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THE EFFECT OF STRENGTH OF COMMITMENT ON NEWSPAPER RECYCLING

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ABSTRACT

To investigate the impact of commitment on newspaper recycling, thirty households were randomly assigned to one of the following three conditions: *Information*, where subjects were informed about the recycling project through a leaflet; *Minimal Commitment*, where subjects were asked to make a verbal commitment to recycle newspapers; and *Strong Commitment*, where subjects signed a statement saying their household would participate in the project. The frequency of participation and the weight of the newspapers recycled was assessed during a two-week intervention period and a two-week follow-up period. The results on both measures indicated that the stronger the commitment, the greater the degree of recycling. In addition, the Strong Commitment group continued to maintain these gains throughout the follow-up period. The effects of commitment were viewed as a successful application of the minimal justification principle and were contrasted with the outcomes of incentive-based programs which rely on powerful external inducements.

This experiment explores the implications of the minimal justification principle in confronting a major environmental problem by investigating the impact of commitment techniques in promoting recycling behavior. It emerges in the context of the increasingly serious environmental problems produced by the excessive disposal of solid waste products in our country. For example, the Oregon Department of Environmental Quality estimates that in a typical year, Americans discard 30 million tons of paper, 26 billion bottles and 48 billion tin cans [1]. The collection and disposal of these products is costly, their disposal often degrades the environment, and their continual production and distribution depletes a variety of non-renewable energy resources.

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Recycling these products is an especially effective way to reduce the severity of such problems. Not only does recycling greatly reduce waste, but it also preserves the environment and reduces the amount of energy required for production of goods. For example, Jacobs and Bailey note that "recycling old newspapers and aluminum cans into new products conserves 70 to 90 percent of the energy required to produce the same products from raw materials. [2, p. 141]

In an effort to promote the occurrence of recycling behavior, recent investigators have explored the impact of a diverse range of techniques. While prompts and informational campaigns have often been employed, by far the most widely investigated technique has involved the use of incentive programs, where various forms of external pressure have been introduced. For example, Geller, Chaffee, and Ingram [3] and Witmer and Geller [4] found that both raffles (ticket for a prize) and contests ($15 award) were effective, relative to a baseline, in promoting paper recycling on a university campus. Jacobs and Bailey, in comparing the effects of information only, weekly pick-ups, monetary payment per pound, and a lottery (for a monetary prize) on newspaper recycling reported that the lottery contingency was the most effective in increasing the number of households participating in the newspaper recycling program [2]. And Luyben and Cummings reported that a package program, combining a prompt, a lottery and a contest, was much more effective in increasing beverage container recycling in college residence halls than a baseline condition that merely provided the prompt and convenient recycling container [5].

Unfortunately, there are several difficulties with these incentive-based programs. First, and perhaps most serious, is the fact that once the programs are removed, the behavioral changes are not maintained. For example, Witmer and Geller found that during a three week post-treatment follow-up period, there was an immediate and marked drop in the amount of newspaper recycled [4]. Second, it is also commonly reported that incentive programs have an extremely low rate of subject participation. For example, in the Geller et al. study, only 3.9 percent of the residents of a university dormitory participated in the contest condition, while only 7.3 percent did so in the raffle condition [3]. Third, under current economic conditions, most of these programs are simply not cost-effective. For example, Jacobs and Bailey, in a careful cost-benefit analysis, report that none of their four treatment groups generated sufficient revenues from the recycled materials to pay for the cost of the operation of the program [2].

In response to the limitations of these incentive-based programs, we have drawn on an alternative social psychological approach which is derived from recent formulations of the minimal justification principle [6]. According to this principle, highly attractive external incentives will not be effective in promoting enduring changes in recycling because they bring such behavior under the control of external inducements, rather than the individual's own convictions

about the value of recycling. The principle suggests that it is only by developing such internal mechanisms of control that individuals will be led to permanently value recycling and, in turn, continue to engage in this behavior after the incentive program is withdrawn.

Within this framework, social psychologists have developed a number of techniques involving minimal forms of external justification which appear to be extremely effective in promoting and sustaining behavioral changes. One such procedure is the foot-in-the-door technique [7]. In this procedure, individuals are first asked to comply to a moderate request and then to comply with a larger, more effortful one. This technique has been reported [8] to be quite effective in a variety of situations where a minimal amount of pressure is first used to induce later compliance with a request that most individuals would not have otherwise agreed to. To date, we know of only two reported attempts to apply this or any other minimal justification procedure, to recycling behavior.

Scott asked individuals to participate in a recycling project by requesting their help in addressing envelopes to be used in a recycling publicity campaign [9]. She preceded this target request with a more moderate one in which they were asked to put a small "CONSERVE RESOURCES–RECYCLE" sign in their windows. She found that this application of the foot-in-the-door technique was more effective in gaining compliance to the request to help address envelopes than a condition which involved no initial request. It was also more effective than an incentive condition, where individuals were offered a monetary payment for complying to the first request. But Scott did not actually ask her subjects to recycle, nor did she ever assess the impact of the recycling publicity drive.

Arbuthnot, Tedeschi, Wayner, Turner, Kressell, and Rush attempted a more direct application of the foot-in-the-door technique in promoting recycling behavior [10]. In their study, individuals were either asked to complete a recycling survey, to recycle cans for one week, to send a post card to a city council member in support of recycling programs, or to comply to various combinations of these requests. Arbuthnot, et al. found that compliance with the target request to recycle, as assessed one to two months later, as well as during an eighteen month follow-up period, was a gradually increasing function of the number of prior multiple requests. Unfortunately, recycling behavior was never directly measured, since Arbuthnot et al. assessed it by means of self-reported levels of usage during a telephone survey.

In the following study, we have attempted to remedy some of the problems with the two preceding studies by directly measuring the occurrence of recycling behavior. We also sought to isolate the impact of commitment alone, independent of its relationship to the subsequent, somewhat larger request to comply which characterizes the foot-in-the-door procedure. We view commitment as a direct application of the minimal justification principle where an individual's stated intention to engage in a particular action is made under conditions of modest external pressure. The principle suggests that when such a

decision is made in the presence of minimal, rather than strong, external pressure, considerable commitment to the action will be generated. In addition, we investigated the effect of two levels of commitment. We speculated that the stronger the commitment an individual makes, the more likely he will be to participate in and maintain recycling behavior once the commitment contingencies are removed. Accordingly, individuals were asked to recycle under one of three conditions: 1) Information, 2) Minimal (verbal) Commitment and 3) Strong (written) Commitment.

METHOD

Subjects

The subjects in this study were thirty households recruited door-to-door. They were located in two southwest Portland upper-middle class suburban neighborhoods. Recruitment was done from mid to late afternoon on consecutive Saturdays and Sundays in July, 1982. Subjects in the two commitment conditions were contacted in person, while the subjects in the Information condition were contacted through a leaflet. Households were assigned to one of the three conditions as determined randomly before contact.

Procedure

Subjects were informed that the project was to test the feasibility of neighborhood recycling projects. They were then informed of the three guidelines for participating in the project. These were: 1) placing a week's newspapers in a paper or plastic bag; 2) placing a decal on that bag, and 3) placing the bag on their doorstep at a pre-determined date. Subjects were given four coded decals to be placed on their recycled paper. These decals were designed so that the conditions of participating subjects could be easily identified when the paper was collected. Subjects were told that the decals were necessary to record the number of people participating in the project. They were then given the first two week's pick-up dates. After receiving this information, six households said that they were not interested in the project. Six more randomly selected households were then approached, and they were all willing to participate.

Subjects were divided into the following three conditions:

- Information: Households assigned to this condition received leaflets explaining the study, outlining the guidelines for participation, and listing the first two pick-up dates. The leaflets were left at their door, and there was no personal contact with the experimenters until the follow-up phase.
- Minimal Commitment: Households in this condition were informed about the study, explained the guidelines for participation, and given a slip of paper with the dates of the first two paper pick-ups on it. They were then

asked, "Will you commit your household to participating in this recycling project for two weeks?" They all complied with this request.

- Strong Commitment: These households received the same information as the Minimal Commitment subjects, but they were then asked to sign a commitment statement which read: "In the interest of conservation, I commit my household to participating in this newspaper recycling project for two weeks." The commitment statement was a carbon form so that both the experimenter and subjects could keep a copy of the signed statement. They were informed that the form was not legally binding. Complete compliance was once again obtained.

After two weeks, all of the subjects were recontacted in person. It was verified that the Information subjects received the initial information. Both commitment conditions were informed that their commitment to the project was over. At this point, all subjects were told that the project would continue though for another two weeks, and they were urged to participate. Once again they were given slips of paper with the dates of the next two paper pick-ups. Two measures of recycling were kept throughout the course of the study. The first was the frequency of each household's participation and the second was the weight of the paper each household recycled.

RESULTS

One household in each commitment condition was removed from the data analysis because they were absent for one or more weeks of the study. An Information household was randomly removed from the data pool to equalize the groups. Table 1 lists the frequency of participation in the recycling project and the weight of the newspapers recycled under each condition during each phase of the study.

This table indicates that the frequency of participation increased during the two week intervention period as the degree of the households commitment to do so became stronger. Both commitment groups were much more likely to participate in the project than the Information condition, with the greatest degree of participation in the Strong Commitment condition. An overall chi-square revealed that the groups differed significantly ($X^2 = 11.7$, $df = 2$, $p < .01$) on this measure and pair-wise comparisons revealed that both the Minimal ($p < .05$) and Strong Commitment ($p < .01$) conditions differed significantly from the Information group. However, during this phase of the study, the two commitment conditions did not differ in terms of the frequency of participation.

The same overall trend was present for the total weight of the newspapers recycled during the intervention phase, with the two commitment groups recycling considerably more newspapers than the Information group. However,

Table 1.

Condition	Sample Size	Frequency of Participation		Pounds of Paper Collected	
		Intervention	Follow Up	Intervention	Follow Up
Information	9	3	4	70	57
Minimal Commitment	9	10	4	210	54
Strong Commitment	9	13	11	247	166

an analysis of variance between the groups on this measure only approached significance ($F = 2.7$, $df = 2/24$, $p < .087$). Separate t-tests of the differences between individual groups revealed that the Strong Commitment condition only differed significantly ($p < .04$) from the Information group and that the difference between the Minimal Commitment and Information groups was marginally significant ($p < .065$).

Table 1 also compares the groups on these two measures during the subsequent follow-up period. During this phase of the study, the Information group displayed little change in their recycling behavior. However, once they were no longer bound to their commitment to recycle, the Minimal Commitment group appeared to cease doing so and their performance was virtually indistinguishable from the Information group. In contrast, the Strong Commitment group continued to be involved in the project during this phase of the study. This was true for both the frequency of participation and the weight of the newspapers recycled. There was a significant ($X^2 = 8$, $df = 2$, $p < .05$) overall difference between the groups in terms of frequency of household participation during this phase of the study and pair-wise comparisons revealed that the Strong Commitment condition differed from both the Information ($p < .05$) and Minimal Commitment ($p < .05$) groups. However, the Minimal Commitment group did not differ from the Information group on this measure during the follow-up period.

There was also a significant ($F = 4.6$, $df = 2/24$, $p < .02$) overall effect on the weight of the newspapers recycled during the follow-up period. Separate comparisons between the groups revealed that the Strong Commitment condition differed significantly from both the Information ($p < .045$) and Minimal Commitment ($p < .016$) groups. However, the Minimal Commitment and Information groups did not differ in terms of the weight of newspapers recycled during the follow-up periods.

DISCUSSION

These findings illustrate three important effects of the commitment techniques employed to promote recycling behavior in this study. 1) Gaining a commitment from individuals to recycle increased the frequency of their participation, as well as the weight of the material they recycled. 2) The greater the strength of the individual's commitment to recycle, the greater the magnitude of both these outcomes. 3) Individuals who had made a strong commitment to recycle continued to do so, even though they were no longer bound by their original commitment. In contrast, those who had made only a minimal commitment did not maintain their prior gains in recycling. Thus, the Strong Commitment conditions displayed a consistent superiority to all other conditions on both measures of recycling throughout the course of this study.

The maintenance of recycling behavior in the Strong Commitment condition during the follow-up period is a particularly noteworthy outcome of this study. In this respect, it is unlike the outcome of virtually all attempts to sustain recycling behavior under incentive-based programs which have traditionally been characterized by an abrupt cessation of recycling once the external incentive is withdrawn. Further, the high rate of subject participation in the Strong Commitment condition is also a distinctive outcome of this study. Seven of the nine households in this group participated in the study during the intervention phase and the same seven continued to do so during the follow-up phase. Thus, neither the increasing occurrence of recycling nor the greater weight of the newspapers recycled under the Strong Commitment condition can be attributed to changes in the behavior of only a few individuals. Rather these changes were spread throughout the households who participated under this condition. Again, this outcome is unlike the outcome of incentive-based programs which are usually characterized by a low rate of subject participation. In short, both of these results suggest that commitment techniques may be an especially promising method to overcome the difficulties incentive based approaches have in promoting sustained changes in recycling across a large number of individuals.

These findings are consistent with recent attempts to apply commitment techniques to other environmental problems, most notably the conservation of energy. For example, Pallak and Cummings have reported that asking individuals to make a public commitment to conserve energy, under conditions where their names would be released to the media, was an extremely effective way to reduce their consumption of both electricity and natural gas [11]. Moreover, they observed that these reductions were maintained throughout a one year follow-up period, when the public commitment contingency was no longer in effect. Becker has also reported that asking individuals to make a commitment to a difficult goal of reducing their electricity consumption by 20 percent was extremely effective in curtailing their usage of electricity [12]. In a different setting, Bachman and Katzev have reported that asking non-bus riders to make a

simple commitment to a performance goal of making at least one round trip on the bus once a week was effective in increasing the frequency of bus ridership [13]. They also observed that these increases were maintained during a follow-up period in the absence of the commitment requirement. Finally, Katzev and Johnson, have recently reported that a multiple commitment procedure (i.e., the foot-in-the-door technique), where individuals were first asked to answer a short energy conservation questionnaire and then to make a commitment to curtail their consumption of energy, led to both immediate and longer term reductions in the consumption of residential electrical energy [14].

There are several possible interpretations for these findings, as well as those we have currently reported. For example, White, Curbow, Costanzo and Pettigrew have suggested that the behaviors induced by commitment techniques focus an individual's attention on the anticipated approval or disapproval of other individuals [15]. Pallak, Cook and Sullivan have suggested that commitment makes an individual's beliefs more salient and, thereby, less easily ignored in subsequent situations [16]. Others have proposed a self-perception account in which complying with a commitment to undertake a particular action leads individuals to see themselves as people who are concerned about that action and should engage in the sorts of behaviors which are consistent with this self-perception [7, 17]. Finally, Cialdini has recently suggested that a decision to behave positively in a certain direction will create a commitment to that action which is highly resistant to the "influence of subsequent data concerning the wisdom of the decision." [18, p. 470]

At the present time, there is no clear basis in the current research on commitment which would permit us to decide between these various alternatives. Indeed, they all seem capable of accounting for the findings we have reported. For example, it is clear that, by asking individuals in the Strong Commitment condition to formally sign a written form, we heightened their concern about not fulfilling this public commitment. But it surely made their commitment more salient than was the case when the commitment was only made verbally. Similarly, the stronger the individual's commitment to recycle, the greater the likelihood that they would come to see themselves as individuals who believed in recycling and, thus, should continue to do so when no longer bound to the commitment. But it could have also increased the resistance of their decision to recycle, so that they would be likely to continue even when told that the commitment phase of the study had ended.

Thus, each of these interpretations seems to provide an equally plausible account for the results of the current study. While they appear to disagree over the exact mechanism responsible for these findings, they do agree that getting individuals involved in recycling behavior by inducing them to make a commitment to do so can act as a powerful catalyst for initiating and maintaining recycling behavior. It is also important to point out that they also agree on the importance of utilizing procedures that entail relatively modest

justifications for inducing behavioral change. In this respect, they should be distinguished from those strategies which advocate the use of highly attractive external inducements. Clearly there were no such external inducements for participating in the recycling project in the current study. As a result, any reinforcement for recycling under the commitment conditions we employed could only have come from a self-reinforcement process [19], that emerged because the subjects shared the values associated with engaging in such behavior. Although we can only speculate, perhaps the commitment techniques we employed led subjects to attribute the causes of their recycling behavior to their own internal convictions, rather than to any external pressures imposed on them. This in turn, may have led them to find their own reasons for recycling, to begin to even like doing so, and, as a result, to continue to perform these behaviors on their own. Furthermore, we speculate that the stronger the individual's commitment to recycle, the greater the likelihood that they develop such convictions and come to view recycling as important and reinforcing in itself.

In summary, each of the theoretical accounts we have reviewed, as well as the previous research which has employed commitment techniques in promoting energy conservation, supports the importance of relying on moderate, rather than strong forms of external influence. The impact of commitment techniques employed in the current study also makes it clear that by applying the minimal justification procedure in this fashion, recycling behavior can be effectively promoted. This suggests that this principle not only provides a number of new possibilities for promoting enduring changes in recycling, but that it might also be fruitfully applied in developing programs for dealing effectively with a number of other environmental problems.

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