

UNDERSTANDING THE EFFECTS OF RECYCLING PROMOTION TECHNIQUES ON PEOPLE'S BELIEFS, ATTITUDES AND BEHAVIOURS

ABSTRACT: This work centers on the study of the changes in consumers' recycling beliefs, attitudes and behavior due to the application of promotion techniques: (1) reward technique described as giving a gift to the participants in a promotion program within a lottery and (2) commitment by group leader technique characterized by the agreeing subject signing a request or statement in which he/she promises to fulfill the conditions of the recycling thanks to the encouragement of a person who belongs to the same social circle. So, we carried out an quasi-experimental work whose results lead us to explain the response to these recycling promotion techniques. It contributes to the marketing literature in (1) the systematization of the set of existing doctrines in order to explain the response to recycling promotion techniques and (2) understanding the effects of these techniques on people's beliefs and attitudes. The practical implications that may stem from these contributions are of an educational nature and for public management of promotion campaigns. **KEYWORDS:** Social marketing, recycling behavior, green promotion techniques.

INTRODUCTION: In spite of selective waste collection programs having been in place for some years now, they have not achieved the participation of all the public (Zirkmund and Stanton, 1971; Guiltman and Nwokoye, 1975; Barnes, 1982; Polen and Farris, 1992; González, 1994; Thogersen, 1994; Jahre, 1995). So, there is no doubt that there must be improvement in the collection channels and programs, with public participation (Fuller, 1978; Howenstine, 1993). For the last twenty years research into recycling behavior has been dominated by the analyses of applied conduct, whose aim has been the application of incentives and reinforcement to boost citizen participation. However, there still has not been sufficient research effort to explain the changes in consumers' recycling beliefs, attitudes and behavior due to the application of promotion techniques (Hopper and Nielsen, 1991; Leeming *et al.* 1993; Wesley *et al.*, 1995; Shrum *et al.*, 1994), aimed at exploring the alternatives that give rise to maximum receptiveness and response (Vining and Ebreo, 1989). Moreover, an increased efficiency and effectiveness of municipal solid waste recovery programs requires the sustained collaboration of the public (Shrum *et al.*, 1994; Wesley *et al.*, 1995). To that end, research must emphasize the long-lasting effects that the recycling promotion campaigns manage to maintain over time, by making a longitudinal study of the dynamics of the change in beliefs and evaluations that lead to persistent participation (Gamba and Oskamp, 1994; Hornik *et al.*, 1995; Porter *et al.*, 1995). On the basis of the above, the objective of this research is to explain the different ways of encouraging and strengthening recycling behavior, in order to analyze empirically the differences in the immediate and sustained effectiveness of two recycling promotion techniques: the prize and the commitment with a group leader techniques.

REVIEW OF THE LITERATURE: We distinguish two types of effect, depending on whether they precede or follow the desired conduct: incentive and reinforcement (Reeve, 2000), whose classification is also referred to in the framework of environmental literature (Geller *et al.*, 1975; Geller, 1989; Hutton and Markley, 1991; Dwyer *et al.*, 1993). The effectiveness of both types of technique is studied starting from the framework of attitude models. Following Lutz (1991), we have based ourselves theoretically on the uni-dimensional acceptance of attitude that is identified with people's evaluations, and, unlike the tripartite orientation, transfers people's beliefs and intentions or conduct outside the notion of attitude. Based on the environmental literature we distinguish the following as cognitive components: (1) ecological conscience, which is defined as information about ecological matters and the causes of ecological damage (Bigné, 1997), and (2) beliefs about recycling relative to the knowledge of the how, what and why of recycling (Bagozzi and Dabholkar, 1994; Wesley *et al.*, 1995). The evaluations and attitudes used in this research are: (1) ecological concern, which refers to feelings of disquiet about the deterioration of nature (Boleen *et al.*, 1993; Zimmer *et al.*, 1994; Grunert and Jorn, 1995); (2) involvement with recycling that refers to a determined degree of concern or interest in recycling (McGuinness *et al.*, 1977; Black *et al.*, 1985; Peatty, 1990; Simmons and Widmar, 1990; Oskamp *et al.*, 1991; Alwitt and Pitt, 1996) and (3) recycling attitude as a favorable, or unfavorable inclination toward recycling (Oskamp *et al.*, 1991).

We used the hierarchy of effects concept to refer to the relative order of cognitive components, and those of evaluation and behavior, with the aim of explaining the process of adopting the desired conduct (Lazarus, 1982). After a review of the social marketing literature on the area of recycling, it is clear that the classic hierarchy of effects is predominant in the interpretation of recycling behavior (Dispoto, 1977; Kok and Siero, 1985; Lynne and Rola, 1988; Emmett, 1990; Kotler and Roberto, 1992; Goldenhar and Connell, 1993; Thogersen, 1994; Taylor and Todd, 1995;

Andreassen, 1995 Kalafatis *et al.*, 1999). However, it is possible that the classic high commitment paradigm is not the only one valid to explain ecological and recycling behavior. Therefore, it must be supposed that there are other hierarchies of effect explaining recycling conduct from a social marketing perspective: (1) "know-do-feel", relating to habitual, and low-commitment behaviors (Macey and Brown, 1983) and some work make it clear that the public's interpretation of environmental guidelines is routine and not necessarily ecological (Vining and Ebreo, 1989; Vining and Ebreo, 1990; Williams, 1991; Chan and Lau, 2000), (2) "do-feel-know", which explains recycling behaviors that are consolidated, but coincide with other domestic tasks that require significant cognitive effort and intense social interaction (Baumeister *et al.*, 1998; Ratneswar *et al.*, 2003), and (3) "feel-do-know", whose model may have originated in the effect of the increasingly frequent environmental campaigns, and which explains impulsive and emotional conduct (Ratneswar *et al.*, 2003).

Within the theoretical framework of attitude, there are two different types of doctrine about the differential effects of promotion techniques and they coincide in recognizing a certain coherence between people's attitudes and behaviors (Assael, 1999). On the one hand, in order to base the incentive effect on a doctrine, the following theories were considered: the theory of equilibrium (Heider, 1958), the functional theory (Katz, 1960), and the theory of multiple attributes (Fishbein, 1963). They all coincide in stating that the transformation of beliefs and evaluations guarantees the development and maintenance of the desired behavior. In fact, various authors in the recycling literature point out that the commitment technique stimulates the internal behavioral control in a way that places an individual on the verge of collaboration and requires consistency between what is promised and what is done (Pardini and Katzev, 1983; Burn, 1991). Similarly, the effectiveness of the group leader technique is based on the influence of the information supply and on social influence having a direct effect on beliefs and attitudes (Hopper and Nielsen, 1991; Bagozzi and Dabholkar, 1994). On the other hand, in order to explain the reinforcement effect, the following theories are proposed: cognitive dissonance (Festinger, 1957), passive learning (Krugman, 1965), attribution (Bern and Connell, 1970) and the instrumental learning theory (Favell, 1977; Kazdin, 1980; Wesley *et al.*, 1995).

There appear to be no differences in the immediate increase in recycling, both being highly efficient in comparison to other techniques. Particularly in the case of the prize technique, it is shown that the increase in recycling is more significant than with other reinforcement techniques (Geller *et al.*, 1975; Witmer and Geller, 1976; Luyben and Bailey, 1979; Hamad *et al.*, 1980; Vining and Ebreo, 1990; Needleman and Geller, 1992), which is also true in the cases of raffles or draws (Geller *et al.*, 1975; Witmer and Geller, 1976; Couch *et al.*, 1978; Luyben and Cummings, 1981; Jacobs and Bailey, 1982; Diamond and Loewy, 1991). These high levels of effectiveness are comparable only to those reached by other antecedent techniques, such as commitment, specially when applied in an individual way (McCaul and Kopp, 1982; Pardini and Katzev, 1983; Burn and Oskamp, 1986; Katzev and Pardini, 1987; Wan and Katzev, 1990; Deleon and Fuqua, 1995; Bryce *et al.*, 1997), as well as the group leader technique (Hamad *et al.*, 1980; Folz, 1991; Hopper and Nielsen, 1991). However, as both techniques require the provision of information about how and where to recycle, it is to be expected that the effects on recycling beliefs do not vary with the type of promotion applied. On those lines, the first three hypotheses are proposed:

H1: *The immediate response to the prize promotion technique and to the promotion technique of commitment with group leader is due to the different models of recycling behavior adoption*

H2: *The prize promotion technique and that of commitment with group leader do not differ in their immediate effectiveness in stimulating a recycling response*

H3: *The prize promotion technique and that of commitment with group leader do not differ in their immediate effectiveness in increasing the consumers' recycling beliefs.*

The commitment technique and the group leader technique are both cycling promotions that show good results because they maintain the response even after the stimulus is withdrawn. This has been corroborated in several works about both the commitment technique (Pardini and Katzev, 1983; Katzev and Pardini, 1987; Wan and Katzev, 1990; Bryce *et al.*, 1997) and the group leader technique (Hamad *et al.*, 1980; Hopper y Nielsen, 1991). However, many research works have shown the limited ability of prize giving to maintain the response after removing the reinforcement, even in cases of prolonged application (Katzev and Pardini, 1987; Vining and Ebreo, 1989; Katzev *et al.*, 1993; Wesley *et al.*, 1995; Porter *et al.*, 1995; Homik *et al.*, 1995). This was also evident in the case of raffles or draws (Witmer and Geller, 1976; Luyben and Cummings, 1981).

In the environmental literature, the explanation of this differential effect on the maintenance of recycling behavior has been purely theoretical, with no empirical study. Regarding the commitment technique, it states that it stimulates the

internal behavioral control forming part of the intrinsic process of individual motivation (Katzev and Pardini, 1987; Dwyer *et al.*, 1993; Wesley *et al.*, Mckenzie and Mohr, 1999). It also drives the subject to the verge of collaborative conduct and activates the self-congruence mechanism (Pardini and Katzev, 1983; Burn, 1991, Mckenzie and Mohr, 1999). With reference to the group leader technique, this is said to act directly on beliefs and attitudes by means of social influence and provision of information (Hopper and Nielsen, 1991; Bagozzi and Dabholkar, 1994). However, it is stated that the limited duration of the effects of applying the prize technique is rooted in the feeling of saturation that occurs when it acts without affecting the individual's internal sphere (Katzev and Pardini, 1987), because it has no effect on beliefs and attitudes (Thogersen, 1994) and may even neutralize the dynamics of internal control (Young, 1984; Katzev and Pardini, 1987; Vining and Ebreo, 1989). These explanations are in line with the theories of equilibrium (Heider, 1958), function (Katz, 1960) and multiple attributes (Fishbein, 1963) regarding antecedent techniques because they put forward the direct effect of beliefs and evaluations on behavior. They are also coherent with the theories of cognitive dissonance (Festinger and Carlsmith, 1959), passive learning (Krugman, 1965) and attribution (Bern and Connell, 1970) regarding the consequent techniques, since they explain an indirect effect on this internal sphere of the individual. It is precisely this indirect influence on beliefs and attitudes, together with the learning process, that demonstrates that the implementation of a promotion always has a short duration. This probably explains why the prize technique is less effective in sustaining recycling collaboration than the commitment with group leader technique. Lastly, the theory of information processing (Petty and Cacioppo, 1981) offers an overall explanation of the different effects of the two types of technique, proposing that there are two roads to persuasion, the central (commitment & blockleader for high involvement) and the peripheral (prize for low involvement). In fact, the recycling literature, in agreement with Shrum *et al.* (1994), states that the group leader technique is especially useful when applied to consumers who are susceptible to environmental education, which guarantees their sustained collaboration. On the other hand, it has been made clear that those who do not recognize the importance or interest of recycling waste, are precisely those who show greater interest in extrinsic stimuli such as prizes, gifts and financial reward (Vining and Ebreo, 1990; Oskamp *et al.*, 1991; Dahle and Neumayer, 2001). This explains their withdrawal from the collaborative guidelines immediately after the organization of the promotion.

However, the prize technique also achieves a certain level of maintenance of the desired behavior (Luyben and Bailey, 1979; Hamad *et al.*, 1980), although to a lesser degree than the commitment and group leader techniques. The theoretical justification most accepted in the field of recycling to explain the success of programs based on prizes or positive reinforcement to sustain recycling behavior is that proposed by the doctrine of instrumental learning (Wesley *et al.*, 1995). As a consequence, the systematic guidelines of providing positive contingencies will make that behavior more frequent by stimulating and consolidating it in an exogenous way (Wesley *et al.*, 1995). The behaviorist psychology literature stresses that, by means of the model, the reinforcement of a desired behavior is achieved through prizes or gifts (Favell, 1977, Kazdin, 1980). Furthermore, the theories of cognitive dissonance (Festinger and Carlsmith, 1959), passive learning (Krugman, 1965) and attribution (Bern and Connell, 1970) not only justify a process of adoption other than that of the consequent techniques, but also explain the change in beliefs and attitudes in accordance with the indirect effects that resulting from the previous appearance of the behavior. On this basis, the following hypotheses are put forward:

H4 The prize promotion technique and that of commitment with group leader differ in their effectiveness in maintaining the recycling response, in a way that only the latter technique manages to sustain a recycling behavior

H5 The prize promotion technique and that of commitment with group leader differ in their immediate effectiveness in increasing ecological conscience, ecological concern, recycling attitude and involvement, in a way that the latter technique is more effective

H6 The sustained response of collaboration due to the effect of the prize promotion technique and that of commitment with group leader is due to different models of adoption of recycling behavior.

METHODOLOGICAL ASPECTS: This research is in line with a quasi-experimental design and is characterized by being performed in natural settings and with conveniently constituted groups (Moreno and López, 1985). Two types of treatment have been designed, comprising the application of the technique of written, individual commitment at the encouragement of a group leader and providing a draw-based prize. These techniques were applied to two different sub-samples with some volunteers who each selected one member of their respective households as an experimental subject. Each volunteer was responsible for applying one of the two treatments to that selected member. The experiment lasted almost three months although the promotion period was little more than one week. After eliminating

30 entries because of different reasons, the real sample comprised 246 individuals, 123 of whom were assigned to the treatment of subscribing to commitment by group leader encouragement, and 123 to the treatment of possibly receiving a prize by means of a draw. The recycling materials chosen for this research are: glass, paper and carton, and tetrabrick, metal or plastic containers. A questionnaire was used to gather all the information related to cognitive and evaluation components, in addition to recycling behavior.

ANALYSIS OF RESULTS: Prior to testing the hypotheses, we checked the validity and reliability of the measuring instruments by means of exploratory factorial, Cronbach's alpha and confirmatory factorial analyses on the cognitive components and the evaluation, ecological and recycling components. To test the hypotheses, a double approximation was performed: the longitudinal or process analysis to study the evolution of the cognitive variables and those of evaluation due to the effect of the promotion technique applied (Hypotheses H2, H3, H4 and H5); and the structural or transversal analysis to identify the models that best represent the response to the promotions (Hypotheses H1 and H6).

For the longitudinal analysis, a Student t-test of related samples was first used to identify the intensity, direction and permanence of the changes due to the application of promotion techniques. The prize technique has positive and statistically significant effects on recycling beliefs, although recycling behavior was not consolidated at moment t3. For their part, ecological conscience and concern decrease immediately after the application of the promotion and increase significantly one month after the end of the promotion. Furthermore, although the recycling attitude showed no immediate statistically significant transformation, it did increase significantly at moment t3. Finally, recycling involvement showed no statistically significant change. The promotion technique of commitment with group leader has positive statistically significant effects on recycling beliefs, attitude, involvement and behavior, which were maintained at t3. Lastly, the evolution of ecological conscience and concern followed a similar fall and rise pattern to that produced by the effect of the prize technique.

Before making a comparison of the effectiveness of the two different promotion techniques, there was a student t-test of independent samples at moment t1 in both experimental groups. This was aimed at checking whether there are any statistically significant differences between these variables before the application of the promotion techniques. On the basis of the results obtained, it can be concluded that no statistically significant differences exist between the groups at moment t1 before the promotions were applied. Finally, in order to test the effectiveness of the two promotion techniques, there was an analysis, based on the General Linear Model (GLM), of repeated measures that determined the differential norms of evolution of the ecological and recycling variables under consideration. It can be stated that there is a differential evolutionary effect that depends on the type of promotion technique. This especially applies to recycling commitment and behavior, since the commitment with group leader technique is much more effective than the prize technique in the short and the long term. Similarly, although there are no statistically significant differences in the ecological conscience and recycling beliefs immediately after the application of the promotions, the commitment with group leader technique has a greater capacity for long-term maintenance of those components. Although ecological concern diminishes less significantly with the prize technique effect, these differences disappear with time. Lastly, the evolution of recycling attitude presents no differences based on the type of technique implemented.

On the basis of the above, we can conclude that hypotheses H2, H3, H4 and H5 are verified. To be specific, hypothesis H2, which proposed that the prize technique and the commitment with group leader technique do not differ in their immediate effectiveness in stimulating the appearance of the recycling response, is rejected. On the other hand, hypothesis H3, which suggests that the two techniques do not differ in their immediate effectiveness in increasing consumers' recycling beliefs, is confirmed, since recycling beliefs, that is, a knowledge of its practice and meaning, stem not only from the information provided by the promotion techniques but also from the behavior itself. Hypothesis 4, stating that the two techniques differ in their effectiveness in maintaining the recycling response insofar as only the commitment with group leader technique manages to sustain the increase in recycling behavior, is verified. The last hypothesis, H5, which suggests that the two techniques differ in their immediate effectiveness in increasing ecological conscience and concern, and recycling attitude and involvement, in a way that the commitment with group leader technique is more effective is confirmed, but weakly. This is because, while involvement evolves more markedly from the effect of commitment encouraged by a group leader, attitude shows no statistically significant differences between the two experimental groups and ecological concern shows a significantly greater decrease from the effect of the commitment with group leader technique.

Related to transversal analysis (Hypotheses H1 and H6), several alternative Path models were estimated within each of the effect hierarchies being studied, with the aim of selecting those whose specifications best represented the

immediate response (t2) and sustained response (t3) to each of the recycling promotion techniques. Later, following Gerbing and Andersen (1988) and Hair *et al.* (1999), the indicators of the goodness of fit of the four selected types of model were compared in order to choose a final model for each of the six promotional sub-samples. In the study of immediate response to the promotions the two sub-samples selected in t2 were considered: those responding to the prize technique; and those responding to the commitment with group leader technique. To study the sustained response to the promotions two sub-samples were taken from t2 and two from t3 comprising (1) those who responded to the prize technique in t2 and maintained that response in t3, and (2) those who responded to the commitment with group leader technique in t2 and maintained that response in t3.

Regarding immediate effectiveness, it can be seen that the best fit to the data in all the indicators for the prize sub-sample is the model named in the terminology of Kotler and Roberto (1992) "know-do-feel", which establishes the sequence of behavior adoption characterized by low involvement. Furthermore, this model also has the best fit to the data for the sub-sample of commitment encouraged by a group leader. Therefore, the hierarchies of effects of the most representative models of immediate response to both promotions coincide. However, to examine the degree of similarity between the two models, it was determined whether statistically significant differences exist by performing a Chi-squared analysis of differences by the multi-group procedure. Although no statistically significant differences exist between the models, significant differences were identified in determined parameters of relationship. In order to examine the tendency of these differences and after checking that the model without restrictions of equality of regression weights in both sub-samples and the model with those restrictions in both sub-samples, except in the two aforementioned relationships, show a good fit to the data, there was an examination of the standardized regression weights and critical ratios of these models. It can be seen that recycling beliefs represent the only possibility of people responding to the prize showing ecological concern, since it is the only link between this variable and the rest of the model. However, in individuals responding to commitment with group leader this relationship is not significant although ecological concern plays an important role in relation to other variables since it influences the recycling attitude. As a consequence, while recognizing that two significantly different relationships exist in the two models, there is evidence that the process of response to the two types of promotion is quite similar. Therefore, hypothesis H1, stating that the immediate response to the prize promotion technique and to the commitment with group leader technique is due to models of adopting a recycling behavior, is rejected.

With reference to sustained effectiveness: (1) while individuals subjected to the prize promotion respond according to a hedonistic philosophy, those subjected to the commitment with group leader promotion respond according to a protocol characterized by a mechanism of cognitive dissonance; (2) while a behavior of collaboration sustained by the effect of the prize fits a model of habit or custom, of low involvement and of cognitive dissonance, a recycling behavior sustained by the effect of commitment with group leader fits a classic model of high involvement characterized by the search for, and possession of information. On that basis, hypothesis H6, stating that a response of sustained collaboration due to the effect of the prize promotion technique, and of the commitment with group leader technique is due to different models of adopting recycling behavior, is accepted.

IMPLICATIONS AND FUTURE LINES OF RESEARCH: Consequently, the practical implications that may stem from these contributions are of an educational nature and for public management of promotion campaigns among the public. From an educational point of view, it has been shown that there are different models of cognitive assimilation and recycling evaluation and so, it seems logical to recommend that educators ask themselves which type of model they wish to transmit before implementing the chosen promotion technique. From the point of view of the public management of promotion campaigns among the public, it is clear that both types of promotion are recommendable, although their differential effects must be considered. On the one hand, the technique of commitment by group leader encouragement shows higher levels of effectiveness, above all over the long term, and especially to provoke high involvement processes of adoption in individuals who previously showed the custom of recycling, those who can be identified as people to be used in the future as true leaders of dissemination or volunteer staff. On the other hand, the prize technique is less effective, but when it achieves long-term effects, it becomes a behavior of habit or custom, which originated in an initially hedonistic response, and which it is convenient to encourage by means of really attractive and motivating gifts. Lastly, we would like to propose some future lines of research that may stem from this work; (1) an in-depth examination of the phenomenon of consumers' reluctance to adopt a recycling behavior, with an attempt to develop and test specific models of reluctance to recycle and (2) carry out a qualitative study that analyzes the processes of change of attitude and of adopting the desired behavior.

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