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**Environmental consideration in purchase decisions
of Hong Kong consumers**

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Environmental Practice

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Environmental consideration in purchase decisions of Hong Kong consumers**Abstract**

Many studies have been conducted about consumers' green purchase behaviours in Europe and North America. This study examines Hong Kong consumers' intention to buy environmental friendly products and not to buy less friendly products. A model incorporating measures of the theory of planned behaviour, self-identity and past green purchase behaviour is adopted. An intercept sample of 704 shoppers across different districts was interviewed. Regression analyses showed that both self-identity and past behaviour had significant and independent effect on prediction of green purchase intention, in addition to the measures of the theory of planned behaviour. After repeated experiences, intention to buy green products become based relatively more on the salience of the identity for a consumer's self-concept, and relatively less on attitude toward green products and the social pressure related to green buying. Implications of the study for marketers and policy makers are discussed.

1. Introduction

Consumers around the world is becoming more concerned about their impact of consumption decisions on the environment. Opinion polls in North American and Europe indicated that consumers are becoming more concerned about the environment (Dagnoli, 1991, Simon, 1992). For example, 83% of American consumers stated that they have changed their shopping habits to help protect the environment, and 67% state that they would be willing to pay 5 to 10 percent more for environmentally compatible products (Coddington, 1990). However, consumers' uncertainty and confusion of finding the 'best' for the environment, and the occurrence of companies making various vague, deceptive or false environmental claims have turned some consumers off from green products. Environmental label claims were sometimes an outright fraud or were unsubstantiated (Downs, 1992). It also appears that consumers are green only up to a certain point while price and product performance are still the determining factors in purchase decisions (Roberts, 1993).

Daily purchase decisions have great influence on the improvement or deterioration of the environmental condition in Hong Kong. For example, the increasing use of unleaded fuel has greatly improved the air quality in Hong Kong (Environmental Protection Department, 1997). The private consumption expenditure and government consumption expenditure figures in Hong Kong were HK\$806.0 billion (equivalent to US\$103 billion) and HK\$114.6 billion (US\$14.7 billion) in 1997 respectively. Should a fraction of them opt for greener products, it will encourage both the manufacturers and traders to offer more alternatives for environmental products. Establishing of a community of environmental friendly consumers is likely to contribute to protect the environment and achieve sustainable development. In

particular, it will lead to minimization of waste generation and promotion of the 3R (reduce, re-use and recycle), an efficient use of energy, and improvement in air quality.

The Hong Kong Government has played an important role in enhancing the environmental awareness of the community. The Government has run a series of publicity campaigns on major media including television, radio and outdoor to increase the community awareness of environmental pollution and ways people can contribute to conserve the environments. Major themes of the campaigns in 1995 and 1996 are to reduce waste and adopt an environmental friendly lifestyle. One television advertisement launched in 1995 specifically aims at discouraging the use of not-so-environmental friendly products, such as paper plates and wooden chopsticks for single-use.

To understand how to encourage green buying behaviour, one must identify the factors that influence pro-environmental purchase decisions. The current study applies the theory of planned behaviour to predict green buying. The role of self-efficacy in promoting green buying would also be investigated.

2. Green consumerism in Hong Kong

The concept of green consumerism is not new to the Hong Kong people. In two large-scale public opinion polls conducted in 1992/93 and 1995, 55% and 47% of Hong Kong citizens expressed their willingness to pay more for environmental friendly products respectively (Environmental Campaign Committee, 1995). In an intercept sample of 403 Hong Kong consumers in 1992, Chung and Poon (1994) found that paying 5 to 15 percent more for environmental friendly products than ordinary products of the same function was acceptable to 71 percent of the respondents. The higher percentage of people who were willing to pay a green premium than in the United Kingdom was accountable to the more favourable economic situation in Hong Kong

(Chung and Poon, 1994). In a similar study on Hong Kong housewives, Chung and Poon (1996) found that a lower proportion of them were willing to pay more for green products. Paying 5 to 15 percent more for environmental friendly products was acceptable to only 24 percent of the responded housewives. Chung and Poon (1996) therefore concluded that housewives were more price-conscious than the general public. In a survey of 98 Hong Kong shoppers, Chan (1996) found that products in reusable containers, toilet tissues with recycled content and products with least amount of packaging were the most frequently purchased green products. These studies also share a limitation that they are not theory-based. There is also no attempt to explain consumers' purchase intention by cognitive and psychological variables other than demographic variables. This study will try to improve in this aspect.

3. Theoretical framework

The theory of reasoned action (Ajzen and Fishbein, 1980, Fishbein and Ajzen, 1975) is a theory that links attitudes, subjective norm, behavioural intention, and behaviour in a fixed causal sequence. Behaviour is posited as resulting from behavioural intention, which in turn is posited to arise out of a combination of people's attitude toward performing the behaviour and their perceptions of the social pressure put upon them to perform that behaviour. More recently, Ajzen (1985, 1988) has introduced the theory of planned behaviour by adding a measure of perceived control. It refers to 'the person's belief as to how easy or difficult performance of the behaviour is likely to be' (Ajzen and Madden, 1986). The modification attempts to explain behaviour that is not totally under a person's control. The greater the perceived behavioural control, the stronger the person's intention to perform a certain behaviour, given that a person held a positive attitude and a relevant subjective norm with respect to the behaviour under consideration. Empirical support for both theories has been

found in many settings including ecological concerns. In most cases, a linear combination of attitudes and subjective norm permitted a good prediction of intention. Both models have been used to successfully explain pro-environmental behaviour including signing of an anti-pollution petition by university students in Hong Kong (Hamid and Cheng, 1995) and domestic waste recycling and reduction (Chan, 1998; Taylor and Todd, 1995).

Within the sociological and the psychological literature, a person's self-identity has been viewed as an important influence on behaviour (e.g. Epstein, 1973; Rosenberg, 1981). Identity theory suggests that one's self-concept is organized into a hierarchy of role identities that correspond to one's positions in the social structure. A role identity is a set of characteristics or expectations that simultaneously is defined by a social position in the community and becomes a dimension of an actor's self (Burke, 1980; McCall and Simmons, 1978). Biddle, Bank and Slavings (1987) suggest that self-identity and other cognitions (such as attitudes or preferences) may not always be consistent because the following line of thought is reasonable: " 'I would enjoy doing A, and I think I should do A (or B), but I am the type of person more oriented to doing C.' " (p.326). There are some empirical evidences (for example, Charng, Piliavin and Callero, 1988; Granberg and Holmberg, 1990) to show that self-identity and prior behaviour contribute to the prediction of behavioural intention independently of attitudes is made. In the prediction of consumers' intention to buy organically grown food produce, Sparks and Shepherd (1992) found that self-identity as a green consumer and their past consumption of organically produced vegetables both had contribution in addition to measures of the theory of planned behaviour.

Charng, Piliavin and Callego (1988) argue that when a pattern of behavior becomes internalized as a central role identity, the impact of perceived norms may well decrease. Thus after repeated experiences, intention to engage in the relevant role behaviours will come to be based relatively more on the salience of the role identity related to that behaviour and relatively less on transient feelings about the activity or on the perceived expectations of others. Granberg and Holmberg (1990) suggested that "other things being equal, people who intend to do something they have done before may be more likely to do it than people who intend to do something they have not done before" (p.45).

In other words, past literature indicates that attitude, perceived norm, behavioural control, self-identity and past behaviour are important measures to predict green purchase intention. The objective of the study is to investigate the relative importance of these variables in the prediction of green purchase behaviour in the Hong Kong society.

4. Research methodology

The study was conducted using a structured questionnaire in Chinese. The target population is Hong Kong residents who are major decision-makers of household and consumer goods. The study adopted a quota sampling set on gender and age. The quota was set by making reference to that of the Hong Kong population from 1996 bi-census and the Hong Kong household/consumer goods decision makers for 1997 obtained from AC Nielsen (China) Limited, a leading market research agency. Fourteen students at the Hong Kong Baptist University were recruited as interviewers. They were assigned to intercept consumers and conduct face-to-face interviews at shopping areas at various districts in Hong Kong. The allocation of assignment by district area is proportional to the mid-1997 population by district

board districts. Altogether 704 interviews were conducted during the period May 26 to June 15, 1998. Slightly over two third of the sample was females. Housewives and clerical services/sales employees each contributed one quarter of the sample. The rest of the sample was managerial and professional employees (20 percent), unemployed and retired (12 percent), students (7 percent) and production and other workers (10 percent). The median age was 36 years. Seventy percent of the sample had secondary or above education. The median monthly household income of the sample is HK\$25,100 (equivalent to US\$3,200), which was 43 percent higher than that of the Hong Kong population of HK\$17,500 (Census and Statistics Department, 1996).

Overall attitude Overall attitude toward the purchase of environmental friendly products (EFP) was measured by having respondent's rate on a five point semantic differential scale two evaluative adjectives: bad-good, dislike-like. Inter-item reliability (Cronbach's alpha) for the measure was 0.61. The sum formed the measure of overall green consumerism attitude. Higher scores represent that the respondents hold more positive attitude toward EFP.

Subjective norm Subjective norm was measured by asking respondents to rate on a five point scale (1=strongly disagree, 5=strongly agree) the following five statements: 'Family members whose opinions are important to me think I should buy EFP', 'Friends whose opinions are important to me suggest that I should buy EFP', 'TV and newspapers content suggest that I should buy EFP', 'The government's publicity suggests that I should buy EFP'. Inter-item reliability (Cronbach's alpha) for the measure was 0.73. The sum formed the measure of perceived subjective norm toward purchase of EFP.

Perceived behavioural control Perceived behavioural control was assessed by having respondent's rate on a five point scale how difficult it is for them to buy EFP (1=very difficult, 5=very easy).

Self-identity Self-identity was measured by asking respondents to rate on a five point scale (1=strongly disagree, 5=strongly agree) two statements: 'I think of myself as a green consumer', 'I think of myself as someone who is very concern with environmental issues'. Inter-item reliability (Cronbach's alpha) for the measure was 0.81. The sum formed the measure of self-identity.

Past green purchase behaviour Past green purchase behaviour was measured by asking respondents to report on how frequently they buy five selected EFP and two not-so-friendly products on a four point scale (1=never, 4=very often). The behaviour was selected from Chan's (1996) study and from four focus group discussions conducted before the survey. They focused on the reusability and recyclability of products. The sum of the purchase of EFP and the reverse sum of the purchase of not-so-friendly products formed the measure of past green purchase behaviour. Inter-item reliability (Cronbach's alpha) for the measure was 0.52.

Green purchase intention Green purchase intention was measured by having respondents rate on how likely they are to buy EFP and not-so-friendly products in the next shopping trip on a four point scale (1=definitely not, 4=definitely yes). Inter-item reliability (Cronbach's alpha) for the measure was 0.65. The sum of the purchase of EFP and the reverse sum of the purchase of not-so-friendly products formed the measure of green purchase intention.

5. Findings

The mean, standard deviation and the coefficient of variation of measures on attitude, subjective norm, behavioural control and self-identity in the study are summarized in Table 1. The respondents reported an overwhelmingly positive green consumerism attitude, high subjective norm, medium behavioural control, low self-identity, high green purchase intention and high past green purchase behaviour.

Over two third of the respondents considered purchase of EFP very good or good. Only three percent of the respondents considered it very bad or bad. Nearly forty percent of the sample liked very much or liked purchasing of EFP. Nearly twenty percent disliked very much or disliked purchase of EFP. A majority (44 percent) of the respondents did not show any particular affection toward purchase of EFP. There were nearly equal proportions that agreed and disagreed that buying EFP is easy.

Respondents perceived a high level of subjective norm to protect the environment. The green groups, government's publicity campaigns and mass media content were the main sources of influence on green consumerism. Respondents also perceived influence from personal sources including friends and family members. However, personal sources were perceived to be less influential than impersonal sources.

Respondents perceived low self-identity in conservation and green consumerism. A majority (close to 45 percent) gave neutral response. There was a higher proportion of consumers who did not think of themselves as people who concern with environmental issues and as green consumers.

Table 2 lists the frequency for past green purchase behaviour and intention to purchase these products in the future. It reflects consumers' preference as well as the

availability of green alternatives in the retail market. Products in reusable containers, products without over-packaged and products with refillable package received the top three positions for EFP with mean values 2.8, 2.7 and 2.7 respectively. Consumers never or seldom buy products with recycled content. This was probably because these products could hardly be found in the consumer market. For example, recycled paper was seldom available in ordinary stationery shops. For the two not-so-friendly products, the mean score of past purchase are right behind with the fourth and fifth positions in the ranking with values 2.6 and 2.6 respectively.

The pattern in terms of the rankings was very similar to Chan's (1996) study of 98 shoppers except for the purchase of products with recycled content. In Chan's (1996) study, the frequency for purchase of toilet tissue with recycled content achieved the second top position. The frequency for purchase of products with recycled content occupied the last position in this study. The result indicated the drop in popularity of products with recycled content among Hong Kong consumers in the last few years.

For the green purchase intention, the top three positions were products in reusable containers, products that are safe to the environment and products without over-packaging. Their mean values were all 2.8. For the two not-so-friendly products, the mean scores of purchase intention occupy the last positions in the ranking with values 2.3 and 2.4 respectively. This indicated that Hong Kong consumers expressed their willingness to purchase EFP and buy less not-so-friendly products.

The coefficient of variation, a measure of the relative dispersion, ranged from 0.14 to 0.30 for all variables. Respondents differed most in their perceived behavioural control and their self-identity. They differed less in green purchase intention and past green purchase behaviour.

Table 3 shows the Pearson correlation matrix between all measures used in the study. Attitudes had the highest correlation with all other variables and the highest correlation coefficient of 0.58 was found between past green purchase behaviour and green purchase intention.

To examine the relative contribution of various measures to the prediction of green purchase intention, multiple regression analysis is employed. Three models are being tested. The first model is used to test the theory of planned behaviour. Attitude, subjective norm and perceived control are used as predictors. In the second model, self-identity is added. In the third model, self-identity and past green purchase behaviour are added. The second and the third models attempt to test whether self-identity and past green purchase behaviour add to the prediction of intention above the contribution provided by the theory of planned behaviour. The results are summarized in Table 4.

In the first model, a statistically significant R square value of 0.14 (r value of 0.37) was obtained. This indicated that 14 percent of the total variation of the dependent variable of intention could be explained by the measures in the theory of planned behaviour. Attitude was the major predictor of green purchase intention, followed by subjective norm. The regression coefficients were 0.30 ($p < 0.0001$) and 0.17 ($p < 0.0001$) respectively. The regression coefficient for perceived control was -0.01 and was not significant at 0.05 level.

In the second model, a statistically significant R square value of 0.20 (r value of 0.45) was obtained. This indicated that 20 percent of the total variation of the dependent variable of intention could be explained by the measures in the theory of planned behaviour and self-identity. The change in R square was 0.06 and was

significant at 0.0001 level. Self-identity replaced attitude as the major predictor of green purchase intention, followed by attitude and subjective norm. The regression coefficients for self-identity, attitude and subjective norm were 0.29 ($p < 0.0001$), 0.20 ($p < 0.0001$) and 0.12 ($p < 0.005$) respectively. The regression coefficient for perceived control was -0.07 and was not significant at 0.05 level.

In the third model, a statistically significant R square value of 0.41 (r value of 0.64) was obtained. This indicated that 41 percent of the total variation of the dependent variable of intention could be explained by the measures in the theory of planned behaviour, self-identity and past behaviour. There was a big improvement in the amount of variance explained over the second model (increase of 0.21 in R square) and was significant at 0.0001 level. Past behaviour replaced self-identity as the major predictor of green purchase intention, followed by self-identity, perceived control, attitude and subjective norm. The regression coefficients for past behaviour, self-identity, attitude, subjective norm and perceived control were 0.49 ($p < 0.0001$), 0.20 ($p < 0.0001$), 0.10 ($p < 0.01$), 0.08 ($p < 0.05$) and -0.12 ($p < 0.0005$) respectively. The measures in the theory of planned behaviour were less influential in the prediction of green purchase intention than self-identity and past behaviour. Comparing the second and the third model, the effect for 'self-identity' persisted when past behaviour was included in the regression equation.

In sum, the third model with the inclusion of self-identity and past behaviour predicts green purchase intention significantly better than the theory of planned behaviour alone.

6. Discussion and conclusion

The present findings provide evidence of the application of Ajzen's (1985) theory of planned behaviour to the prediction and understanding of people's intention to purchase green products. Consistent with findings of studies by Hamid and Cheng (1994), Taylor and Todd (1995) and Chan (1998), attitude appeared to be more important for the prediction of green purchase intention and to a lesser extent perceived social norms. This indicates that internal change in the cognitive and psychological aspect was more influential on behavioural intention than external social pressure generated from green groups, government's publicity campaigns, mass media contents and significant others. Buying of green products is highly voluntary and leads to virtually no social consequence (neither praise as reward nor public shaming as punishment). Consumers' intention to buying green are affected more by their personal preferences than by social pressure.

In view of the greater influence from institutional sources, the government, public utilities companies and the private sectors should establish procurement policies that put environmental consideration a higher priority in their purchase of products and services. They should conduct supplier environmental audits and use eco-labels as a tool to ensure that the product's environmental performance meets their specifications. In this way, they will act as leaders and models in the society to generate social influence to purchase EFP. There is also a need to build up an atmosphere that green consumerism is portrayed as a socially desirable lifestyle.

Self-identity plays an important role in predicting consumers' green purchase intention. Self-identity as a 'green consumer' and 'someone who concerns about green issues' was found to be associated with consumers' green purchase intention independent of attitude and perceived norm. Results reviewed that attitudes and social norms are less influential than self-identity in everyday purchase decisions. This indicates that consumption is a form of self-expression. People buy things that are

congruent with their values and lifestyles. So, people who perceive themselves as 'green consumer' and 'someone who concerns a lot about green issues' are more likely to express their values in consumption behaviour. The study has the implication that empowering the public with a clear image of a green consumer is one desirable communication strategy to encourage green consumerism. The image of 'green consumers' and 'green citizens' are vague to Hong Kong consumers. Most of the respondents do not perceive such a definite self-referent identify label. They do not have strong beliefs of 'honour' and 'dishonour' that associate with the fulfilment and non-fulfilment of role demands of a green consumer. In order to encourage green consumerism, there is a need to construct a clear and positive image of a green consumer through organized publicity efforts.

An unexpected finding occurred in the third model is that when other variables are kept constant, perceived behavioural control becomes a negative predictor of green purchase intention. In other words, consumers who perceived difficulties in buying green products indeed have a higher intention to purchase them. The positive and significant Pearson correlation coefficient between perceived control and past green purchase behaviour (0.34) has taken care of the impact on product availability and ease of purchase of green products on past green purchase behaviour. For those who perceived difficulties in buying green products, they have been purchased them less frequently. The negative prediction is significant only when independent effect of past green purchase behaviour has been controlled. It indicates that perceived difficulties encourages rather than discourages green purchase intention. It proposes a challenge to consumers. They may think that green products are difficult to buy and they should try to buy it next time.

One of the significant findings of the current study is that past behaviour stand out to be an important variable that has a direct, independent effect on green purchase intention. This is consistent with previous findings obtained by Hamid and Cheng (1995). The positive and strong correlation between past behaviour and behavioural

intention together with the independent effect in predicting intention suggests that intention are likely to be formed through the perception of past behaviour. The implications of the result for the assessment of the impact of pro-environmental policies are clear. Assessment of changes in past behaviour is likely to be more effective in evaluating the success of marketing communication programmes than measuring attitude and belief. The implications for marketers are that they should encourage long-term purchase of green products by encouraging product trial in order to establish usage experience that would in turn induce buying intention. This can be done by many promotional tools such as distribution of trial package and setting up point-of-sales publicity.

To conclude, the present study indicated that self-identity and past green purchase behaviour contributed significantly to the theory of planned behaviour in predicting green buying intention. Marketers, policy makers and consumer associations should consider ways to establish a strong self-identity as a green consumer and to initiate trial of environmental friendly products.

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Table 1. Attitude, subjective norm, perceived control and self-identity for green purchase behaviour

Measure	Mean*	SD	CV=SD/mean
Overall attitude	7.0	1.3	0.18
good--bad	3.8	0.7	
like--dislike	3.2	0.8	
Subjective norm	16.1	3.0	0.19
family members	2.8	0.9	
important friends	2.8	0.9	
government's publicity	3.4	0.8	
TV and newspaper contents	3.3	0.8	
green groups	3.8	0.9	
Perceived control	2.9	0.9	0.30
Self-identity	5.7	1.6	0.28
green consumer	2.8	0.8	
concern with environmental issues	2.9	0.9	

*Individual statements are measured on a 5-point scale with 5 indicating positive direction and 1 indicating negative direction

Table 2. Past behaviour and intention for green purchase behaviour

Measure	Mean*	SD	CV=SD/mean
Past behaviour	17.6	2.9	0.16
products with refillable package	2.7	0.9	
products with recycled content	2.2	0.8	
products without over-packaged items in reusable containers	2.7	0.8	
products that are safe to the environment	2.8	0.8	
product for single use	2.5	0.8	
aerosol spray	2.6	0.7	
Green purchase intention	18.8	2.6	0.14
products with refillable package	2.7	0.7	
products with recycled content	2.5	0.6	
products without over-packaged items in reusable containers	2.8	0.6	
products that are safe to the environment	2.8	0.6	
product for single use	2.3	0.6	
aerosol spray	2.4	0.7	

*Individual statements are measured on a 4-point scale with 4 indicating positive direction and 1 indicating negative direction

Overall mean is compiled by summing items for environmental friendly products and reverse of not-so-friendly products

Table 3. Pearson correlation among various measures (N=704)

Measure	2	3	4	5	6
1. Attitude	0.29**	0.31**	0.44**	0.34**	0.34**
2. Subjective norm		0.27**	0.32**	0.24**	0.25**
3. Perceived control			0.36**	0.23**	0.12 *
4. Self-identity				0.34**	0.39**
5. Past green purchase behaviour					0.58**
6. Green purchase intention					

* p<0.005 **p<0.0001

Table 4. Prediction of green purchase intention

Measure	Model 1	Model 2	Model 3
	Beta	Beta	Beta
Attitude	0.30*****	0.20*****	0.10**
Subjective norm	0.17*****	0.12****	0.08*
Perceived control	-0.01	-0.07	-0.12***
Self-identity		0.29*****	0.20*****
Past behaviour			0.49*****
R square	0.14	0.20	0.41
F-value	37.8*****	43.4*****	91.6*****
D.F.	3	4	5
Change in R square		0.06	0.21
F-value		52.1*****	247.4*****

*<0.05 **<0.01 *** <0.005 ***** <0.001