A study of factors affecting the undergraduate student’s green purchasing intention and their attitude toward green purchase in selecting universities in Kunming, China

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Abstract

Examines the underlying factors that account for undergraduate students’ intention to green purchase and their attitude toward green purchase, a modified conceptual framework has been formed for the survey purpose. 501 undergraduate students were engaged. Pearson Correlation Coefficient was the statistical tool adopted for interpreting and analyzing the significant relationships. Non-probability sampling was the main technique used on a quota and a convenience basis. The findings from the structural equation model confirm the influences of attitude toward green purchase, subjective norm, ecological affect, and ecological knowledge on the intention to green purchase. The findings also imply that perceived environmental knowledge, new environmental paradigm are positively connected to the undergraduate student’s attitude toward green purchase. Moreover, Natural environmental orientation only bears a minor influence on the formation of new environmental paradigm.

Keywords: Ecology, Theory of Reasoned Action, Undergraduate Students, Potential Green Market

1.1 Introduction:

China’s 2008 GDP released from China’s National Bureau of Statistics in January 2009 rose by 8 percent Year-on-Year though the global economy seems to be in an inevitable recession. Profitable growth and its impact on speeding the environmental degradation decrease the green drives among both manufacturers and consumers to a merely anecdotic level. With the biggest potential market worldwide, huge Chinese market keeps bringing in new categories of products. Many marketers have started to think whether or not the environmentally friendly products would create a good opportunity in the market.

In the meanwhile, Air pollution goes up with Chinese economic expansion. China’s speedy economic growth is resulting in a significantly huge amount of emissions of greenhouse gases which are considered as a big threat toward the international efforts to prevent global warming. China’s industries keep on combusting coal as their main energy source, and car transactions leap higher year after year. The Chinese government has been asked to take action by many environmentalists. China now is contemplated as the heaviest air-polluted country in the world.

1.2 Environmental Revolution:

Green purchase, which is frequently referred to Environmentally Preferable Purchasing (EPP), is characterized as a favorable selection and possession of a product or service that can effectively minimize damageable effects on the environment over its whole life phase consisting of production, transportation, use and reprocessing or disposal. China’s Ministry of Finance and the State Environmental Protection Administration (SEPA) had released a list of green products which carry China Environmental Label, China’s only national eco-label for environmentally friendly goods and services. China Environmental Label is used to identify that a product poses minimal or no effect to the environment and human health.
during its life cycle, which include production, transportation, use and recycling or disposal. The label is shown as Figure 1.

Figure 1 China Environmental Labeling

It is urgent to put more emphasis on the factors that affect consumers’ attitudes toward green purchase and their intention to green purchase. Consumers play a significant role in forwarding Chinese green rotation. Between 30%-40% of the environmental degradation has been generated by consumers’ direct or indirect activities (Grunert, 1993). Furthermore, if consumers stick to buying the environmentally friendly products, it would definitely provide the profit-driven industry a good motivation to manufacture them.

Chinese undergraduate students are considered as a potential group supporting the protection for environment (Lee, 2008). Beginning from the elementary school, students are required to accept the pro-environmental education in Yunnan, China. From 20th of March 2009, a program named “Green forum” have being launched in the universities of Kunming to inspire students to love and protect the nature. As an important topic, green purchase has been highly advocated. The universities have also organized different activity to let the student show their determination and enthusiasm about environmental protection in order to raise the environmental awareness among the citizens. This study aims to look into the insight of how green purchase could obtain more popularity and more consumers throughout the universities in Kunming, China.

2.1 Theory of Reasoned Action (TRA)

The theory of the reasoned action model is applied to forecast the behavior by merging attitude and subjective norm into the construction of resulting in the behavioral intention. The Theory of Reasoned Action mentions that a person’s behavior is concluded by his or her intention to execute the behavior and that this intention is a result of his/her attitude toward the behavior and his/her subjective norm (Ajzen and Fishbein, 1975). Attitude toward behavior is defined as a person’s general feeling of favorableness or unfavorableness for that behavior; subjective norm is the individual’s perception that most people who are important to him/her think he/she should or should not perform the behavior was in question. Figure 2.2 is the representation of the relationship among variables in TRA.

As shown in Figure 2.2, the framework consists of attitudinal, social influence and intention as the predictors of behavior. TRA assumes that individual's behavioral intention can be determined by individual's attitude toward executing the behavior and subjective norm.

2.2 Behavioral Intention

Intention is defined as what the person wants to do. The intention weighing device can be applied to forecast the feasibility of individual’s behavior in the future, such as purchasing green products or persuade other to be involved in green
purchase. A lot of factors such as rewards or the executions of pro-environmental laws should be involved to well predict the pro-environmental behaviors (Fisk, 1998). Similarly, Othman (2000) mentioned that environmental factor ranked fourth after quality, price and brand when consumers make purchasing decision. The findings illustrate that the adoption of a type of practice or behavior would depend on whether there are direct financial benefits, convenience or habit. However, the green purchasing intention was widely proven to be positive related to the green purchase (Schahn and Holzer, 1990). In the intention to verify the prospective purchase of green products and as a matter of convenience, this research would focus on the factors which can possibly affect green purchasing intention.

2.3 Attitude

Attitude is also treated as a predictor of individual’s behavior in the Theory of Reasoned Action (Ajzen and Fishbein 1975). Attitude is also an explainable constant factor in illustrating the individual behavior. The environmental attitudes have been proven to be strongly connected to the environmentally related behavioral intention by many studies: Kassarjian (1971) stated that consumers’ attitude was a determining factor to predict whether they can be involved in the protection activities against air pollution. Balderjahn (1988) concluded that a positive attitude toward environmental issue would result in an ecological responsibility to execute more pro-environmental behavior, which is further supported by Lynne and Rola (1988). Furthermore, Walsh and McGuire (1992) pointed out that consumers’ attitude would directly lead to energy conservation and ecologically conscious purchase.

2.4 Ecological Knowledge

Ecological knowledge is the knowledge that can be put into practical use like to explain or to prevent the cause of ecological problems. Empirical findings referred that a positive connection is between knowledge and behavior (Hoch and Deighton, 1989; Horton and Turnage, 1976). Kilkeary (1975) and Dispoto (1997) concluded that there is a significant relationship between ecological knowledge and environmentally friendly acts.

2.5 Ecological Affect

According to Maloney and Ward (1973), ecological affect is referred to the level of emotional reaction of individual toward environmental issues. Numerous studies found that there is a positive relationship between ecological affect and a singular behavior (Dispoto, 1997; Li, 1997). Hines et al., (1987) revealed that an average correlation around 0.37 was found between ecological affect and individual behavior. Engel et al., (1990) stated that individual’s emotional response is the main indicator of his/her intention to execute the behavior. Additionally, empirical findings exhibited that even people who have little knowledge about the environment still express a high emotional commitment to do it (Dispoto, 1997; Grunert, 1993; Henion and Wilson, 1976; Li, 1997; Maloney and Ward, 1973).

2.6 Subjective Norm

Regarding to how the Chinese deal with their relationship with other, Hofstede (1980) affirmed that most Chinese would give the priority to the advantages of the reference group in order to maintain the group cohesion. Lee (1990) pointed out that people living in Confucian nations such as China would have a very robust desire to harmonize with the norms of their inference group. This means Chinese would consider other people’s opinion a lot before taking action. Despite most previous studies which ignore the examination of the relationship between subjective norms and customer’s intention to purchase green products, the subjective norms are still treated as a predictor of behavioral intention when it comes to environmental marketing. As an
extension of Theory of Reasoned Action, Theory of Planned Behavior was adopted to test its predictability across different green markets (Kalafatis et al., 1999). The researchers found out that there is a significant relationship between subjective norm and intention to purchase environmentally friendly product in the UK market, but there is no significant relationship between them in Greece. Furthermore, Lee (2008) pointed out that social influence was proven to be the best predictor of Hong Kong adolescents’ green purchasing behavior.

2.7 Natural Environmental Orientation

Natural environmental orientation is defined by Kluckhohn and Strodtbeck (1961) as a concept of human favorable activities toward nature, such as the love for the future and the defensive behavior performing to protect nature. Kals, Schumacher and Montada (1999) pointed out that people should build an emotional connection toward nature, hence, it would incite people to protect the nature spontaneously. Natural environmental orientation is getting into Chinese cultural value. Chinese have been continuously pressing on living in harmony with nature. Such emphasis is primarily put forward by Lao Tzu, a great philosopher who lived many years ago earlier than Confucius. Tao philosophy describes human beings as only a part of nature and the role for them is to maintain the harmony with nature instead of changing it. Most Chinese consider every creature has its consciousness; they can not be destroyed or harmed without reasonable explanation. Miles (1992) mentioned that Chinese always try to keep everything like the way they are. The traditional culture most Chinese hold is that people should act according to the way of nature.

Yau (1988) mentioned that Chinese cultural values can have significant impacts on Chinese marketing context. In terms of natural environmental orientation, Homer and Kahle (1988) mentioned that individuals’ perceived knowledge could be positively affected by the value he/she holds. Hamid and Cheng (1995) pointed out that natural environmental orientation was connected directly to the environmental concern. The above findings were further supported by Mostafa (2007).

2.8 Perceive Environmental Knowledge

Empirical findings have proven that people who perceived he/she has more environmental knowledge would have more positive attitude toward environmental issue. Hines et al (1987) pointed out the perceived environmental knowledge could be the best indicator of environmental action. Simmons and Widmar (1990) added that low perceived environmental knowledge is the main barrier to involve people into recycling. Similarly, Amyx et al., (1994) concluded that consumer who is more knowledgeable about environmental issue would be more willing to pay premium price for the environmentally friendly products. Moreover, Mostafa (2007) proved that there is a positive relationship (0.683) between Egyptian consumers’ perceived knowledge and their attitude toward green purchase.

2.9 Environmental concern

Milfont and Duckitt (2004) defined the environmental concern as a single dimensional construction ranging from ignoring the environmental issue to concerning about the environmental issue. Environmental concern can be measured by the new environmental paradigm according to their study. Schultz (2000) mentioned that the environmental concerns consist three associated factors: concerns for other people (altruistic), concerns for the individual him/her self (egoistic) and concerns for the biosphere (biospheric). Fritzschke and Dueher (1982) argued that people have different level of environmental concern which can result in different attitude toward deodorant container. Moreover, Grunert (1993) mentioned that environmental concerns have an outstanding impact on buying organic food. Prothero and McDonagh (1992), and Seguin et al., (1998)
concluded that the environmental concerns can obviously influence the degree of individual’s readiness to change his behavior. Thus, the general attitude toward pro-environmental behaviors can be affected by the environmental concerns had prevailed in most academic environmental researches.

3.1 Modified Conceptual Framework and Hypotheses

Supported by above literatures, a modified conceptual framework is formed to examine the possible relationship among different constructs shown in figure 4.

Figure 4 The Conceptual Framework of Factors Affecting the Undergraduate Student’s Intention and Attitude Toward Green Purchase in Kunming, China

3.2 Hypothesis

H1: There is no relationship between the undergraduate students’ ecological knowledge and their intention to purchase green products
H2: There is no relationship between the undergraduate students’ ecological affect and their intention to purchase green products
H3: Subjective norm is not associated to the intention to purchase green products
H4: There is no relationship between the undergraduate students’ attitudes toward green purchase and their intention to purchase green products
H5: There is no relationship between the undergraduate students’ new environmental paradigm and their attitudes toward green purchase
H6: There is no relationship between the undergraduate students’ perceived environmental knowledge and their attitudes toward green purchase
H7: There is no relationship between the undergraduate students’ natural environmental orientation and their perceived environmental knowledge
H8: There is no relationship between the undergraduate students’ natural environmental orientation and their new environmental paradigm

4 Methodology

4.1 Survey Method

The research methods used in this study is descriptive research, which is designed to describe the characteristics of a population. Therefore, descriptive research is for providing a systematic description that is as factual and accurate as possible. It provides the number of times something occurs, or frequency, and leads to statistical calculations such as determining the average number of occurrences or central tendencies. The research technique used in this study is
the survey method, which is defined as a method of primary data collection in which information is gathered by communicating with a representative sample of people. The survey is conducted by using self-administered questionnaire to collect the data. Pearson Correlation Coefficient was the statistical tool adopted for interpreting and analyzing the significant relationships. Non-probability sampling was the main technique used on a quota and a convenience basis.

4.2 Operationalization of variables

Intention to green purchase is obtained by measuring the willingness of individual’s green purchase in a near future. There are three questions asked based on five point Likert scales method to examine the degree of willingness to green purchase in the near future, which are:
- Customer’s agreement on buying pollution-less product over the next month
- Customer’s agreement on switch brand for the ecological reasons
- Customer’s agreement on switch to a product of green version

Attitude toward green purchase is obtained from measuring the degree of favorableness and unfavorableness of an individuals feeling towards green purchase, and there are three questions asked based on five point Likert scales method. The statements of questions are as follows:
- Level of likeness toward the idea of purchasing green
- Attitude toward the idea of purchasing green
- Attitude about purchasing a product of green version

Ecological affect and ecological knowledge are conceived by the assessment of emotional response and knowledge toward relative ecological issues. Subjective norms is scaled by the individual discern the burdens from the society he/she is living and his/her opinion about whether to perform the behavior under those burdens, all the questions adopted are based on five point likert scales.

Natural environmental orientation, perceived environmental knowledge and new environmental paradigm are used to measure the cultural influence on undergraduate students’ attitude toward green purchase. Natural environmental orientation represents human favorable activities toward nature. Perceived environmental knowledge can be operationalized from an individual’s self evaluation of his environmentally related knowledge. And new environmental paradigm measures the degree from a single dimensional construction ranging from ignoring the environmental issue to concerning about the environmental issue. all the questions referred to this part are based on five point likert scales.

5.1 Profiles of respondents

The highest percentage of the respondents’ gender 59.5% (298) is male, followed by 40.5% (203) female. The highest percentage of the respondents’ age is 20 which account for 31.3% (157), followed by 21 years old at 22.6% (113), the 22 years old at 14.4% (72), 23 years old at 13.8% (69), the 19 years old at 7% (35), 24 years old at 6.2% (31), 25 years old at 3.4% (17), 17 and 18 years old at 0.4% (2), and 1% (5), respectively. The percentages of educational level are as follows: Freshman account for 50.9% (255), followed by Junior at 23.8% (119), sophomore and senior count for 12.8% (64) and 12.6% (63), respectively.

This survey has been conducted using equal number (167) of respondents studying in each of the three universities in Kunming, i.e. YunNan University, Kunming University of Science and Technology, and YunNan Normal University by using quota sampling method.
5.2 Managerial implications

Regarding the environmental knowledge education, the progress can be seen in those years. The mean score of ecological knowledge obtained from this survey is 2.1, which is much higher than the survey conducted by Chan (2000). However, this score is still within the middle level (2.5). It drives policy makers to rethink about the environmental protection education. For everyone, ecological knowledge should be applied as an instruction to conduct pro-environmental activities. According to the finding of this research, high ecological knowledge would lead to high individual’s intentions to green purchases. This conclusion is supported by Kilkurry (1975) and Dispolo (1997). The standpoint that there is a positive connection between knowledge and behavior is widely accepted in the academic field (Hoch and Deighton, 1989; Horton and Turnage, 1976; Park et al., 1994). The undergraduate students also exhibit a strong emotional attachment to ecological issues, as reflected from their mean score (4.3665) on ecological affect. Regarding to the relationship between the ecological affect and the undergraduate students’ intention to green purchase, this kind of emotional attachment can surely be capitalized (Azzone and Bertelee, 1994). Chan and Yam (1995) mentioned that undergraduate students are more ecologically conscious than public citizens.

Attitude is always treated as a predictor of individual’s behavioral intention. In this research, the attitude toward green purchase is supposed to be more influential but only low positively correlated (.381) to the intention to green purchase. Sheppard et al., (1988) indicted that when the behavior is not under full volitional control, the predictability of the attitudinal element in the theory of reasoned action will be less effective. Ajzen (1991) introduced a new elemental predictor of behavioral intention, named perceived behavior control.

According to the findings, both new environment paradigm and perceived environmental knowledge are only low positively correlated to the attitude toward green purchase (.209 and .138), thus the attitude toward green purchase should be placed more emphasis on in order to explore more factors which can eventually create impacts on behavioral intention via attitude. Chan (2001) mentioned that Collectivism could directly affect individual’s attitude toward green purchase.
This point of view surely deserves more investigation in the future. The evidence from this study proves that the attitude toward green purchase is much more deeply impacted by their environmental concern (.209) than by perceived environmental knowledge (.138). These findings pointed out that the priority should be given to employing emotional appeals rather than cognitive appeals to facilitate the change of consumer’s attitude toward green products.

The results show that there is no relationship between undergraduate students’ perceived environmental knowledge and natural environmental orientation. Additionally, the results have also shown a low positive correlation between natural environmental orientation and new environmental paradigm (0.129). Culturally, despite the undergraduate students have a strong agreement that people should live in harmony with nature, their attitude toward green purchase mostly remain unchanged. These findings show some conflicts with the previous study. It may be caused by the cultural difference of the respondents. The previous study conducted by Mostafa (2007) highlighted the cultural influence on the formation of Egyptian Consumer’s attitude toward green purchase. Despite many scholars mentioned that influences of demographic factor is minor when it come to environmental friend acts, the result drive us to rethink the influence of different demographic factors.

5.3 Recommendation

This research recommends marketers to be more accurate when they try identify the environmentally conscious consumers. The undergraduate students in this research show their high willingness to green purchase, and they are high ecologically conscious. Lee (2008) also mentioned that adolescents constitute a pro-environment group for green marketers to target. Knowing the green profile of undergraduate students would help the green marketer to plan and implement their marketing strategy more specifically. For instance, The testing results of hypothesis six shows the relationship between the perceived environmental knowledge and positive attitude toward green purchase observed from this research; thus they can convince the undergraduate students the convenience of buying ecologically safe products. The findings also suggest the green marketers should give the priority to employing emotional appeals rather than cognitive appeals to facilitate the change of consumer’s attitude toward green products. Since the social influence proven to be positively connected with the undergraduate students’ intention to green purchase in this study, green marketers should make the environmental advertising popular via various disseminating vehicles such as radio, poster, newspapers and television to influence the whole community. The results from hypothesis three contribute to the above suggestions. The government should consider the enhancement of ecological knowledge education among Chinese citizens. The government also should cooperate with the business community to popularize the concept of green purchase throughout the disseminating vehicles like the internet, radio, newspaper, poster and television. And the government also needs to highlight the ecological affect brought by illegal organizations or individual. By doing so, it can awake the citizens’ environmental awareness and restrict harmful activities to the environment. With more government support (e.g. reduce tax, technical supports and relative regulation), enthusiasm of green marketers can be boosted.

5.4 Conclusion

Since the open-door policy has been adopted by the Chinese government from the year 1978, China has to adjust the balance between developing its economy and protecting the environment. Green products offer Chinese government an excellent solution. The current study examines the relationship between the cultural factors and psychological factors on the undergraduate students’ intention to green purchase. To do so, a modified conceptual framework has been developed for the use of
this survey. These findings can be considered as a good sign for green marketers and policy makers to market the undergraduate students. Both ecological affect and ecological knowledge are proven to be positively connected to the undergraduate students’ intention to green purchase. Finally, the subjective norm turns out to be positively associated with the undergraduate students’ intention to green purchase. According to the finding, more investigations about undergraduate students’ attitude toward green purchase should be carried out. It’s important to illustrate that due to the limitation of resource, this survey is only conducted with students from three major universities in Kunming, China. It might not perfectly represent the whole undergraduate student population in Kunming. To sum up, this research shows the underlying factors determining the undergraduate students’ intention to green purchase. Thus the results of this research should be treated as a basis for more follow-up researches.

Reference
international Consumer Marketing, Vol. 9, No.4, pp. 34-53.


