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The Link between Environmental Attitudes and Behaviour

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Attitudes are often believed to be important to marketing because of an assumed causal link between attitudes and behaviour. However, if this link is as strong and important as it is believed to be, then evidence of this should be easily found. This paper examines the relationship between environmental attitudes and behaviours when the attitudes are measured as they commonly are. The results suggest there is only a weak relationship between attitudes and behaviour. This raises the question of why so much effort is expended in measuring attitudes, when alternative approaches to marketing decision making are available.

Keywords: attitude measurement models, behavioural intentions, predicting behaviour

Introduction

Attitudes are commonly believed to be important to marketing because of an assumed causal link between attitudes, intentions and behaviour. Hawkins, Best and Coney (1989), for example, claim that "*Because of their importance, attitudes are the focal point for a substantial amount of marketing strategy*" (p.433). Attitudes have been directly related to behavioural change by Loudon and Della Bitta (1993), who state that "*Behavioural change is a function of change in behavioural intentions ... Changes in behavioural intentions are related to changes in attitudes*" (p.422), while Guiltinan and Paul (1991) argue that "*Advertising can reinforce attitudes and thus maintain brand preference and 'loyalty'*" (p.261).

Initial results from studies investigating the attitude-behaviour relationship looked promising. Pacifists were found to have more negative attitudes towards war than nonpacifists, and union members to have more favourable attitudes towards labour unions than nonmembers. However, as early as the 1930s research such as La Piere's (1934) study on racial attitudes and behaviour began to cast doubt on the attitude-behaviour relationship. In his study, La Piere travelled with two Chinese people across the United States, visiting 251 restaurants, hotels and other establishments, where they were refused service only once. Six months later, La Piere wrote to the establishments visited asking if they would accept Chinese people. Of the 128 who responded, over 90% said they would not. By the late 1960s little evidence had emerged to support the attitude-behaviour link. In fact, after reviewing all of the available evidence, Wicker (1969) concluded that "*it is considerably more likely that attitudes will be unrelated or only slightly related to overt behaviours than attitudes will be closely related to actions*" (p.65).

In the face of mounting empirical support against a simple causal link between attitudes and behaviours, proponents of the attitude-behaviour relationship developed more complex models of this relationship. These so-called "multi-attribute" models recognised that there are many factors influencing behaviour, of which attitudes are one. The multi-attribute model which received the most attention was Fishbein's attitude model (see Loudon & Della Bitta 1993). However, studies investigating the attitude-behaviour link using this model failed to consistently yield highly predictive relationships. Nevertheless, this model provided the basis for further developments, culminating in Fishbein's Behavioural Intention Model.

In Fishbein's Behavioural Intention Model, under certain circumstances, behaviour is equivalent to behavioural intention, which is a weighted sum of attitudes to performing a behaviour and subjective norms regarding the behaviour. To maximise the attitude-behaviour relationship, Ajzen and Fishbein (1980) prescribe four requirements for attitude measurement: time, action, context and target (TACT). The more specific a question; that is, the more it corresponds to Ajzen and Fishbein's TACT requirements, the better the behavioural-intention-behaviour relationship should be, provided the behavioural measure has good correspondence, that is, contains the same TACT elements as the attitude question.

However, after reviewing eleven studies that had investigated the correlation between behaviour and behavioural intentions estimated using Fishbein's model, Foxall (1983) described the results as "unexciting". (The average correlation found was around .45, but results ranged from .04 to .90.) Ajzen and Fishbein (1980) suggest that the correlation between behavioural intentions and actual behaviour can be increased if there is a short interval between the measurement of the intention and the behaviour, there are no novel consequences of the behaviour or reference group evaluations, if the behaviour is voluntary, and if the intention that predicts the behaviour immediately precedes the behaviour. Under these conditions, high correlations between behavioural intentions and behaviours can be achieved. Evidence of this can be seen in the .90 correlation found in one of the studies reviewed by Foxall; this result was obtained in an experiment which controlled the factors just mentioned. But, as Foxall (1983) points out, these conditions bear little resemblance to the situations of interest to marketing managers.

Foxall (1983) also suggests that there are at least four possible causal relationships between attitudes and behaviour: attitudes cause behaviour, behaviour causes attitudes, attitudes and behaviour have a reciprocal effect, and there is no relationship between attitudes and behaviour. While it is clear that we can reject the last of these possibilities, there is evidence to support each of the other three possible relationships (see Barwise & Ehrenberg 1985; East, 1990).

Despite this, and the fact that attempts to demonstrate a strong link between attitudes and behaviour have been unsuccessful, the assumption that attitudes are useful predictors of behaviour persists and, consequently, attitudes continue to be the focus of much academic and commercial research. If supporters of such research are correct in their belief about the importance of attitude measurement, it can be argued that evidence of a strong link between attitudes and behaviour should be easily found, even if the attitudes are not measured strictly as suggested by Ajzen and Fishbein. However, if this evidence is not forthcoming, this would cast further doubt on the value of attitudes as predictors of behaviours.

This paper reports the results of a study designed to search for empirical evidence of the link between attitudes and behaviours in a set of data containing environmental attitudes and behaviours.

Method

The data analysed were from the 1993 International Social Survey Programme survey on "New Zealanders' Attitudes to the Environment" (Gendall, Hosie & Russell 1993). The survey was a mail survey sent to 1881 people over the age of 18, randomly selected from the 1993 New Zealand Electoral Roll. Two reminders were sent out, resulting in 1449 returned questionnaires. One hundred and fifteen respondents refused to take part, 15 had died or were

otherwise ineligible and 51 questionnaires were returned "Gone no address". That left 1268 valid responses representing a response rate of 70% ([1268/(1881-66)]x100).

The questionnaire contained a total of 188 questions, of which approximately sixteen were behavioural measures and approximately twenty five were attitude measures (depending on the definition of what constitutes an attitudinal or behavioural question). The questionnaire also contained a series of demographic measures including age, sex, income, social status and degree of urbanisation.

The attitudinal questions were in the form of five-point scales labelled either strongly agree to strongly disagree, strongly favour to strongly against, greatly increase to greatly decrease, or strongly approve to strongly disapprove. In other words, they were the type of questions commonly used in market and social research to measure what are assumed to be attitudes. Most of these questions sought respondents' attitudes to the environment in general, but some attempted to measure attitudes towards specific environmental issues such as packaging and the use of cars.

The behavioural questions were in the form of four-point always-to-never scales, four-point very willing-to-very unwilling, or much more-to-much less scales, and yes-no or agree-disagree scales. Six behaviours were selected for analysis. Three of these behaviours were concerned with whether or not the respondent had signed a petition about an environmental issue, given money to an environmental group, or taken part in a protest or demonstration about an environmental issue. The fourth behaviour was whether or not the respondent was a member of a group whose main aim was to preserve or protect the environment. These behaviours were used to test the relationship between general environmental attitudes and behaviours.

The two remaining behaviours related to how often the respondent had cut back on driving a car for environmental reasons and whether the respondent had not bought something because they felt it used too much packaging or wrapping. These behaviours were used to test whether specific attitudes towards cars and packaging were better predictors of driving and shopping behaviour than general environmental attitudes. The behavioural questions and examples of the attitude questions used in the analysis have been reproduced in the Appendix.

Results

General Attitude Analysis

Stepwise regression was performed to determine the ability of attitudinal and demographic data to predict four of the environmental behaviours identified. The adjusted R^2 values from these analyses are shown in Table 1.

This table also reports the adjusted R^2 values from stepwise regression on data from respondents who reported belonging to a group whose main aim is to preserve or protect the environment, and on data from those who did not. Berger (1993) found that members of an environmental group held stronger attitudes about the environment than nonmembers. Consequently the sample was split into member and nonmember sub-samples to test the hypothesis that strongly held attitudes are better predictors of behaviours than those that are weakly held.

Table 1. Adjusted R^2 values from regression of general environmental attitudes on behaviour

Independent variables	Dependent variables	Adjusted R^2 Values[1]		
		All cases (n = 1063[2])	Env. group members (n = 181)	Non env. group members (n = 874)
Attitudes and Demographics	Signed a petition	.27	.14	.27
	Given money	.19	.22	.16
	Protested or demonstrated	.04	.15	.02
	Member of an environmental group	.11	-	-
Attitudes only	Signed a petition	.26	.10	.26
	Given money	.18	.16	.15
	Protested or demonstrated	.03	.10	.01
	Member of an environmental group	.11	-	-
Demographics only	Signed a petition	.06	.03	.07
	Given money	.04	.02	.03
	Protested or demonstrated	.00	.04	.01
	Member of an environmental group	.02	-	-

Note:
1. All adjusted R^2 were significant at $p<.05$.
2. The total (n = 1063) does not equal the sum of the environmental group members and nonmembers as some respondents did not answer the latter questions.

Overall, the results show that there is only a weak relationship between general attitudes and behaviours, with a highest adjusted R^2 value of only .27. Analysis performed using only attitudes resulted in adjusted R^2 values ranging from .01 to .26. Although there was a drop in the overall predictive ability, the difference is very small, indicating that most of the explained variance is attributable to attitudes. Analysis performed using only the demographics produced a highest adjusted R^2 value of .07, confirming that the same results could not be achieved by using demographic data alone.

Specific Attitude Analysis

Table 2 shows the adjusted R^2 values from stepwise regression using cutting back from driving a car for environmental reasons and whether a person had not bought something because it had too much packaging as dependent variables, and attitudes and demographics as independent variables.

Table 2. Adjusted R^2 values from regression of specific environmental attitudes on behaviour

Independent variable	Dependent variable	Adjusted R^2 values[1]		
		All cases (n = 1063)	Env. group members (n = 181)	Non env. group members (n = 874)
Attitudes and Demographics	Driving	.17	.19	.16
	Shopping	.14	.18	.11
Attitudes only	Driving	.17	.19	.15
	Shopping	.11	.12	.10
Demographics only	Driving	.01	.03	.01
	Shopping	.03	.10	.03
Driving attitudes only	Driving	.13	.13	.13
Packaging attitudes only	Shopping	.07	.02	.07

Note: 1. All adjusted R^2 were significant at $p < .05$.

Since it is not appropriate to perform regression on ordinal data, the response categories for the driving behaviour were condensed from a four-point scale into a dichotomy, "Never" and "At least once". Stepwise regression was then performed on the dichotomised variable.

As in the previous analysis, the total predictive ability was not high, with the highest adjusted R^2 of only .17 for all cases and .19 for the environmental group members. However, the attitudes specifically related to the behaviour concerned generally accounted for most of the explained variance.

Effect of Strength of Belief on Predictive Ability

The hypothesis that the strength with which an attitude is held affects its predictive ability was tested by dividing the sample into members and non members of environmental groups and comparing the regression results for the two groups. The attitudes of environmental group members were better predictors of behaviour in four out of the seven cases, but the differences involved were small. Consequently this study provided at best only very weak support for the hypothesis that attitudes that are held strongly are better at predicting behaviours than weakly-held attitudes.

Discussion

It is clear from the results of this research that there is a link between attitudes and behaviour. In all tests of the attitude-behaviour relationship a link stronger than chance was found. Although the strength of the relationship was very weak (the highest adjusted R^2 was only .27), it was found that attitudes had predictive ability superior to demographics. However, no evidence was found that environmental attitudes (at least those examined here) are useful predictors of behaviour, if by useful we mean consistently able to predict behaviour.

A pattern which can be seen in Table 1 is that as behaviours require more motivation to perform, the adjusted R^2 reduces (although the environmental group member sub-sample does not strictly conform to this pattern). As three of the behaviours analysed were part of one question, there may have been some question order bias which may explain the pattern found. However, the results from the question concerning membership of an environmental group can be regarded as an independent test of this relationship. Environmental group membership was determined by a single question, unlike the other behaviours shown in Table 1, which were all part of one question.

A subjective assessment of the degree of motivation required to perform the behaviour (joining an environmental group) would place it between giving money for an environmental group and protesting or demonstrating. The adjusted R^2 for the group member behaviour falls as expected, lending support to the conclusion that as the degree of motivation increases, the ability of attitudes to predict behaviours reduces. This result is consistent with Bonfield's (1974) finding that the correlation between behavioural intentions and behaviours reduced as the level of brand loyalty increased (higher levels of brand loyalty imply higher levels of motivation). However, this seems counter intuitive, because if attitudes could predict behaviours, one would expect them to be better predictors of behaviours requiring higher levels of motivation (and, by implication, engendering stronger attitudes).

One possible reason why behaviours requiring higher levels of motivation were predicted poorly in this study is that there may be less opportunity to perform these behaviours. For example, people may have strong attitudes and be willing to protest or demonstrate, but not have an opportunity to actually do this.

Attitude theory suggests that attitudes that are specifically related to a particular behaviour should be better predictors of that behaviour than general attitudes (Ajzen & Fishbein, 1980). In the analysis of driving and shopping behaviours, most of the predictive ability lay in the specific attitudes, lending some support to the claim that specific attitudes are better predictors of behaviours than general ones. Generally, however, the results of this study do not support this claim. The overall predictive power of the specific attitudes was no better than that achieved using general attitudes to predict behaviours. Similarly, while there was some evidence that strongly held attitudes were better predictors of behaviour than weakly-held ones, this evidence was very weak.

Despite the weak attitude-behaviour relationship found in this study, these results may in fact over-estimate the strength of this link. Cognitive dissonance theory suggests that if attitudes are in conflict with behaviours, then either may be altered to reduce any discrepancies (see Loudon & Della Bitta 1993). Since the same self completion questionnaire was used to elicit both the attitudes and the behaviours analysed, respondents may have modified their reported attitudes or behaviours to ensure consistency.

However, even strong supporters of the attitude-behaviour link may not be surprised by the poor relationships found here. They would claim that not only were the attitude questions asked directed at the attitude object, rather than the behaviour, but that the questions lacked both TACT elements and correspondence between the attitude and behaviour concerned. Even the specific attitudes used in the analysis of the driving and shopping behaviours lacked many of the TACT and correspondence requirements. This could explain why there was no improvement in the predictive ability when specific attitudes were used.

Nevertheless, it should be noted that although a weak link between attitudes and behaviour was established in this study, the direction of causation was not determined. It is just as plausible to argue that environmental attitudes are caused by environmental behaviours as it is to argue environmental behaviours are caused by environmental attitudes.

Conclusions

Critics of this study would probably argue that the "attitudes" measured were not attitudes at all because they did not meet Ajzen and Fishbein's criteria. However, as Foxall (1983) pointed out, these conditions are so restrictive that they make the process useless in a practical sense. Furthermore, the way in which "attitudes" were measured in this study is how they are usually measured in practice.

Although there is little evidence in this study to support the attitude-behaviour assumption, this does not mean that such a link does not exist, or that there is no causal relationship between attitudes and behaviours. What this study does do, however, is to demonstrate that when attitudes are measured as they commonly are, their predictive ability is unlikely to be higher than about 30%, and could be much lower.

Results such as this inevitably pose the question of why so much effort is expended in measuring attitudes when their effect on behaviour (assuming that this is the direction of causation) is so small, and when there are practical ways of making decisions without resorting to attitude measurement. For example, Foxall (1983) suggests that investigators should "*discover what consumers actually do in specified buying and consumption situations and (to) calculate the probabilities of particular choices recurring*" (p.118). Such an approach seems potentially more rewarding than further pursuit of the elusive relationship between attitudes and behaviour.

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Appendix: Examples of questions used

Behavioural questions used in the analysis

19d. And how often do you cut back on driving a car for environmental reasons?
*PLEASE TICK **ONE** BOX ONLY*

Always

Often

Sometimes

Never

(I do not have or cannot drive a car)

20. Are you a member of any group whose main aim is to preserve or protect the environment?
*PLEASE TICK **ONE** BOX ONLY*

Yes
No

21. In the last five years, have you...
*PLEASE TICK **ONE** BOX ON EACH LINE*

Yes, I have No, I have not

a. ...signed a petition about an environmental issue?
b. ...given money to an environmental group?
c. ...taken part in a protest or demonstration about an environmental issue?

28. In the last month or so, did you actually NOT buy something because you felt it used too much packaging or wrapping?
*PLEASE TICK **ONE** BOX ONLY*

Yes, did NOT buy something because of the amount of packaging or wrapping

No

Don't know/can't remember

Examples of attitude questions used in the analysis

5. And please tick one box for each of these statements to show how much you agree or disagree with it.

*PLEASE TICK **ONE** BOX ON EACH LINE*

Strongly agree Agree Neither agree nor disagree Disagree Strongly disagree Can't choose

a. We worry too much about the future of the environment and not enough about prices and jobs today

b. Almost everything we do in modern life harms the environment

25. Suppose you had to make a choice between increasing government spending in particular areas even though this would mean paying higher taxes for this extra spending, or cutting government spending in these areas and thereby reducing taxes; which would you choose for each of the following areas of government spending?

Strongly agree Agree Neither agree nor disagree Disagree Strongly disagree Can't choose

e. Protecting the environment

40. Please tick one box for each statement to show how much you agree or disagree.

*PLEASE TICK **ONE** BOX ON EACH LINE*

Neither

Strongly agree Agree Neither agree nor disagree Disagree Strongly disagree Can't choose

a. For the sake of the environment, car users should pay higher taxes

b. The government should more motorways to reduce traffic congestion

c. A thriving car industry is essential to New Zealand's economy