
EMPIRICAL ARTICLES

The Response to the Commitment with Block-Leader Recycling Promotion Technique: A Longitudinal Approach

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SUMMARY. This article focuses on the study of the changes in consumers' recycling beliefs, attitudes, and behavior due to the application of one promotion technique: a commitment by block leader technique characterized by the agreeing participant signing a request or statement in which s/he makes a commitment to recycle as a result of the encouragement of a person who belongs to the same social circle. We therefore

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carried out a quasi-experimental work whose results enable us to explain the response to this recycling promotion technique. It makes a contribution to existing environmental literature by (1) systemizing the set of existing doctrines in order to explain the response to this recycling promotion technique, and (2) revealing the effects of this technique on people's beliefs and attitudes. The practical implications that may stem from these contributions are of an educational nature and should be of use to the public management of promotion campaigns. doi:10.1300/J054v17n01_04 [Article copies available for a fee from The Haworth Document Delivery Service: 1-800-HAWORTH. E-mail address: <docdelivery@haworthpress.com> Website: <<http://www.HaworthPress.com>> © 2007 by The Haworth Press, Inc. All rights reserved.]

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INTRODUCTION

There has still not been sufficient research carried out 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; Shrum et al., 1994; Wesley et al., 1995), aimed at exploring the alternatives that give rise to maximum receptiveness and response (Vining and Ebreo, 1989). Some of these recycling promotion techniques are commitment and the block leader, which are usually jointly applied because this combination is very effective in encouraging the desired responses (Bryce, Day, and Olney, 1997; Burn and Oskamp, 1986; Deleon and Fuqua, 1995; Folz, 1991; Hamad et al., 1980; Hopper and Nielsen, 1991; Katzev and Pardini, 1987; McCaul and Kopp, 1982; Pardini and Katzev, 1983; Wan and Katzev, 1990).

The objective of this research is to explain the different ways of encouraging and strengthening recycling behavior, in order to analyze empirically the immediate and sustained effectiveness of one particular recycling promotion technique: the technique of commitment with a block leader. In order to achieve the desired goal, this work is structured in four parts: (1) a review of existing literature, in which the diverse hypotheses are set out; (2) the methodological process; (3) an analysis of the empirical results, which includes an examination of the reliability and validity of the measuring instruments used, as well as a study of the results relating to the longitudinal effects of this recycling promotion

technique; and, finally, (4) the conclusions in order to synthesize the results, the academic and professional implications, the limitations and future lines of research.

REVIEW OF EXISTING LITERATURE

The technique of commitment by block-leader encouragement is characterized by the participant signing a request or statement in which he/she promises to recycle (Dwyer et al., 1993; Geller, 1989; Geller, Chaffee, and Ingram, 1975; Hutton and Markley, 1991) as a result of the encouragement of a person who acts as persuader and who belongs to the same social circle (Burn, 1991; McKenzie-Mohr, 1999). In this work, the block leader is a member of the household who already engages in the behavior being promoted and has agreed to speak to other members of the household to help them get started. This block leader uses a written and individual commitment that is given to other members of the household to be signed.

The effectiveness of this type of technique is studied using the framework of attitude models as the starting point. Following Lutz (1991), we have based ourselves theoretically on the uni-dimensional acceptance of attitude that is identified with people's evaluations, and which, in contrast to tripartite orientation, transfers people's beliefs and intentions or conduct outside the notion of attitude. Taking existing environmental literature as a basis, we distinguish the following as cognitive components: (1) ecological conscience (Arcury, Johnson, and Scollay, 1986; Bigné, 1997), and (2) beliefs about recycling (Bagozzi and Dabholkar, 1994; Wesley, Oskamp, and Mainieri, 1995). The evaluations and attitudes used in this research are: (1) ecological concern (Bohlen, Schlegelmilch, and Diamantopoulos, 1993; Grunert and Jorn, 1995; Zimmer, Stafford, and Royne, 1994); (2) involvement with recycling (Alwitt and Pitts, 1996; Black, Stern, and Elworth, 1985; McGuinness, Jones, and Cole, 1977; Oskamp et al., 1991; Peatty, 1990; Simmons and Widmar, 1990), and (3) attitude toward recycling (Hornik et al., 1995; Oskamp et al., 1991).

We would like to explain the internal and external consistency principles in order to base the incentive effect on a doctrine. In theory and following the internal consistency explanation, cognitions, evaluations, and behaviors tend to maintain the same direction, and so conflicts among such components are thus avoided because this balance explains the maintenance of the desired response. From an external perspective

and based on the social or external consistency principle, evaluations and beliefs are not in themselves sufficient to predict the behavior, since an additional element, the subjective norm effect, influences the final response. This can happen because of two different effects: (1) people make their cognitions, attitudes, and behaviors by considering social pressure or the effects of what people believe other people think they should do, and (2) attitudes performing a value-expressive function express the consumer's central values or self-concept and state that s/he is a person with a social identity. The internal and external consistency principles coincide in stating that the transformation of beliefs and evaluations guarantees the development and maintenance of the desired behavior.

The predominant paradigm in the recycling literature to explain the response, applying the consistency principles to this kind of technique, is the theory of multiple attributes (Fishbein, 1963) and of reasoned action (Ajzen and Fishbein, 1977). According to these frameworks, consumers approach recycling conduct by first accumulating knowledge and then by forming their attitudes. This is also evident in relatively recent works (Biswas et al., 2000; Emmet, 1990). Nevertheless, in many cases, this hierarchy of effects based on the Fishbein models are used in ways that may not warrant certain assumptions about recycling behavior. For example: (1) no works have been found with the aim of contradicting the classic hierarchy of effects related to this high-commitment paradigm; (2) much evidence points to the existence of associations or correlations, and not of cause-and-effect relationships or a longitudinal approach (Schlegelmich et al., 1996), and (3) some works make it clear that the public's interpretation of environmental guidelines might be not only intentional, for instance, a routine (Chan and Lau, 2000; Vining and Ebreo, 1989; Vining and Ebreo, 1990; Williams, 1991), but also an emotional response to frequent environmental campaigns (Ratneshwar, Glen, and Huffman, 2003). Therefore, the classic hierarchy of effects might not be the only theoretical framework on which to base the consistency principle.

In fact, in line with Andreasen (1995), there are two consumer-behavior constructs that are valuable in understanding the maintenance of the desired conduct from a consistency cognitive approach. One is the cognitive dissonance theory; the other is the behavior modification doctrine. The cognitive dissonance theory stresses the idea that individuals seek to maximize some psychological consistency between their cognitions and behaviors since inconsistency is taken to be an uncomfortable state, and hence individuals strive to avoid it. Therefore, it is

said to be a post-decisional phenomenon since dissonance occurs after the decision has been made and the behavior adopted. Based on this theoretical framework, block-leader influence is understood as provoking a dissonance effect, not only by providing information and using subjective norms, but also by inducing commitment to the desired behavior.

In addition, it may be useful to mention that there are a number of alternatives to the cognitive dissonance theory that emphasize the centrality of the concept of self to contradictory phenomena. For example, according to Aronson (1999) dissonance most easily stems from inconsistencies that specifically involve the self and a part of behavior that violates that self-concept. In this sense, the induced compliance commitment to recycling may involve an inconsistency with one's actual behavior and so set in motion a process designed to restore consistency between the commitment and the promised conduct. Another view that also emphasizes the centrality of self is the self-affirmation theory (Steel, 1988). This theory points out the importance of maintaining an image of the self as competent, coherent, and morally adequate; in other words, with some perception of self-integrity. Both approaches coincide in pointing out processes that are activated by information sourced from the internal sphere. Furthermore, the cognitive dissonance mechanism may come about from the external sphere. In this sense, the block leader shows a direct influence on the consumer's own perceptions of specific environmental consequences of recycling behavior. In fact, as block leader and target both belong to the same social circle they tend to share the same values and attitudes toward the crucial things (Spaccarelli, Zolik, and Jason, 1989).

The other approach consists of the behavior modification doctrines, which argue that much behavior is influenced by environmental factors that appear both before the desired conduct (for example, block leader interventions) and after (for example, the satisfaction of accomplishing the commitment). In this context and according to the doctrine of instrumental learning (Carey et al., 1976), commitment and block leader are non-conditional stimuli that, after being associated with the appearance of the desired response, serve to reinforce it, up to the point that, if the stimuli are withdrawn, a continued recycling behavior becomes more probable. Moreover, from a behaviorist psychology literature perspective, commitment and block leader provide positive contingency by the social pressure and information that will make that behavior more frequent. In short, behavioral theorists urge social marketers to pay

close attention to the rewards that can follow behavior (Andreasen, 1995).

Perhaps most dissonance theory and behavior modification doctrine inspired research concerning what is commonly called induced compliance. Induced compliance is said to occur when an individual is induced to act in a way contrary to his or her beliefs and attitudes, for instance, to advocate some viewpoint opposed to his/her position (O'Keefe, 2002). However, according to Kok and Siero (1985), it does not appear logical that block leader and commitment are especially suitable for people rejecting recycling but are for those who are merely not opposed or favorable. In fact, O'Keefe (2002) points out that sometimes a persuader's task is not so much to encourage people to have the desired attitudes as it is to encourage people to act on existing attitudes. For example, people commonly express positive attitudes toward recycling but fail to act accordingly. Based on the hypocrisy induction mechanisms, presumably the underlying mechanism arising from the commitment by means of a block leader involves the salience of attitude behavior inconsistency. Applying this theory to the recycling context, the basic idea is that a block leader can call attention to the inconsistency of a person's attitudes and actions. This individual's hypocrisy can arouse dissonance, which is then reduced through behavioral change. Thus adopting recycling behavior, the individual makes his/her desired conduct consistent with the existing attitude. Hence, both the cognitive dissonance and the behavior modification doctrines not only justify a process of adoption in line with the consistency principles, they also explain the change in beliefs and attitudes in accordance with the indirect effects that result from the prior appearance of the behavior.

In existing environmental literature, the explanation of the maintenance of recycling behavior has been purely theoretical, with no empirical studies having been carried out to date. Based on the consistency principle, several recycling works explain why both kinds of techniques achieve the desired and sustained behavior. With respect to the commitment technique, it states that it stimulates the internal behavioral control forming part of the intrinsic process of individual consistency motivation (Dwyer et al., 1993; Katzev and Pardini, 1987; McKenzie-Mohr, 1999; Wesley et al., 1995). It also drives the subject to the verge of collaborative conduct and activates the self-congruence mechanism (Burn, 1991; McKenzie-Mohr, 1999; Pardini and Katzev, 1983). From an external perspective and with reference to the block-leader technique, it seems clear that public inconsistency is very badly regarded and there is no doubt about the fact that recycling is a good act (Minton and Rose,

1997). There are various explanations to understand and define social influence: Pardini and Katzev (1983) and Wesley et al. (1995) refer to the need for social recognition and approval and, according to Hopper and Nielsen (1991), the desired conduct appears by the natural principle of imitation. In short, the block-leader and commitment techniques act by means of social influence and the provision of information (Bagozzi and Dabholkar, 1994; Hopper and Nielsen, 1991), in other words, by means of social or internal consistency principles.

Both the commitment technique and the block-leader technique are recycling 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 (Bryce et al., 1997; Katzev and Pardini, 1987; Pardini and Katzev, 1983; Wan and Katzev, 1990) and the block-leader technique (Hamad et al., 1980; Hopper and Nielsen, 1991).

Thus, considering these empirical results and the internal and external consistency principles explained by the cognitive dissonance theory and the behavior modification doctrine, we predict that the commitment and block-leader technique will provoke changes in ecological and recycling components, both cognitive and evaluative, so that the recycling behavior is sustained. Along these lines, a set of six hypotheses are proposed:

- H1: *The immediate and sustained responses to the technique of commitment with block leader consist of an increase in the consumer's ecological conscience.*
- H2: *The immediate and sustained responses to the technique of commitment with block leader consist of an increase in the consumer's recycling beliefs.*
- H3: *The immediate and sustained responses to the technique of commitment with block leader consist of an increase in the consumer's ecological concern.*
- H4: *The immediate and sustained responses to the technique of commitment with block leader consist of an increase in the consumer's attitude toward recycling.*
- H5: *The immediate and sustained responses to the technique of commitment with block leader consist of an increase in the consumer's recycling involvement.*
- H6: *The immediate and sustained responses to the technique of commitment with block leader consist of an increase in the consumer's recycling behavior.*

METHODOLOGICAL ASPECTS

In order to analyze empirically the immediate and sustained effectiveness of the technique of commitment with a block leader, a quasi-experimental design was developed that is characterized by being performed in natural settings and with conveniently constituted groups (Moreno and López, 1985). Thus, this recycling promotion technique is considered as an independent variable and the ecological conscience, beliefs about recycling, ecological concern, involvement with recycling, attitude toward recycling, and recycling behavior as dependent variables.

The treatment designed consists of the application of the technique of written and individual commitment at the encouragement of a block leader. The written commitment is worded as follows: "I, the undersigned, wish to recycle glass, paper, and cardboard in order to assist the municipal selective waste program." We have a large team of block leaders comprising a total of 123 volunteers, enrolled from students in our business-college center, who each selected one member of their respective households as an experimental participant. Thus each volunteer was responsible for applying the treatment to that selected member of their household.

In order to gather the information related to dependent variables, the authors designed a questionnaire that was issued three times and gathered information about the participant's ecological and recycling beliefs and attitudes, as well as their recycling behavior. The scales used to measure these ecological and recycling components are shown in Table 1. Although all the information was gathered by a survey, the authors were able to control whether there had been important differences between the indirect measurement gathered by questionnaires and the direct measurements made by our contacted volunteers.

Table 2 shows the chronogram of the experiment, which lasted almost three months although the promotion period was little more than one week. Once the information had been gathered it was introduced into the database and processed, eliminating any cases displaying internal incoherence, where the object of the research had been discovered by the individual being surveyed and where the individual had stopped participating in the longitudinal study. After eliminating 30 entries, the real sample comprised 193 individuals, 123 of whom were assigned to the treatment of subscribing to commitment by block-leader encouragement. In order to ensure the internal validity of the experiment, a control group was formed of 70 individuals who were not subjected to any treatment or promotion.

TABLE 1. Characteristics of the Scales Referring to the Cognitive and Evaluation Components

Dependent variables or factors	Scale and references	Items
Ecological conscience	Likert 4 items and 5 points. Bohlen et al. (1993)	I know what the main ecological problems are.
		In general, I know how not to damage the ecosystem.
		I sufficiently understand what is said about the deterioration of nature.
		In general, I can distinguish what is bad and what is good for the natural environment.
Beliefs about recycling	Likert 6 items and 5 points. Scholder (1994)	I know how to recycle.
		I know more about recycling than the average person.
		I know what materials can be recycled.
		I know the reasons why recycling is promoted.
Involvement with recycling	Semantic differential, 4 items, 5 points. Zaichkowsky (1985); Díaz y Beerli (2002)	It means nothing to me / It means a lot to me
		It is not in my interest / It is in my interest
		I am not interested / I am interested
		It is not my responsibility / It is my responsibility
Attitude toward recycling	Likert, 4 items, 5 points Biswas et al. (1990); Shrum et al. (1994)	Recycling is Bad / Good
		Recycling is Stupid / Wise
		Recycling is Undesirable / Desirable
		Recycling is Not valuable / Very valuable
Ecological concern	Likert, 4 items, five points. Biswas et al. (2000); Shrum et al. (1994)	When man interferes with nature, it often leads to disastrous consequences.
		Mankind is severely abusing the environment.
		The balance of nature is very delicate and can change very easily.
		If things continue as they are, we will experience a great ecological catastrophe.

As each our volunteers belonged to the same household or social network of each surveyed, this procedure consisted of using samples of convenience. In this case, the convenience samples are defensible because there is greater opportunity for observation and control of the individuals in the experiment.

The recycling materials chosen for this research are: glass, *paper*, and cardboard, and cardboard, metal or plastic containers.

TABLE 2. Program of Activities

Month	Activities	Month	Activities	Month	Activities
October		November		December	
Tuesday	1	Friday	1	Sunday	1
Wednesday	2	Saturday	2	Monday	2
Thursday	3	Sunday	3	Tuesday	3
Friday	4	Monday	4	Wednesday	4
Saturday	5	Tuesday	5	Thursday	5
Sunday	6	Wednesday	6	Friday	6
Monday	7	Thursday	7	Saturday	7
Tuesday	8	Friday	8	Sunday	8
Wednesday	9	Saturday	9	Monday	9
Thursday	10	Sunday	10	Tuesday	10
Friday	11	Monday	11	Wednesday	11
Saturday	12	Tuesday	12	Thursday	12
Sunday	13	Wednesday	13	Friday	13
Monday	14	Thursday	14	Saturday	14
Tuesday	15	Friday	15	Sunday	15
Wednesday	16	Saturday	16	Monday	16
Thursday	17	Sunday	17	Tuesday	17
Friday	18	Monday	18	Wednesday	18
Saturday	19	Tuesday	19	Thursday	19
Sunday	20	Wednesday	20	Friday	20
Monday	21	Thursday	21	Saturday	21
Tuesday	22	Friday	22	Sunday	22
Wednesday	23	Saturday	23	Monday	23
Thursday	24	Sunday	24	Tuesday	24
Friday	25	Monday	25	Wednesday	25
Saturday	26	Tuesday	26	Thursday	26
Sunday	27	Wednesday	27	Friday	27
Monday	28	Thursday	28	Saturday	28
Tuesday	29	Friday	29	Sunday	29
Wednesday	30	Saturday	30	Monday	30
Thursday	31			Tuesday	31

ANALYSIS OF RESULTS

Preliminaries

Prior to testing the hypotheses, the validity and reliability of the measuring instruments was checked by means of exploratory factorial, Cronbach's alpha, and confirmatory factorial analyses on the cognitive components and the evaluation, ecological, and recycling components. The exploratory factorial analysis with varimax rotation identified all the ecological and recycling characteristics under consideration and explained over 60% of variance, except in the case of ecological concern, with values of around 50%.

After the exploratory factorial analyses, a confirmatory factorial analysis was run in order to check the convergent validity of the same scales. The measuring instruments showed a good fit to the data, and the indicators produced adequate results for the five cognitive, ecological character evaluations and recycling characteristic variables. The standardized estimators are significant and positive, with values of over 0.5 in all cases except in the scale referring to ecological concern, with a value of 0.4. To study the reliability, an analysis of construct reliability and extracted variance was carried out, together with Cronbach's alpha. All the measurements obtained were above the recommended threshold, except for the extracted variance of ecological concern, which was below that value. Consequently, it can be said that the scales for ecological conscience, recycling beliefs, recycling attitude, and involvement showed values that indicate the reliability of the dimensions under consideration, while the scale for ecological concern was close to the critical threshold of 0.40. Lastly, in order to check the discriminatory validity of the measuring instruments, a correlations analysis was made, which showed that ecological conscience, recycling beliefs, ecological concern, recycling attitude, and recycling involvement measure different ecological and recycling realities, with Pearson's correlation coefficient well below the value of 1.

Analysis to Contrast Hypothesis

Before studying the effectiveness of the commitment with block-leader technique, a student *t*-test of independent samples at moment t1 between the control and the experimental group was carried out. This was aimed at checking whether there are any statistically significant differences between these variables before the application of the promotion

technique. On the basis of the results obtained, it can be concluded that no statistically significant differences exist between the groups regarding the cognitive components and the evaluation and behavior components at moment t1, or before the promotion was applied.

In order to explore the evolution of the ecological and recycling components related to hypotheses 1 and 2, a student t-test of related samples was first used to identify the intensity, direction and permanence of the changes in beliefs and evaluations, as well as in recycling conduct due to the application of the commitment with block-leader promotion technique. Beliefs about recycling and behavior increased immediately after the application of the promotion and were maintained at t3. One month after the end of the promotion, in addition to beliefs and behavior, recycling involvement, recycling attitude, and ecological conscience increased significantly.

Finally, it is necessary to compare the immediate and the sustained evolution of ecological and recycling components in both sub-samples considering the moderating role of some variables in order to be able to conclude whether the hypotheses are confirmed. Therefore, in order to test this, an analysis based on the General Linear Model (GLM) of repeated measures was carried out that determined the differential norms of evolution of the ecological and recycling variables under consideration.

Finally, including these variables in the GLM analysis, it can be stated that there are statistically significant differences in beliefs about recycling and recycling behavior in the short term (tables 4 and 8) and in ecological conscience, beliefs about recycling, recycling attitude, and recycling behavior (tables 3, 5, 6, and 7) in the long term. This means that the commitment with block-leader technique has a great capacity for long-term maintenance of these components and this is due to the appearance of the behavior prior to the later evolution of the cognitive and evaluative components. However, there are no statistically significant differences in terms of ecological conscience and concern, recycling attitudes and involvement with recycling immediately after the application of the promotions.

On the basis of the above, it can be concluded that hypothesis 1 is supported because ecological conscience changed due to the sustained effect of commitment encouraged by a block leader. However, the two sub-samples show no statistically significant differences in ecological conscience in the short term.

Hypothesis 2, which proposes that “the immediate and sustained responses to the technique of commitment with block leader consist of an

TABLE 3. General Linear Model of Repeated Measures Analysis on Ecological Conscience to Contrast Hypothesis 1

			Value	F	LG hypothesis	LG error	Significance	
Immediate T1-T2	Evolution	Pillai	0.001	0.253	1.000	191.000	0.616	
		Wilks	0.999	0.253	1.000	191.000	0.616	
		Hotelling	0.001	0.253	1.000	191.000	0.616	
		Roy	0.001	0.253	1.000	191.000	0.616	
	Comparing evolution	Pillai	0.014	2.703	1.000	191.000	0.102	
		Wilks	0.986	2.703	1.000	191.000	0.102	
		Hotelling	0.014	2.703	1.000	191.000	0.102	
		Roy	0.014	2.703	1.000	191.000	0.102	
	Error	Square Sum: 113.994; LG: 191; Square Mean: 0.597						
	Sustained T1-T3	Evolution	Pillai	0.000	0.002	1.000	191.000	0.968
Wilks			1.000	0.002	1.000	191.000	0.968	
Hotelling			0.000	0.002	1.000	191.000	0.968	
Roy			0.000	0.002	1.000	191.000	0.968	
Comparing evolution		Pillai	0.021	4.161	1.000	191.000	0.043	
		Wilks	0.979	4.161	1.000	191.000	0.043	
		Hotelling	0.022	4.161	1.000	191.000	0.043	
		Roy	0.022	4.161	1.000	191.000	0.043	
Error		Square Sum: 106.365; LG: 191; Square Mean: 0.557						

TABLE 4. General Linear Model of Repeated Measures Analysis on Beliefs About Recycling to Contrast Hypothesis 2

			Value	F	LG hypothesis	LG error	Significance	
Immediate T1-T2	Evolution	Pillai	0.000	0.028	1.000	191.000	0.868	
		Wilks	1.000	0.028	1.000	191.000	0.868	
		Hotelling	0.000	0.028	1.000	191.000	0.868	
		Roy	0.000	0.028	1.000	191.000	0.868	
	Comparing evolution	Pillai	0.029	5.708	1.000	191.000	0.018	
		Wilks	0.971	5.708	1.000	191.000	0.018	
		Hotelling	0.030	5.708	1.000	191.000	0.018	
		Roy	0.030	5.708	1.000	191.000	0.018	
	Error	Square Sum: 87.215; LG: 191; Square Mean: 0.457						
	Sustained T1-T3	Evolution	Pillai	0.000	0.003	1.000	191.000	0.957
Wilks			1.000	0.003	1.000	191.000	0.957	
Hotelling			0.000	0.003	1.000	191.000	0.957	
Roy			0.000	0.003	1.000	191.000	0.957	
Comparing evolution		Pillai	0.033	6.616	1.000	191.000	0.011	
		Wilks	0.967	6.616	1.000	191.000	0.011	
		Hotelling	0.035	6.616	1.000	191.000	0.011	
		Roy	0.035	6.616	1.000	191.000	0.011	
Error		Square Sum: 97.218; LG: 191; Square Mean: 0.509						

TABLE 5. General Linear Model of Repeated Measures Analysis on Ecological Concern to Contrast Hypothesis 3

			Value	F	LG hypothesis	LG error	Significance	
Immediate T1-T2	Evolution	Pillai	0.003	0.664	1.000	191.000	0.416	
		Wilks	0.997	0.664	1.000	191.000	0.416	
		Hotelling	0.003	0.664	1.000	191.000	0.416	
		Roy	0.003	0.664	1.000	191.000	0.416	
	Comparing evolution	Pillai	0.006	1.089	1.000	191.000	0.298	
		Wilks	0.994	1.089	1.000	191.000	0.298	
		Hotelling	0.006	1.089	1.000	191.000	0.298	
		Roy	0.006	1.089	1.000	191.000	0.298	
	Error	Square Sum: 90.458; LG: 191; Square Mean: 0.474						
	Sustained T1-T3	Evolution	Pillai	0.000	0.007	1.000	191.000	0.936
Wilks			1.000	0.007	1.000	191.000	0.936	
Hotelling			0.000	0.007	1.000	191.000	0.936	
Roy			0.000	0.007	1.000	191.000	0.936	
Comparing evolution		Pillai	0.005	0.864	1.000	191.000	0.354	
		Wilks	0.995	0.864	1.000	191.000	0.354	
		Hotelling	0.005	0.864	1.000	191.000	0.354	
		Roy	0.005	0.864	1.000	191.000	0.354	
Error		Square Sum: 107.945; LG: 191; Square Mean: 0.565						

TABLE 6. General Linear Model of Repeated Measures Analysis on Attitude Toward Recycling to Contrast Hypothesis 4

			Value	F	LG hypothesis	LG error	Significance	
Immediate T1-T2	Evolution	Pillai	0.001	0.241	1.000	191.000	0.624	
		Wilks	0.999	0.241	1.000	191.000	0.624	
		Hotelling	0.001	0.241	1.000	191.000	0.624	
		Roy	0.001	0.241	1.000	191.000	0.624	
	Comparing evolution	Pillai	0.003	0.615	1.000	191.000	0.434	
		Wilks	0.997	0.615	1.000	191.000	0.434	
		Hotelling	0.003	0.615	1.000	191.000	0.434	
		Roy	0.003	0.615	1.000	191.000	0.434	
	Error	Square Sum: 56.888; LG: 191; Square Mean: 0.298						
	Sustained T1-T3	Evolution	Pillai	0.001	0.251	1.000	191.000	0.617
Wilks			0.999	0.251	1.000	191.000	0.617	
Hotelling			0.001	0.251	1.000	191.000	0.617	
Roy			0.001	0.251	1.000	191.000	0.617	
Comparing evolution		Pillai	0.051	10.176	1.000	191.000	0.002	
		Wilks	0.949	10.176	1.000	191.000	0.002	
		Hotelling	0.053	10.176	1.000	191.000	0.002	
		Roy	0.053	10.176	1.000	191.000	0.002	
Error		Square Sum: 65.640; LG: 191; Square Mean: 0.344						

TABLE 7. General Linear Model of Repeated Measures Analysis on Involvement with Recycling to Contrast Hypothesis 5

			Value	F	LG hypothesis	LG error	Significance	
Immediate T1-T2	Evolution	Pillai	0.007	1.431	1.000	191.000	0.233	
		Wilks	0.993	1.431	1.000	191.000	0.233	
		Hotelling	0.007	1.431	1.000	191.000	0.233	
		Roy	0.007	1.431	1.000	191.000	0.233	
	Comparing evolution	Pillai	0.009	1.677	1.000	191.000	0.197	
		Wilks	0.991	1.677	1.000	191.000	0.197	
		Hotelling	0.009	1.677	1.000	191.000	0.197	
		Roy	0.009	1.677	1.000	191.000	0.197	
	Error	Square Sum: 52.624; LG: 191; Square Mean: 0.276						
	Sustained T1-T3	Evolution	Pillai	0.008	1.608	1.000	191.000	0.206
Wilks			0.992	1.608	1.000	191.000	0.206	
Hotelling			0.008	1.608	1.000	191.000	0.206	
Roy			0.008	1.608	1.000	191.000	0.206	
Comparing evolution		Pillai	0.021	4.036	1.000	191.000	0.046	
		Wilks	0.979	4.036	1.000	191.000	0.046	
		Hotelling	0.021	4.036	1.000	191.000	0.046	
		Roy	0.021	4.036	1.000	191.000	0.046	
Error	Square Sum: 57.706; LG: 191; Square Mean: 0.302							

TABLE 8. General Linear Model of Repeated Measures Analysis on Recycling Behavior to Contrast Hypothesis 6

			Value	F	LG hypothesis	LG error	Significance	
Immediate T1-T2	Evolution	Pillai	0.131	28.719	1.000	191.000	0.000	
		Wilks	0.869	28.719	1.000	191.000	0.000	
		Hotelling	0.150	28.719	1.000	191.000	0.000	
		Roy	0.150	28.719	1.000	191.000	0.000	
	Comparing evolution	Pillai	0.045	8.902	1.000	191.000	0.003	
		Wilks	0.955	8.902	1.000	191.000	0.003	
		Hotelling	0.047	8.902	1.000	191.000	0.003	
		Roy	0.047	8.902	1.000	191.000	0.003	
	Error	Square Sum: 83.899; LG: 191; Square Mean: 0.439						
	Sustained T1-T3	Evolution	Pillai	0.133	29.190	1.000	191.000	0.000
Wilks			0.867	29.190	1.000	191.000	0.000	
Hotelling			0.153	29.190	1.000	191.000	0.000	
Roy			0.153	29.190	1.000	191.000	0.000	
Comparing evolution		Pillai	0.058	11.811	1.000	191.000	0.001	
		Wilks	0.942	11.811	1.000	191.000	0.001	
		Hotelling	0.062	11.811	1.000	191.000	0.001	
		Roy	0.062	11.811	1.000	191.000	0.001	
Error	Square Sum: 89.971; LG: 191; Square Mean: 0.471							

increase in the consumer's recycling beliefs," is supported because recycling beliefs changed markedly due to the effect of the promotion.

By contrast, hypothesis 3 is rejected since there was not any significant change in ecological concern after the promotion was applied.

Similarly, hypotheses 4 and 5 are supported. This is because the sustained responses to the promotion consisted of an increase in the consumer's recycling attitude and involvement, although this evolution occurs in the long term.

Finally, as the immediate and sustained responses to the technique of commitment with block leader consisted of an increase in the consumer's recycling behavior, hypothesis 6 is supported.

CONCLUSIONS

Based on the results of the present research, we can conclude that the immediate response to the commitment encouraged by a block-leader technique is not characterized by an immediate change in the attitudinal components. It has been demonstrated that recycling beliefs and recycling behavior represent the only possibility of people responding to this promotion technique in the short term. Furthermore, with reference to sustained effectiveness, the individuals who maintain their recycling collaboration respond according to changes in ecological and recycling, cognitive, and attitudinal components. In short, the first model of response corresponds to the sequence of behavior adoption characterized by a cognitive dissonance (Festinger and Carlsmith, 1959) whose evolution leads to a more ecological and attitudinal based behavior with time. Therefore it is clear that the technique of commitment by group-leader encouragement shows high levels of effectiveness in the long term.

Further theoretical justification to explain the success of programs based on commitments and block leader to sustain recycling behavior is that proposed by the doctrine of behavioral modification. As it was mentioned above, both cognitive dissonance and behavioral modification theories not only justify a process of adoption other than that of the consistency principles, but also explain the change in beliefs and attitudes in accordance with the indirect effects that result from the previous appearance of the behavior. In conclusion, our results lead us to point out that the classic hierarchy of effects is not the best theoretical framework upon which to base the consistency principle and to explain the immediate response to this kind of technique, although the theories of multiple attributes (Fishbein, 1963) and reasoned action (Ajzen and

Fishbein, 1977) are predominant in the interpretation of recycling behavior. In contrast, we have found that anyone who has agreed to make a commitment to a block leader is not yet convinced but is much more likely to change his/her beliefs and attitudes with time by a desired conduct effect. This assumes that people use observations of their own behavior to determine what their ecological conscience and attitude toward recycling are, just as they assume that they know the attitudes of others by watching social norms. Therefore, this result is relevant to the low-involvement hierarchy, since it involves situations in which recycling behaviors are initially adopted in the absence of a strong internal attitude. However, as the cognitive and evaluative components fall into line after recycling behavior, and considering that the classic hierarchy of effect is predominant in understanding recycling responses, the sustained conduct must be in keeping with a classic protocol of effects. From this interpretation we have found that to achieve a high commitment to recycling as a result of this particular technique effect, it takes some time for people to be able to reduce their dissonance by feeling their own committed conduct.

From a practical point of view, this research leads to recommendations that may serve to improve environmental education plans. This makes it logical to recommend that the first step in environmental recommendation would be to explain where, how, and why citizens are expected to recycle so that they increase their recycling beliefs and emphasis should be put on attitudes toward recycling and ecological conscience because these components appear to be linked to the maintenance of the desired behavior. In other words, it makes it clear that environmental education must start by concentrating more on recycling activities. This starting point must be one of practical necessity since the consistency principle follows behavior. Afterward, the recycling act takes the first step toward ecological conscience and recycling attitudes. In short, the motto could be "learning through acting."

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