mean = 3.20], followed by price concern [mean = 2.83], moderate info searching [mean = 2.48], shape of cup [mean = 2.47], and material and texture of cup [2.25].

For the group that has awareness, material and texture were the most important factors [mean = 3.37], followed by shape [mean = 3.29], service [mean = 2.96], price [2.80], and relatively low information searching [mean = 1.92] (see table 4.3).

Table 4.3 Summary of Respondent's demographic regarding buying decision-making
(n = 88)

Factors for buying decision-making	No Awareness (n = 64)			Have Awareness (n = 24)		
	Mean	n	Std. Deviation	Mean	n = 24	Std. Deviation
Level of info searching	2.48	64	.88	1.92	24	.91
Price concern	2.83	64	1.05	2.80	24	1.32
Service concern	3.20	64	.68	2.96	24	.79
Material & Texture of cup	2.25	64	.80	3.38	24	.92
Shape of cup	2.47	64	1.01	3.29	24	.92

For the importance of delivery, the willingness to travel to purchase EDP cups was measured by three sentences, which were purchase from nearby wholesaler, acceptability of long distance of shop that sold EDP cup and delivery service. Among the no awareness group, delivery service was rated the highest [mean = 3.64], followed by nearby location of wholesaler [mean = 2.32], and lastly, long distance of shop selling EDP cup [mean =2.12].

Meanwhile, for the group that has awareness, delivery service was similarly rated the highest [mean = 3.80], followed by long distance [mean = 2.32], then nearby wholesaler [mean = 2.08] (*see table 4.4*).

Table 4.4 Summary of Respondent's demographic regarding to important of delivery (N=88)

Importance of delivery	No Awareness (n = 64)			Have Awareness (n = 24)		
	Mean	n	Std. Deviation	Mean	n	Std. Deviation
Purchase from nearby wholesaler	2.32	64	1.192	2.08	24	.909
Long distance is acceptable to buy EDP cup	2.12	64	.886	2.32	24	.852
Willing to use EDP cup, if delivery	3.64	64	.835	3.80	24	.764

With regards to media consumption in general, two groups of respondents consume digital media as opposed to traditional types of media such as newspaper, radio and TV. Newspaper and TV gained only less than 10% in both groups. Meanwhile, the group with awareness listened to radio more than the no awareness group at much higher percentage. The percentages were 17% comparing to only 3%, respectively.

Surprisingly, non-marketing sources of media, such as family and friends, garnered low percentages in both groups as the data reported only 22% for no awareness group and only 17% for the awareness group.

Both groups received information the most from online media, namely website and Facebook. They followed Facebook pages specifically relating to coffee. On the other hand, 83% of the respondents' group with awareness follow Facebook pages about 'green' lifestyles and National Geographic, while only 41% and 52% of the no awareness group follow those two pages. Moreover, there were no any specific pages that no awareness group followed (*see table 4.5*).

Table 4.5 Summary of Respondent's media consumption (N = 88)

Media Consumption		No awareness (n=64)		Have awareness (n=24)	
		n	%	n	%
Newspaper	No	58	91%	23	96%
	Yes	6	9%	1	4%
Radio	No	62	97%	20	83%
	Yes	2	3%	4	17%
TV	No	60	91%	22	92%
	Yes	4	9%	2	8%
Family & Friends	No	50	78%	20	83%
	Yes	14	22%	4	17%
Online Media, such as website, Facebook	No	4	6%	0	0%
	Yes	60	94%	24	100%
Facebook page - coffee	No	4	6%	1	4%
	Yes	60	94%	23	96%
Facebook page - news	No	41	64%	16	67%
	Yes	23	36%	8	33%
Facebook page - social Criticism	No	42	66%	14	58%
	Yes	22	34%	10	42%
Facebook page - summary	No	51	80%	21	88%
	Yes	13	20%	3	13%
Facebook page - lifestyle	No	57	89%	20	83%
	Yes	7	11%	4	17%
Facebook page - green lifestyle	No	38	59%	3	13%
	Yes	26	41%	21	88%
Facebook page - drama addict	No	43	67%	21	88%
	Yes	21	33%	3	13%
Facebook page - national geography	No	34	53%	4	17%
	Yes	30	47%	20	83%
Facebook page - travel	No	41	64%	9	38%
	Yes	23	36%	15	63%

4.2.2 Comparison of agreement level of environmental issue

The group with awareness had higher agreement level toward every statement than the other group. However, there were only small differences between the statements of garbage reduction and amount of energy used in production of paper cups. Also the differences were not significant since the p-values represented > 0.05 . Meanwhile, the other two statements toward tree plantation and carbon dioxide reduction were significantly different as both of them had p-value < 0.05 (see table 4.6).

Table 4.6 Summary of comparison of agreement level between groups that had awareness and without awareness (n=88) (95% Confidence Interval, p value \leq 0.05)

Statements	Means of		t	p-value	Interpretation
	No awareness (n = 64)	Have awareness (n = 24)			
Tree Plantation	3.69	4.29	-3.354	0.001	S
Garbage reduction	3.78	4.08	-1.88	0.064	NS
Carbon dioxide reduction	3.63	4.29	-4.817	0.000	S
Energy used for paper cup	3.41	3.71	-1.436	0.155	NS

4.2.3 Comparison of likelihood of purchasing EDP cup

Table 4.7 shows that the group with awareness still had higher rates toward every statement than the other group, when it came to the likelihood of purchasing EDP cups. Nevertheless, the small differences reduced from two to only one statement, which was about the amount of energy used in production of paper. The other three statements showed significant differences since all of them had p-value < 0.05.

Table 4.7 Summary of comparison of likelihood level of purchasing EDP cup between groups that had awareness and without awareness (n=88) (95% Confidence Interval, p value \leq 0.05)

Statements	Means of		t	p-value	Interpretation
	No awareness (n = 64)	Have awareness (n = 24)			
Tree Plantation	3.8	4.17	-2.468	0.016	S
Garbage reduction	3.83	4.21	-2.732	0.008	S
Carbon dioxide reduction	3.78	4.21	-2.47	0.016	S
Energy used for paper cup	3.27	3.67	-1.563	0.122	NS

4.2.4 Comparison of willingness to pay for EDP cup

When asking for willingness to pay for EDP cup, the five price points were used to evaluate two different groups. The results showed significant differences for all price points. For the no awareness group, the lower selling price influenced a significant increase of willingness to purchase [mean = 3.05 and mean = 3.83]. Meanwhile, the same pattern also applied to the group with awareness. However, the increase was significantly smaller. To verify this significance, all of price points had p-value < 0.05 (see table 4.8).

Table 4.8 Summary of comparison of willingness to pay for EDP cups between groups that had awareness and without awareness (n=88) (95% Confidence Interval, p value ≤ 0.05)

Statements	Means of		t	p-value	Interpretation
	No awareness (n = 64)	Have awareness (n = 24)			
20% more	3.05	4.21	-4.398	0.000	S
15% more	3.09	4.21	-3.739	0.000	S
10% more	3.44	4.29	-3.77	0.000	S
5% more	3.83	4.38	-2.154	0.034	S
same price	4.42	4.83	-2.725	0.008	S

4.2.5 Summary of Respondent's reasons of not willing to purchase EDP cup

With regards to reasons of not using EDP cup, six sentences were used to measure with differences between two groups. The results showed significant differences of five sentences as all of them had p-value < 0.05. They are concerned towards issues, which are expensive price, lack of information of selling place, inconvenience, doubt of material and shape, and the belief of helping environment. For no awareness group, they rated higher score on expensive price [mean = 4.25], while the group with awareness ranked this issue as the third ranking-reason [mean = 2.88]. However, the first rank reason for the group with awareness was regarding to conveniences [mean = 4.33], while this issue became the secondary reason for no awareness group [mean = 3.34]. For the third rank of no awareness group, it was about uncertainty of material and shape [mean = 3.17], while this issue was the

secondary reason for the group with awareness [mean = 3.75]. For the next fourth reason, the both groups gave it to the belief of helping environment [mean = 2.47 and mean = 2.04]. Lastly, both groups agreed that not knowing where to buy was not the barrier of purchasing [mean = 2.17 and mean = 1.25](see table 9).

Table 4.9 Summary of Respondent's reasons of not willing to purchase EDP cup between groups that had awareness and without awareness (n=88) (95% Confidence Interval, p value \leq 0.05)

Reasons of not purchasing	Means of		t	p-value	Interpretation
	No awareness (n = 64)	Have awareness (n = 24)			
Expensive	4.25	2.88	8.358	0.000	S
Do not know where to purchase	2.17	1.25	5.257	0.000	S
Not convenient	3.34	4.33	-5.388	0.000	S
Not sure about material & shape	3.17	3.75	-3.118	0.002	S
Do not believe it helps environment	2.47	2.04	2.041	0.045	S
Current wholesaler/distributor does not sale	2.55	2.46	-2.725	0.065	NS

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusion

To conclude, coffee shop owners were divided into two groups - no awareness and have awareness groups. The general demographics, such as price of drinks, number of branch, monthly usage, and type of cup used, of these two groups were fairly similar. The differences between two groups are as followed:

5.1.1. The group with awareness

The group with awareness paid significantly higher attention on the cup's appearance. They carefully chose cups to suit with the drinks. This also reflected on reasons on not purchasing as they rated material and shape as second highest reason. In contrast, they spent much less time on information searching. Potentially, they may not search by themselves. With regards to the importance of delivery, the group with awareness purchased with distributors rather than wholesalers. This may confirm that they rely heavily on information from distributors, instead of searching by themselves. Nevertheless, for the first time buying, they were willing to travel longer distances if they knew that there were EDP cups available at some place. For the repeated purchase, they would surely prefer the delivery service since this was the important factor of not purchasing for them. Again, this is not the only factor to make decision. They also judged by the appearance.

This group was also less price sensitive, as the data showed higher means of tendency to purchase even though the price is 20 percent more. It could be the case that the price for EDP cups was much higher in the past, so when the price reduced to only 20 percent, they already accepted it. This data were confirmed when rating for reasons of not purchasing; the mean was relatively low comparing to other reasons, such as convenience and material. Therefore if the EDP cup's texture, shape and price were acceptable, they would not hesitate to use it.

Regarding to the statement about environment, the awareness group had higher agreement and purchasing likelihood level on every statement. This shows significant relationships between those with awareness and attitudes and behaviors

towards environment statements. However, the mean was remarkably lower for the amount of energy used in paper production. This could be because they had no information available or they preferred the eco-friendly texture of paper over the amount of energy used because texture and shape were the important factors to them. They also followed more various types of Facebook pages, especially 'green' lifestyle, National Geographic, and travel. Nevertheless, they did not follow traditional media anymore.

5.1.2 The group without awareness

Meanwhile, for the no awareness group, they focused on searching for information and were more concerned about price. The concern towards price was confirmed when they rated pricing as the biggest barrier to adoption. This concern was again reconfirmed in questions about agreement, likelihood and willingness to spend on EDP cup. Once the price dropped to zero percent increase, the mean significantly increased.

The service and cup's appearance were secondary. This group gave lower ratings to the importance of delivery, since they purchase in small amounts. However, they were also not willing to travel further away to purchase EDP cup. The wholesaler must be nearby and sell at the acceptable price. This group was less selective about material and shape of cup. The reason behind could be that 30 percent of this group sold drinks over average less than 65 baht. Therefore, they knew their customers would not notice nor care about cups.

With regards to media consumption, this group also used digital media rather than traditional ones. Similarly as awareness group, they follow Facebook pages about coffee. Apparently, one out of three people followed a page called Drama Addict, which is about celebrity gossip.

5.2 Recommendations

Based on research objectives that focused on finding barriers of adoption of EDP cups, and formulating a strategy to reduce the barriers and increase the usage of EDP cups among coffee shops in Bangkok, the recommendations are as follows:

5.2.1 Pricing

Pricing strategy should be at maximum 20 percent increase than non-degradable plastic cups. However, the price increase is adjustable depending on the market share that a company would like to capture. This range is acceptable among small coffee shops, who already have awareness on EDP cup. To capture biggest market, which includes those without awareness, the price is suggested to be on par with non-degradable price.

This percentage could be varied with chain coffee shops since they buy in large volume. The base price is possibly considerably lower than the market price.

5.2.2 Delivery service

Company may introduce delivery service when offer EDP cup to coffee owner. Even the group with awareness is willing to travel to buy EDP cups, coffee owners still prefer the delivery service as it is more convenience to them. The delivery fee may be charged according to the distance of delivery or free of delivery at some amount.

5.2.3 Communication

To capture both groups, digital media is strongly recommended. Content about relationship between EDP cups and environmental issues should be shown in websites or Facebook pages, such iUrban, Greenery, Coffee beans, and Travel addict. The content could be created under four main pillars towards environmental issues, namely carbon dioxide reduction, garbage reduction, tree plantation, and energy used in packaging production. Some content could be blended within the lifestyle session so that coffee owners can visualize better. When the content is involved with their lifestyle, it links better to coffee owners. For example, telling a story of a cup from coffee shop to landfill, then showing the effect of accumulated landfills to our planet earth and humans. The effect could be shown in tourist destinations to make it easier to visualize. Moreover, the destination could be changed to coffee beans farming. For example, the soils in that area gets worsen because there is toxic landfills within the area.

Other than pillars about environment, the texture and shape of EDP cup should be promoted. Coffee owners worry about holding and durability of EDP cup. This item is new to them, therefore promoting about durability and in-trend shape can reduce their barrier to adoption.

Lastly, the price of EDP cup was perceived to be considerably high than non-degradable cup. It naturally set the barrier to coffee owners. Once they know the price increase within 20%, the likelihood of purchase went up significantly. Therefore, EDP cup should also be communicated in the way that EDP cups are actually accessible and affordable for everyone, only if they are willing to be a part of improving our environment.

5.3 Limitations of the study

Judgment sampling and snowball sampling were used in exploratory research and descriptive research for offline survey. The distribution of the interviews and questionnaire is limited to some areas in Bangkok. Therefore the research findings and result may not be representative of the entire population of interest.

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APPENDICES



APPENDIX A
QUESTIONS FOR SHORT INTERVIEW

Open-ended questions for decision-making and purchasing pattern of plastic coffee cups

1. How long have you opened this shop?
2. How many branch do you have?
3. What did you do for living before opening coffee shop?
4. Why did you decided to open a coffee shop?
5. Was there any particular concept that you put into this shop?
6. Can you recall your first time bought cups in the shop? Was it the primary item to decide or was it the very last item for the shop?
7. Where did you search for supplier?
8. Is there any texture you prefer?
9. How many suppliers did you compare?
10. What was the most influence factor of choosing the supplier?
11. How about the price range in your mind?
12. How many cups approximately do you use monthly?
13. Did you ever come across degradable plastic cup?

APPENDIX B

QUESTIONS FOR IN-DEPTH INTERVIEW

Session 1: Asked about decision-making and purchasing pattern of plastic coffee cups

Repeat all questions from short interview.

Session 2: Evaluated the awareness, attitudes, beliefs and intentions of improving the environment

Interviewees were asked for open-ended answer about their opinion towards environmental issues, overflow garbage issues, green product in their mind. Also they were asked about do they think about the relationship between their lifestyle and environment.

Then four sentences were read and asked how interviewee's opinion.

1. Degradable cup can reduce over 1,000 tons of plastic garbage, which is equal to plantation of 244,000 trees monthly.
2. Each month, plastic garbage is over 1,000 tons, which this amount can bury the whole Tao island.
3. By using 5 degradable plastic cups per week, we can reduce Greenhouse gas 32 kg. carbon which is equal to planting 3 trees.
4. Producing paper requires energy 10 times more than plastic cup
5. Have you ever heard of environmentally degradable cup and have you ever used it?

Session 3: Measured likelihood of purchase

1. After listening all statements, which one do you think it convince you the most?
2. What makes you want to use the EDP cup if the price is 0- 20 percent more expensive?

Remark: During this session, recommendations from interviewees were encouraged to help shape more effective questions in the surveys.

APPENDIX C

QUESTIONNAIRE

Session 1: General information of coffee shops

1. Are you the owner of the coffee shop?(Single choice)
 - Yes
 - No
2. How much is your drink on average? (Single choice)
 - Less than 65 baht
 - 66 - 120 baht
 - 121 – 160 baht
 - More than 160 baht
3. Which types of cups are used in your shop? (Multiple choice)
 - Paper cup
 - Plastic cup
 - Degradable plastic cup
4. How many cups are used on average per month? (Single choice)
 - Less than 1,000 pcs
 - 1,000 – 5,000 pcs
 - 5,001 – 10,000 pcs
 - More than 10,000 pcs
5. Are you the decision maker of the coffee shop? (Single choice)
 - Yes
 - No
6. Is your coffee shop located in Bangkok? (Single choice)
 - Yes
 - No
7. How many outlets do you have?
 - 1 outlet
 - 2 – 3 outlets
 - 4 - 5 outlets
 - More than 5 outlets

Session 2: Awareness – Interest – Action of EDP cup

1. Have you ever heard of environmentally degradable plastic (EDP) cup?
(Single choice)
 - Yes
 - No – go to session 3
8. Were you interested in buying EDP cup?(Single choice)
 - Yes
 - No – go to session 3
9. Have you ever bought EDP cups? (Single choice)
 - Yes -- go session 4
 - No – go to session 3

Session 3: For those who never heard of EDP cups

10. If you know that 16 oz.-degradable-cup is available in market, the shape and material are like Starbuck cup, the price is 2.50 baht. Would you purchase?

- Yes go to all agreement statements
- No

11. To which level do you agree with reason why you do not want to use EDP cup?

Sentences	Totally not agree	Not really agree	Neutral	Kind of agree	Totally agree
1 The price is too expensive.					
2 I do not know where to buy.					
3 It is not convenient to visit the wholesaler that carries EDP cup.					
4 I am not sure about shape and texture.					
5 I do not believe using EDP cup will help saving the environment.					
6 My current wholesaler/distributor does not have EDP cup.					

Session 4: Statements about environment

12. To which level do you “agree” with following statements?

Sentences	Totally not agree	Not really agree	Neutral	Kind of agree	Totally agree
1 Degradable cup can reduce over 1,000 tons of plastic garbage, which is equal to plantation of 244,000 trees monthly.					
2 Each month, plastic garbage is over 1,000 tons, which this amount can bury the whole Tao island.					
3 By using 5 degradable plastic cups per week, we can reduce Greenhouse gas 32 kg. carbon which is equal to planting 3 trees.					
4 Producing paper requires energy 10 times more than plastic cup.					

13. To which level are you “likely to purchase” from following statements?

Sentences	Will not purchase	Not likely to purchase	Neutral	Potentially purchase	Definitely purchase
1 Degradable cup can reduce over 1,000 tons of plastic garbage, which is equal to plantation of 244,000 trees monthly.					
2 Each month, plastic garbage is over 1,000 tons, which this amount can bury the whole Tao island.					
3 By using 5 degradable plastic cups per week, we can reduce Greenhouse gas 32 kg. carbon which is equal to planting 3 trees.					
4 Producing paper requires energy 10 times more than plastic cup.					

14. To which price level are you likely to purchase?

Sentences	Will not purchase	Not likely to purchase	Neutral	Potentially purchase	Definitely purchase
1 Degradable cup is 20% more expensive.					
2 Degradable cup is 15% more expensive.					
3 Degradable cup is 10% more expensive.					
4 Degradable cup is 5% more expensive.					
5 Degradable cup is same price as normal one.					

Session 5: Media Consumption

15. Which media channel do you normally follow?

- Newspaper
- Radio
- Television
- Online Media, such as website, Facebook
- Family and friends

16. Which Facebook page do you follow?

- Facebook page - coffee
- Facebook page - news
- Facebook page - social Criticism
- Facebook page - summary
- Facebook page - lifestyle
- Facebook page - green lifestyle
- Facebook page - drama addict
- Facebook page - national geography
- Facebook page - travel

APPENDIX D

Summary of Respondents' demographic in relation to buying action (n = 101)

Respondents' demographic		No awareness		Have awareness		Experienced	
		n=64	%	n=24	%	n=13	%
Avg price of drink	Below 65 THB	19	30%	4	17%	2	15%
	66- 120 THB	38	59%	18	75%	8	62%
	Above 120 THB	7	11%	2	8%	3	23%
Type of cup - Paper	No	35	55%	12	50%	6	46%
	Yes	29	45%	12	50%	7	54%
Type of cup - Plastic	No	2	3%	0	0%	4	31%
	Yes	62	97%	24	100%	9	69%
Type of cup - EDP cup	No	64	100%	24	100%	3	23%
	Yes	0	0%	0	0%	10	77%
Monthly usage	Less than 1,000 pcs	40	63%	14	58%	10	77%
	1,000 - 5,000 pcs	21	33%	9	38%	3	23%
	More than 5,000 pcs	3	5%	1	4%	0	0%
Number of branch	1 branch	51	80%	20	83%	11	85%
	2 - 3 branches	13	20%	4	17%	2	15%

BIOGRAPHY

Name	Miss Jarasporn Nimkittikul
Date of Birth	November 5, 1987
Educational Attainment	International Business, Mahidol University International College
Work Position	General Manager Advance Know-How Co., Ltd.

