
The Baby is Sick/The Baby is Well: A Test of Environmental Communication Appeals

Carl Obermiller

The "sick baby" appeal is a common basis for communications in social marketing. The sick baby appeal focuses on the importance of the issue and the severity of the need for help. Ellen et al. (1991) and Fine (1990) proposed that, when concern is already high, a sick baby appeal may reduce perceived consumer effectiveness. They suggested an alternative approach, a "well baby" appeal, which would stress the significance of individual action. Two experiments supported the hypothesis that the effectiveness of these appeals depends on the relative salience of the issue. Further, the results generally supported the proposed processes by which the appeals operate—mediation of perceived concern and perceived consumer effectiveness.

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Introduction

In the months after Earth Day 1990, concern for environmental problems reached an apex, and optimism reigned. Concern remains high since then, but little tangible progress appears to have been made. Public agencies and private industry are facing the fact that it is not enough to apprise the public of the problems; purposeful communication strategies must be identified that will persuade consumers to engage in more environmentally friendly actions.

Limited research has investigated communication strategies for environmental marketing or social marketing in general. Bloom and Novelli (1981) identified three obstacles to such research. One is the lack of resources to conduct sophisticated advertising campaigns or testing of advertisements. A second is perceived constraints on acceptable types of appeals that might limit use of fear, humor, or anything other than straightforward presentation of information. A third is the felt need to communicate large amounts of information, which probably precludes many subtle communication appeals. Perhaps due to a lack of research, much social marketing appears to be guided by an assumption that the audience wants to help and needs merely to be informed.

Fine (1990) labeled the most common approach to social marketing as the "sick baby" appeal, which focuses on the problem (i.e., "the baby is sick") and emphasizes the problem's severity. Based on the assumption that people allocate their efforts to matters that are important and severe, the purpose of such appeals is to persuade the audience that the issue is important and the problem is acute. Fine (1990), however, questioned the need to highlight the severity of many social problems, wondering if doing so might make the problems appear insoluble. He proposed an alternative approach, the "well baby" appeal. The heart of the "well baby" appeal is an affirmation of the individual's action and its potential for significant effect (i.e., "the baby is sick, but you can make it well"). Thus, whereas the "sick baby" appeal works by increasing concern for the problem, the "well baby" appeal works by increasing the belief that one can do something to solve the problem.

The logic of "sick baby/well baby" appeals was applied to environmental marketing by Ellen et al. (1991). Their study showed that environmental

marketing communications were more effective when consumers believed they could be effective in solving the problem. The authors concluded that "well baby" appeals should be preferred in environmental marketing, since many public opinion polls indicate a pre-existing high level of concern for environmental problems. Given already high concern for the environment, further promotion of the severity of the problem may make it seem too large to be solved. The authors called for further research on the effectiveness of communication appeals that "reinforce behavior through emphasis on success rather than failures" (p. 113) and on the effect of various appeals on perceived consumer effectiveness.

The purpose of this study is to test sick baby and well baby appeals in communications that advocate environmentally friendly actions. In the next section, the theoretical bases of the appeals are examined and research hypotheses developed.

Theoretical Bases and Research Hypotheses

"Sick baby" appeals present the problem as severe, threatening, or otherwise important. Several effects on information processing should follow. Attention to the message should increase. Emotional responses may be evoked, which may enhance comprehension. Both the increased attention and emotional processing may make the information or issue more available in memory when behavioral responses are appropriate. If the claims are believed, concern for the issue should increase, where concern reflects the evaluative weighting or importance of a social problem. The increased attention and concern may result in more favorable attitudes toward action advocated or implied in the message.

The "sick baby" appeal operates through an increase in concern. If this concern is felt as a personal threat, the responses to such an appeal should be similar to those that have been identified for fear appeals (see Tanner, Hunt, and Eppright 1991). The success of fear appeals in advertising has been shown to depend on establishing a moderate level of arousal and provision of a coping response, i.e., a means to remove the threat or solve the problem, if consumers have not already learned a coping response. If the sick baby appeal evokes a sensed threat, as would a fear appeal, and appropriate coping responses have already been learned, the sick baby appeal may trigger the desired behavioral response. (As Tanner et al. point out, however, threats may lead to maladaptive coping

behaviors—responses that reduce the perceived threat but do not solve the problem.)

If the concern is not felt as personal but as a more general social problem, the sick baby appeal may still be effective. Numerous studies have demonstrated that agreement to provide help in cases of social need is influenced by the salience of the need, where salience can be interpreted as perceived importance (see Granzin 1991 for a brief review).

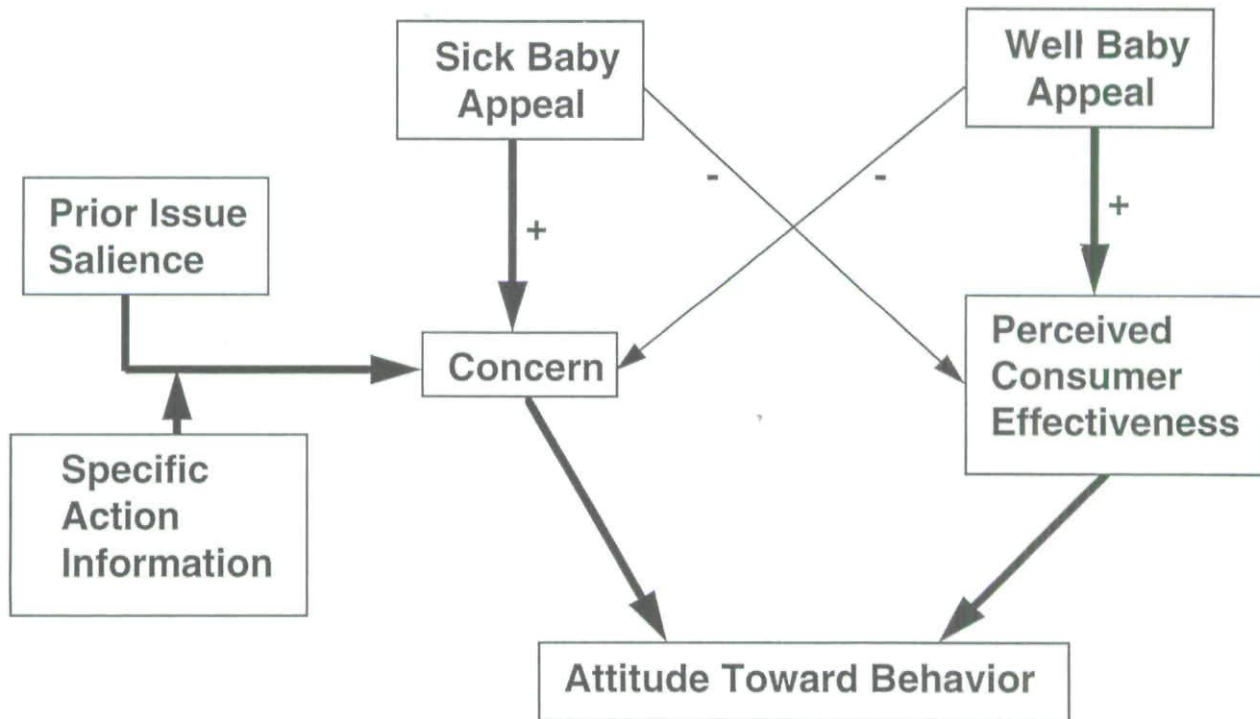
In contrast to the "sick baby" appeal, which works through increasing concern, the "well baby" appeal appears to operate mainly through its affirmation of the significance of individual action, which increases perceived consumer effectiveness (PCE). Ellen et al. (1991) distinguished between PCE and concern, both conceptually and empirically. PCE refers to the belief that a specific action will be significant in the solution to a problem. PCE is independent of concern—one may be concerned about a famine in Africa but believe that no action will significantly affect it. Other researchers have examined PCE with slightly different conceptual definitions; for example, Allen and Dillon (1983) examined the moderating effects of a similar construct, which they labeled general feeling of effectiveness.

In order to identify instances that favor "sick" or "well baby" appeals, we need a theoretical framework that integrates concern for the issue and perceived consumer effectiveness. Concern for the issue appears to be a necessary condition for message effectiveness—when concern is low, the message must increase it. However, when concern is high, the message may be more effective if it bolsters the belief that individual action can be effective. Thus, one approach to a unifying theoretical framework is to incorporate a priori concern for the issue, which attitude researchers refer to as prior issue salience.

A conceptual model of a framework that integrates the two appeals, moderated by prior issue salience, is illustrated in Figure 1. Sick baby appeals increase concern. Well baby appeals increase PCE. Further, the sick baby emphasis on the severity of the problem may reduce PCE by making the problem seem overwhelming. Likewise, the well baby appeal, by affirming the efficacy of individual action, may reduce the perceived importance of the problem, thus, reducing concern. In both cases, the positive effects are expected to be stronger than the negative effects. Both concern and PCE are expected to enhance attitude toward the issue relevant behavior.

The model provides a common framework for considering "sick baby" and "well baby" strategies. It

Figure 1
Sick Baby/WellBaby Ad Effects



also solves a methodological problem inherent in any comparison of the two. It is difficult to conduct a main effects study to address the question of relative effectiveness of any two communication appeals because the variance within operationalizations is likely to exceed or mask the differences between the two appeals. For instance, one would have no way to determine if the sick baby and well baby appeals were of equal quality. Thus, an alternative design was to examine the relative effectiveness of the two appeals, using a discriminating factor that was expected to moderate their effects. Such a discriminating factor is prior issue salience. When prior issues are salient, concern for the issues should be already high, and there should be no need for "sick baby" emphasis on the importance of the problem. However, when prior issue salience is low, concern for the problem is likely to be low, and it should be necessary to heighten this concern with "sick baby" appeals.

As illustrated in Figure 1, attitude toward a relevant behavior is enhanced both by increasing con-

cern (i.e., the belief that the issue is important and in need of address) and by the belief that one's actions can contribute to the solution. But, both components are proposed to have curvilinear relationships with attitude, such that increases in the inputs show decreasing returns. Thus, if concern is already high, due to prior high salience of the issue, promotions aimed at increasing concern should have little positive effect. In fact, as the perceived seriousness of the issue is increased, the weak negative effect on PCE may actually reduce attitude toward the behavior. Consumers may be very concerned about the issue but be convinced that it is so severe that an individual can do nothing to solve the problem. In contrast, when concern is already high, promotions aimed at increasing perceived consumer effectiveness should be effective at enhancing attitude toward the behavior, since the increase in PCE will complement the already high level of concern. Thus, the effectiveness of sick versus well baby appeals should depend on the level of prior salience of the issue, as follows:

H1: Well baby appeals will be more successful (relative to sick baby appeals) when prior salience of the issue is high; sick baby appeals will be more successful (relative to well baby appeals) when prior salience of the issue is low.

The second hypothesis predicts, first, that specific action information (i.e., information about what individuals could do to address the problem) has effects independent of appeal and should, therefore, be considered as conceptually separate. (This is contrary to the conceptualization in Ellen et al. [1991], which considered specific action information to be part of the "well baby" appeal.) Second, it predicts that specific action information effects are moderated by issue salience and by appeal. If the perception of concern poses a threat, consumers will need a coping response (Tanner, Hunt, Eppright 1991), and the specific action information may offer one. When prior issue salience is low, it is less likely that consumers will already have learned a coping response. When prior issue salience is high, coping responses should be available in memory, so specific action information should be redundant. Thus, the two parts of the hypothesis are as follows:

H2: Specific action information will have effects independent of the sick/well baby appeal distinction.

- a: When issue salience is low, specific action information will enhance well baby appeals.
- b: When issue salience is high, specific action information is likely to be unnecessary, and it will have no additional effect.

In addition to these hypotheses, the study was designed to investigate the processes underlying the theoretical framework in Figure 1. To investigate these propositions, several items were included to measure perceived importance or concern for the issue and perceived consumer effectiveness.

Study 1: Water and Energy Conservation

In the first study, the two issues were consumer water conservation and consumer energy conservation. At the time of the study, the local area was in the early stages of a severe drought. Lack of rainfall, low levels of water reservoirs, and the serious repercussions these could have during the ensuing summer months had received considerable publicity. On this basis, water conservation was selected as an is-

sue of relatively high salience. Consumer energy conservation, while occasionally promoted under the general umbrella of environmental conservation, received no such special interest and probably received less than its due as a result of the preoccupation with the drought. Accordingly, it was selected as an issue of relatively low salience.

Communication Appeals and Specific Information

Complete texts of the communication appeals are included in Appendix 1. Sick and well baby appeals were developed by the author and revised after consultation with other informed academics. The foremost concern was to write copy that represented the concepts in the two appeals. A second concern was to minimize non-treatment differences between the two messages. To that end, the communications shared a simple structure. The first sentence was identical across appeals: It identified the issue, e.g., "Seattle is facing a water shortage" or "The energy crisis is still with us." The next five or six lines identified the problem, describing it in either sick-baby or well-baby method. The final sentence, also identical across conditions, was an appeal to conserve water or energy, as was the case. The presence of information about specific behaviors was manipulated by inserting a single sentence into the sick and well baby messages. The list of specific actions was developed in consultation with energy and water conservation agencies. These behaviors were identified as the most practical and effective steps consumers could take individually.

Subjects and Procedure

Subjects were 95 adults in a convenience sample. Employees of four business firms agreed to recruit participants, screening to include only those who paid their own utility bills; the recruiters were not aware of the hypotheses or the experimental treatments. Convenience sampling was appropriate because the research addressed a theoretical question about the information processing of communication appeals and there was no intent to generalize the size of the effects to any larger population. On the other hand, because the theory dealt with motivation to process different pieces of information, it was reasonable to restrict the sample to those who paid for and, thus, were motivated to conserve energy or water.

The study was introduced as a "Public Service Ad-

vertising Agency Research Project," an effort to understand public response to various appeals that might be used in advertising. Initial questions measured understanding and perceived importance of water and energy conservation problems and demographics. The second and third pages had, on randomly ordered separate pages, the communications regarding water and energy conservation, and the dependent measures. Questionnaires corresponding to the four experimental conditions were randomly ordered prior to distribution. For each subject, the communications on the two issues were of the same type, i.e., if the subject was in the sick baby condition, both communications were of this type. Thus, the design was a 2 X 2 (communication appeal X information presence) between-subjects factorial with issue (water or energy conservation) as a within-subjects factor.

Dependent Measures

A complete listing of the dependent scales is included in Appendix 2. The first two items measured communication effectiveness. The first was a direct measure of the communication's influence; the second, an indirect measure, was included to avoid a possible social desirability bias. Measures of the influence of the communications were used rather than standard measures of attitude on the assumption that the former is a strong predictor of the latter in practice and a more sensitive measure given the cover story. There was also a concern that subjects might resist displaying any attitude changes. The remaining seven items were intended to measure process variables. Items 3 and 4, measures of PCE, were adapted from Ellen et al. (1991); item 5 was a measure of personal control that was also expected to reflect PCE. Items 6 and 7, also adapted from Ellen et al. (1991), and items 8 and 9 were measures of perceived concern or perceived importance of the issue. All items were 5-point scales with higher numbers indicating greater degrees of communication effectiveness, perceived consumer effectiveness, or perceived importance.

After collecting the data, two data reduction analyses were conducted on the dependent measures. First, on the basis of high inter-item correlations (.57 for water and .66 for energy; both $p < .001$), the first two measures were averaged to produce a single effectiveness score for the communications. Second, the remaining seven items were factor analyzed, separately for water and energy. Varimax rotations resulted in two-factor solutions that accounted for 71%

of the variance for water and 63% of the variance for energy. Based on low factor loadings, items 5 and 6 ("personal control" and "affects me personally") were deleted; and a PCE score was computed as the average of items 3 and 4 from the first factor, and a perceived importance score was computed as the average of items 7, 8, and 9 from the second factor. These computations were based on similar factor structures for the two issues and item factor loadings on the relevant dimensions of .79 or above. As a result of the data reduction, each communication had associated measures of effectiveness (EFF), PCE, and perceived importance (PI).

Results

Descriptive statistical analyses were conducted both to summarize the sample characteristics and to check on the prior equivalence of the four experimental conditions. The sample was 63% male, well-educated (20% some college, 46% college graduates, and 28% some post-graduate work), with a median household income in the range of \$55,000 to \$65,000, an average age of 36.9, and an average household size of 2.5. Analyses of variance and chi-squared tests indicated no statistically significant ($p < .05$) differences among the four experimental conditions for any of the demographic variables.

Water and energy conservation were selected, in part, to represent different levels of issue salience. Measures of prior perceived importance and personal understanding were taken to check the presumed difference in issue salience. Analyses indicated no statistically significant difference on either dimension. Both issues were rated very important, a mean of 4.21 for water conservation and 4.26 for energy conservation (five-point scale). Ratings of understanding of the issues were lower, 3.56 for water and 3.52 for energy. It is possible that these measures were influenced by both social desirability and consistency biases that produced high and similar ratings of importance. Subsequent results for the dependent measures did reflect the intended manipulation of issue salience. The results for the EFF, PCE, and PI measures, broken down by communication appeal and presence/absence of specific action information for the two conservation issues, are displayed in Table 1.

Hypothesis 1 implies an interaction between issue salience and communication appeal. Hypothesis 2 implies a three-way interaction among salience, appeal, and information. To test these hypotheses, SPSS MANOVA was used to examine differences in the

Table 1
Communication Effectiveness (EFF), Perceived Consumer Effectiveness (PCE), and
Perceived Importance (PI): Study 1

		Water Conservation		Energy Conservation	
		Sick baby	Well baby	Sick baby	Well baby
	EFF	3.28	3.14	3.34	2.41
<u>With Info</u>	PCE	3.19	3.68	2.71	3.29
	PI	4.16	3.52	4.40	3.89
	EFF	2.12	3.00	2.94	2.44
<u>Without Info</u>	PCE	3.57	3.76	3.09	3.27
	PI	4.01	3.90	3.79	4.05

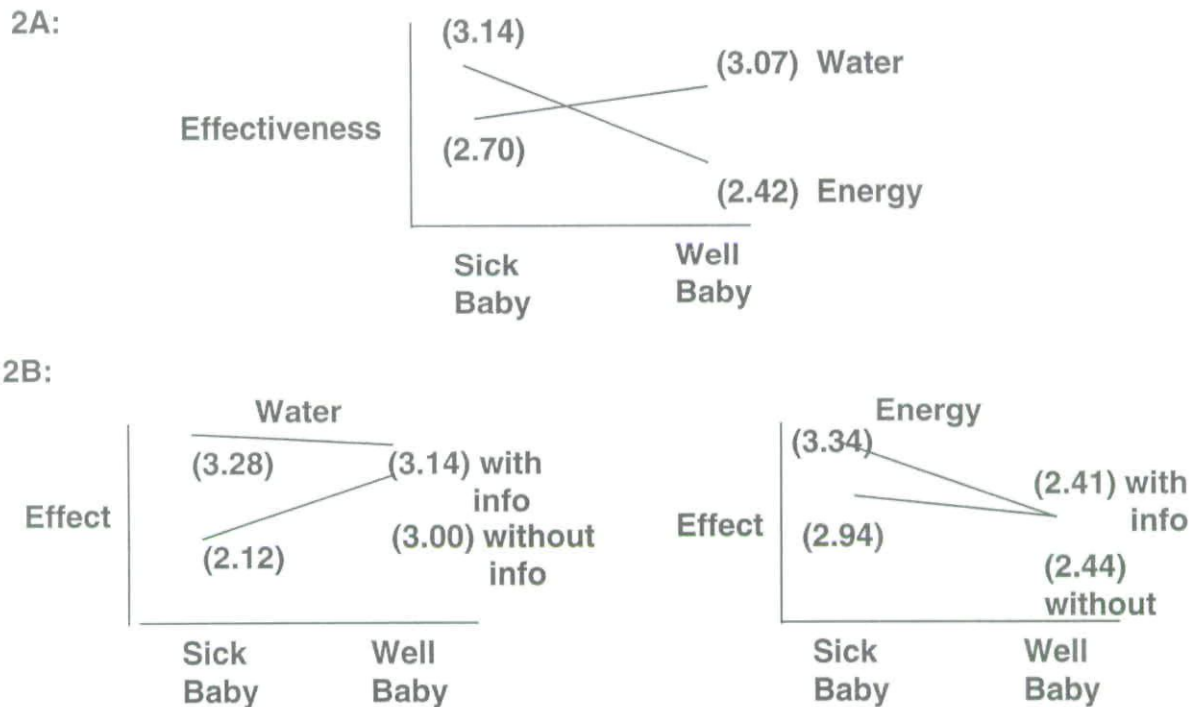
^aAll measures are averages of 5-point scales, with higher numbers indicating greater effectiveness, perceived consumer effectiveness, and perceived importance.

Study 1 Anova Results

<u>Between Subjs Effects</u>	<u>ss</u>	<u>df</u>	<u>F</u>	<u>sig</u>
within cells	122.88	91		
constant	1886.56	1	1397.16	.00
appeal	1.09	1	.81	.37
information	3.27	1	2.42	.12
appeal by information	.65	1	.48	.49

<u>Within Subjs Effects</u>	<u>ss</u>	<u>df</u>	<u>F</u>	<u>sig</u>
within cells	41.44	91		
issue	.23	1	.50	.48
appeal x issue	12.77	1	26.95	.00
info x issue	7.44	1	16.34	.00
appeal x issue x info	6.97	1	15.30	.00

Figure 2
Communication Effectiveness by Issue, Appeal and Information:
Study 1



communication effectiveness measures. Appeal and information were treated as between-subjects factors and issue salience was treated as a within-subjects factor. There were no significant main effects of either communication appeal or information. However, as hypothesized, there were significantly different effects of appeal and information across the issues. H1 predicted relative success for the sick baby appeal for energy, the less salient issue, and relative success for the well baby appeal for water, the more salient issue. That interaction is illustrated in Figure 2 (a), and the pattern of means supports the hypothesis. The simple main effect of appeal is statistically significant for energy ($F=11.7$; $p<.01$) though not quite for water ($F=2.7$; p ns).

For the less salient issue, energy conservation, the sick baby appeal resulted in roughly a half-scale point improvement in effectiveness relative to the well baby appeal. For the more salient issue, water conservation, the opposite result was obtained. Results of the

analysis of covariance, discussed below, were consistent with these findings.

As with many three-way interactions, the results relevant to H2 are not subject to a simple explication. In this instance, the research question focuses on the independence of specific action information from the sick/well baby appeals. The results indicate that inclusion of specific information generally enhanced communication effectiveness. Although the main effect of the presence of specific information was not significant (a mean EFF of 3.04 with versus 2.62 without, $F=2.42$), in three of the four conditions information had a beneficial effect, which shows up in significant interactions. H2 further specifies the effects of action information to be a function of the combination of appeal and issue salience. This analysis did reveal a significant three-way interaction, but, as Figure 2 (b) illustrates, the results are not consistent with the logic of H2a and H2b. For the less salient issue (energy conservation), information had

a modest positive effect, and, in fact, had no positive effect for the well baby appeal. On the other hand, for the more salient issue (water conservation), information had a larger positive effect, but again, more so for the sick baby appeal. Generally, specific information enhanced the sick baby appeals (means of 3.3 versus 2.56; $t=8.57$, $p<.01$), perhaps due to a need for coping responses that sick baby appeals encourage. The influence of information on the effectiveness of well baby appeals was small.

The pattern of results for the measures of perceived consumer effectiveness and perceived importance in Figure 2 was consistent with the theoretical framework for sick and well baby appeals. In all four information \times issue conditions, well baby appeals resulted in higher PCE scores, and analysis of variance showed the main effect to be statistically significant ($F=5.00$, $p<.05$). The only additional statistically significant effect for PCE was a main effect of issue; respondents felt higher PCE for water conservation.

The effect of appeal on perceived importance is also as expected, a main effect ($F=3.07$, $p<.05$), with sick baby appeals resulting in slightly higher levels of concern. Further, there was a significant appeal by information interaction effect ($F=6.50$, $p<.01$), such that sick baby appeals with information resulted in significantly higher levels of concern than either sick baby appeals without information or well baby appeals.

To test formally for the mediating effects of PCE and concern, analyses of covariance were conducted. Separate analyses were conducted for the two issues with appeal and information as independent variables and PCE and perceived importance as covariates. For water, the more salient issue, PCE was a statistically significant covariate ($Beta=.283$, $t=2.63$, $p<.01$) and perceived importance was non significant ($Beta=-.026$). For energy, the less salient issue, the opposite results obtained: PCE was non significant ($Beta=.182$, $t=1.75$, p , ns); and, perceived importance was significant ($Beta=.299$, $t=2.87$, $p<.01$). Thus, the relationship between appeal and ad effectiveness is better explained by PCE for water conservation and by perceived importance for energy conservation, as suggested by the logic underlying H1.

However, with the covariates included, the main effect of type of appeal remained statistically significant ($F=5.03$, $p<.05$, for water and $F=8.34$, $p<.01$, for energy), which indicates that PCE and concern do not completely mediate the relationship between appeal and ad effects.

Study 2: Recycling and Solid Waste Reduction

The results of the first study were encouraging. They suggested that the effect of appeal differs across issues and that appeal and specific behavior information should be considered as separate causal factors. In general, any empirical result requires replication and the purpose of the second study was to repeat the first study's findings as well as to address several specific issues of concern in the first study. First, the manipulation check of relative salience of the issues failed to confirm the intended difference. Although, as noted above, the failure may have been due to measurement bias, it raises the question that the results may be due to some uncontrolled difference between water and energy conservation. Second, the operationalization of theoretical constructs such as communication appeals necessarily involves confounding differences in language. Multiple operationalizations and replications are perhaps the only way to establish construct validity, and, hence, confidence in the theorized relationships. And, finally, several subjects in study 1 commented that the communications were not very high quality "ads"; so, in study 2, the communications were not referred to as advertisements.

In design, the second study was very similar to the first. Two issues were selected—the more salient issue was recycling; the less was solid waste reduction. The geographic area where the research was conducted takes pride in its recycling efforts. Curbside recycling has been available since 1986, and participation in household recycling is among the highest in the country. In the community, recycling has been strongly promoted by public agencies as well as businesses, schools, churches, and clubs. Just one week before the data were collected a central public agency decided to shift its strategic focus from recycling to solid waste reduction. Their rationale was that awareness and understanding of the need to recycle were near their ceilings and the timing was appropriate to move on to the more formidable task of reducing the amount of solid waste that is generated. At the time of the study, no significant public promotion had been aimed at solid waste production, and members of the solid waste utility generally agreed that it was a less salient issue than recycling. Thus, prevailing conditions presented an excellent opportunity to compare sick and well baby appeals with two related issues that appeared to differ in prior issue salience.

Communication Appeals and Specific Information

Sick and well baby appeals again were developed by the author. The aim was to focus on two aspects of a single issue—garbage. The more salient aspect was recycling; the less salient aspect was solid waste reduction. Specific behavior information was developed in consultation with public solid waste utility planners, who identified the most effective actions for individual consumers. Again, effort was taken to make the essays as similar as possible, beyond the manipulations. Because of the similarity of the issues, all the essays introduced the problem in the same way, referring to the problem of garbage. It was hoped that focusing on two aspects of a single issue would reduce the potential confounding that may have been present in the first study. Complete texts of the communication appeals are included in Appendix 1.

Subjects and Procedure

The data for study 2 were collected about six months after study 1. Subjects were 205 adults, sampled by the same method as in study 1 through contacts at 14 area businesses. Subjects were screened to include only heads or co-heads of households. This time the study was introduced as a university research project rather than as an advertising agency research project. The survey measures and experimental design were essentially identical to those of study 1. Dependent measures are listed in Appendix 2.

Results

Subjects were 60% male, with an average age of 33, household size of 2.7, well-educated (29% some college, 43% college graduates), and with a median household income within the range of \$45,000 to \$55,000. Analyses of variance and chi-squared tests indicated no statistically significant differences on these variables among the four between-subjects conditions.

The ratings of understanding and importance supported the intended manipulation of issue salience. Both the differences in rated importance (3.83 for recycling and 3.71 for solid waste reduction, $t=2.17$, $p < .05$) and rated understanding (3.62 for recycling and 3.01 for solid waste reduction, $t=9.25$, $p < .01$) were statistically significant, with recycling rated as higher on both dimensions.

The two principal dependent measures were essentially similar to those of the previous study. One dif-

ference was the change of the first item to drop reference to the communication, thus reading, How likely are you to try to recycle (reduce solid waste production)? The second item was, again, an indirect measure, referring to the essay's success in influencing others. Again, based on high correlations between the two measures (.60 for recycling and .51 for solid waste reduction), an average of the two items was computed to produce communication effectiveness (EFF) measures.

Perceived consumer effectiveness (PCE) and perceived importance (PI) were measured with the same seven items as in study 1, and, again, responses to these items were factor analyzed. Unlike the previous study, in this case, the result was a one-factor solution, accounting for about 50% of the variance for each issue. For both issues, the "exaggeration" and "importance" items (#s 7 and 8) had substantial loadings on the factor. For recycling, only these two items loaded above .60; for solid waste reduction, the personal stake item (#6) also loaded at .61. For consistency between the issues, perceived importance was computed as the average of just the two items. The PCE items did not load above .50 on the single factor; and, based on inter-item correlations of .59 for recycling and .69 for solid waste reduction, PCE measures were also computed as averages of the two PCE items for each issue.

The data are summarized in Table 2 and illustrated in Figure 3. Note the main effect of issue; overall the recycling communications were rated more effective. The issue salience by communication appeal interaction hypothesized by H1 was statistically significant ($F=9.20$, $p < .01$). For the more salient issue, recycling, the well baby appeal was slightly more effective (3.90) than the sick baby appeal (3.63) ($t=2.33$, $p < .01$). On the other hand, for the less salient issue, solid waste reduction, the well baby appeal was slightly less effective, although the difference was not statistically significant ($t=.93$, p , ns).

Although the three-way interaction test relevant to H2 was not statistically significant, the pattern of results was consistent with the predicted independent effect of specific action information and with its interaction with issue salience. The beneficial effect of information was small (3.70 versus 3.45) and not statistically significant ($F=3.01$). The effect of information depended on the issue, as indicated by the issue by information interaction ($F=5.17$, $p < .05$), illustrated in Figure 3 (b). The presence of information had essentially no effect for recycling communications, whereas the presence of information enhanced

Table 2
Communication Effectiveness (EFF), Perceived Consumer Effectiveness (PCE),
and Perceived Importance (PI)*: Study 2

		Recycling		Solid Waste Reduction	
		Sick baby	Well baby	Sick baby	Well baby
	EFF	3.61	3.96	3.69	3.47
<u>With Info</u>	PCE	3.70	3.82	3.73	3.76
	PI	4.31	4.44	4.32	4.22
	EFF	3.65	3.84	3.26	3.24
<u>Without Info</u>	PCE	3.38	3.88	3.23	3.67
	PI	4.44	4.50	4.16	4.38

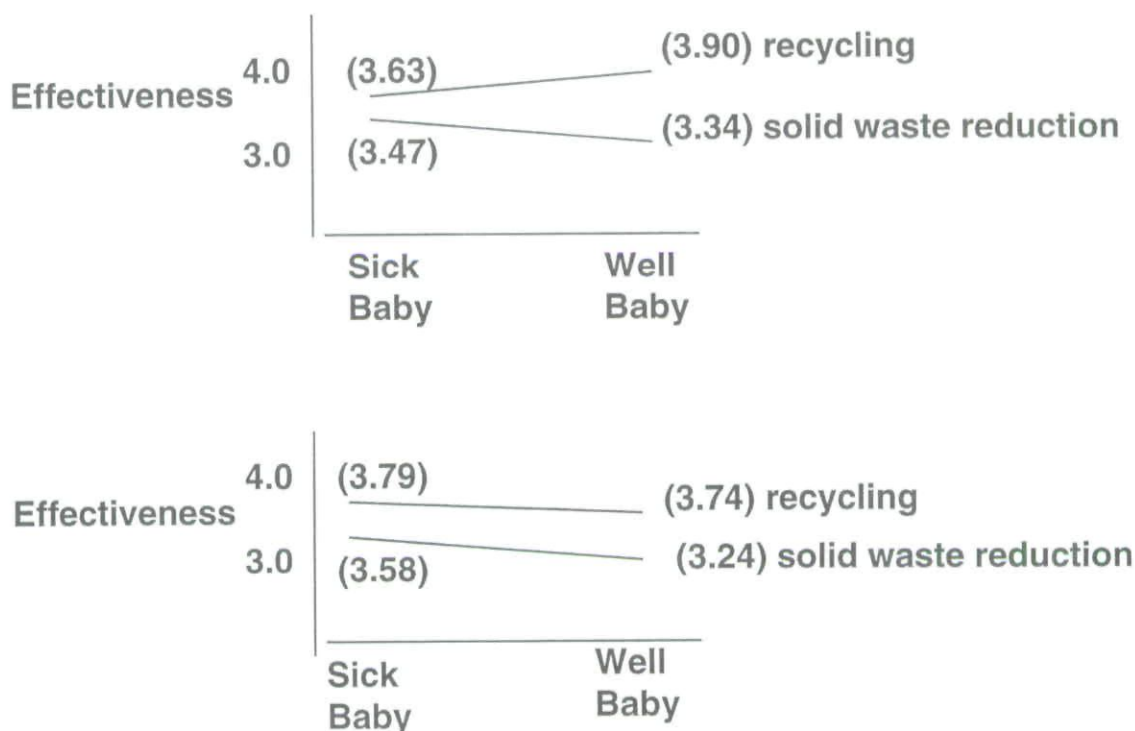
^aAll measures are averages of 5-point scales, with higher numbers indicating greater effectiveness, perceived consumer effectiveness, and perceived importance.

Study 2 Anova Results

<u>Between Subjs Effects</u>	<u>ss</u>	<u>df</u>	<u>F</u>	<u>sig</u>
within cells	189.97	177		
constant	4636.91	1	4320.30	.00
appeal	.34	1	.31	.58
information	3.23	1	3.01	.09
appeal by information	.04	1	.04	.85

<u>Within Subjs Effects</u>	<u>ss</u>	<u>df</u>	<u>F</u>	<u>sig</u>
within cells	61.62	177		
issue	10.50	1	30.15	.00
appeal x issue	3.20	1	9.20	.00
info x issue	2.02	1	5.79	.00
appeal x issue x info	.52	1	1.50	.22

Figure 3
Communication Effectiveness by Issue, Appeal and Information:
Study 2



effectiveness of the solid waste reduction communications (3.47 versus 3.24) ($t=2.40$, $p < .01$). The two-way interaction is consistent with H2b, since information was effective for the less salient issue and not for the more salient issue.

Within the solid waste appeal, the results were not consistent with H2a. For the sick baby appeal, information enhanced effectiveness (3.69 versus 3.26, $t=3.47$, $p < .01$); but for the well baby appeal it did not (3.47 versus 3.24, $t=1.26$, p , ns); the overall two-way interaction was not significant. This pattern is nearly opposite of that predicted by H2a.

With regard to the model illustrated in Figure 1, the pattern of results of the PCE and PI measures again shows at least partial support for the expected mediation of appeals. In all four issue information conditions, well baby appeals resulted in higher levels of PCE, but the main effect was not statistically significant ($F=1.87$, p , ns). Although an appeal by

information interaction was not statistically significant ($F=2.15$, p , ns), the simple main effect of appeal on PCE was statistically significant for the no information condition ($F=4.05$, $p < .05$). In the absence of information, the well baby appeal resulted in greater perceived consumer effectiveness.

There were no statistically significant results for perceived importance, other than a main effect of issue ($F=4.94$, $p < .05$) with recycling rated higher (4.42 to 4.27). Because all conditions resulted in very high levels of perceived importance, there is the possibility that a ceiling effect suppressed any difference in perceived importance due to appeal.

The mediating effects of PCE and concern were again examined with analyses of covariance. Separate analyses were conducted for the two issues with appeal and information as independent variables and PCE and PI as covariates. For both issues, both PCE and PI were significant explanatory variables with

positive standardized coefficients ($p < .01$). Although the mediating effects of the two variables did not differ by issue, their joint effects did account for the effectiveness of the appeals, reducing the main effect of type of appeal to non-significance ($F=3.60$, for recycling and $F=.99$ for solid waste reduction). Thus, unlike in study 1, communications for these issues had little or no effect beyond that accounted for by PCE and concern.

Conclusions

One clear conclusion of these studies is that the effectiveness of sick and well baby appeals depends on the issue. Neither is a generally superior approach. For energy conservation and solid waste reduction, selected as issues of lower salience, the sick baby appeal performed better than for water conservation and recycling, selected as issues of higher salience. The opposite was true for well baby appeals. Thus, when dealing with a problem that people regard as relatively unimportant or about which they are relatively unaware, the impact of a sick baby appeal may offer advantages. Alternatively, when concern for an issue is high, the sick baby appeal may offer a redundant warning, or worse, cause a boomerang effect. In such cases, the encouragement and affirmation of the well baby appeal is preferable. These results do not support the supposition made by Ellen et al. (1991) that all environmental causes could benefit from a switch to well baby appeals, although they do support the logic of that claim. It is likely that, while as a category environmental causes are relatively salient, some issues will be more salient than others, and the sick baby appeal may still be appropriate for the less salient problems. Consistent with the findings of Bagozzi and Moore (1994), there may be situations when creating high concern and related strong emotional responses may be effective. More research is needed to identify the role of respondent processes beyond those identified here.

Support for the second hypothesis, predicting information effects, was problematic. The results support the argument that information has effects separate from appeal. The influence of specific action information was generally positive but more evident for the more salient issue, not the less salient one. Further, specific action information had significant effects only for sick baby appeals in the case of both issues. A post hoc explanation, based on Figure 1, could be that the effectiveness of specific action information depended on level of concern, which, in turn, was influenced by

both prior issue salience and appeal. In Study 1, when the issue was selected as high in prior salience either the presence of specific action information or the use of a well baby appeal resulted in relatively successful communications. The unsuccessful outlier was the sick baby appeal without information. When concern was low due to relatively lower salience, a sick baby appeal and relevant information were both needed for successful communication. An assumption underlying H2 was that higher levels of prior issue salience implied higher levels of knowledge, hence less need for specific action information. The results suggest that this assumption may not hold true. Or, it may be that even though they have been exposed to, despite having information regarding issues of high concern, people still need to have that information repeated. Thus, when concern for issues is high due to prior salience or when concern is increased by use of a sick baby appeal, inclusion of specific action information may be appropriate. Future research could measure familiarity with coping responses to specify further the relationship between issue salience and concern. Finally, no support was found for the argument from Ellen et al. (1991) that well baby appeals require the inclusion of specific action information. However, the logical connection between PCE and specific action information seems compelling and could be studied in further research.

The two studies differed in the reflection of the hypothesized processes. In study 1, the proposed mediation of appeals by concern and perceived consumer effectiveness was supported both by the pattern of means of the measures of the intervening variables and by analysis of covariance. The two variables did not, however, completely account for the effects of type of appeal. In study 2, the hypothesized effects on ad effectiveness were obtained, and the effects were largely accounted for by the intervening variables, but the relative differences in mediation across type of appeal were not apparent. The relatively high levels of concern for both recycling and solid waste reduction may have limited the precision of direct measures, but further study should be conducted before concluding that the process suggested in Figure 1 is either complete or accurate. In an early study of PCE, Allen and Dillon (1983) found no evidence of mediation of generalized PCE. Their results are not necessarily in conflict, however, since they examined a different criterion variable (i.e., choice criteria, rather than attitude toward action).

The results offer strong evidence for considering the sick baby/well baby distinction to be independent

of the presence of specific information, in contrast to the conceptualization of Ellen et al. (1991). In both experiments, there were significant effects involving one of the factors independent of the other. Further, the proposed processes of the appeals were supported. Generally, well baby appeals increased PCE, and sick baby appeals increased PI in the first experiment—results that were independent of information. In study 1, higher PCE for the well baby appeal did not require the presence of information, yet higher PI for the sick baby appeal did. In study 2, the well baby appeal resulted in significantly higher PCE only in the absence of information. These findings would be impossible to interpret with the sick baby/well baby construct definitions of Ellen et al. (1991).

Conclusions from the studies should be tempered by several limitations. As noted above, the dependent measures were not behavioral, and further studies are encouraged that include measures of behavior and links between behavior and mediating variables such as PCE and PI. Some possible limitations result from the convenience sample. As noted, the intent of the research is not to generalize the size of the effects, only the relationship among the constructs. However, the sample was probably more educated and more white collar than the norm, and those differences may reflect knowledge or ability variables that could influence the processing of communication appeals or information. Certainly, one would hesitate to generalize the effects to mundane advertising conditions. Subjects in these studies read "essays" under conditions of focused attention. The observed relationships may be attenuated if the factors were operationalized in true advertisements. The same comment applies to the within-subjects nature of the design. Undoubtedly, subjects' responses to the second communication were influenced by the first. The order of presentation was controlled, but any difference between the two could have been highlighted by their juxtaposition. A final methodological limitation is the uncontrolled differences between the communications, which, necessarily had different wordings. The communications were designed with conscious attempts to achieve comparability, but the slight differences in language may have resulted in different levels of lik-

ing or some other response confounded with the processes that were investigated.

The results of these two studies suggest that "green" advertisers, especially public agencies, should consider well baby alternatives as advertising themes. A wholesale changeover should not be made, however; rather, well baby appeals should be used when issue salience is believed to be high enough that increasing concern is not a reasonable communication objective. Including specific action information appears to be a useful tactic, regardless of appeal. Further, research might be done to answer questions about the processing of well baby appeals. It is unclear whether appeals that enhance perceived consumer effectiveness necessarily reduce concern or perceived risk. Developing the materials for this study involved careful wording that affirmed individual action but did not minimize the problem. Finally, more work might be done applying the protection motivation model, which Tanner, Hunt, and Eppright (1991) applied to fear appeals and to understanding the implication of whatever fear is produced in response to environmental problems.

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Appendix 1 Communication Appeals

Study 1, Water

Sick Baby (Information)

Seattle is facing a water shortage. This summer's water crisis could be the worst in the history of the region. Normally at this time of year, there are 80 inches of snowpack in the mountains. That snow would melt gradually during the summer, replenishing the reservoirs. This year there is less than 1 inch of snowpack. The lack of snowfall and warm winter and spring weather have created an ominous threat. (Unless everyone stops watering lawns, starts washing cars at car washes that recycle water or using a bucket at home, installs low flow shower heads and flush bowl inserts, and takes care to reduce water waste, we face a drought this summer.) The public service advertising agency asks you PLEASE CONSERVE WATER.

Well Baby (Information)

Seattle is facing a water shortage. The lack of snowfall and warm winter and spring weather have reduced water reserves. But, the city will have sufficient water for the summer if each person takes individual responsibility for reducing water waste. With very little change in daily routine or lifestyle, each person could reduce water use by 10 gallons per day. The total effect of savings from every household would be sufficient to make the risk of water shortage disappear. (If everyone stops watering lawns, starts washing cars at car washes that recycle water or using a bucket at home, installs low flow shower heads and flush bowl inserts, and takes care to reduce water waste, we can avoid a drought this summer.) The public service advertising agency asks you PLEASE CONSERVE WATER.

Study 1, Energy

Sick Baby (Information)

The energy crisis is still with us. Global warming. Loss of the ozone layer. Acid rain. Dependence on foreign oil supplies. Air pollution. These are the prices we pay for the rate at which we use oil and electricity. The U.S. uses 40% of the world's energy; we have only 3% of the world's population. The prospects for alternative energy supplies are dim; nuclear energy poses its own dangers; wind, solar, and thermal energies are unlikely to meet demands. If we continue to use energy at our current rate, we will continue to pollute our atmosphere and threaten the world of the future. (Unless everyone makes changes switching to compact fluorescent lighting, energy efficient appliances and home remodeling, and using mass transit, walking, or biking rather than cars the energy crisis will become an energy emergency.) The public service advertising agency asks you PLEASE CONSERVE ENERGY.

Well Baby (Information)

The energy crisis is still with us. The rate at which we use oil and electricity results in serious pollution and exceeds the likely supplies of any alternative energy supplies. But, the problem can be solved if each person takes responsibility for reducing energy requirements. Each individual can make a contribution to the solution; without making a drastic change in lifestyle, energy use can be reduced by 60%. The combined actions of individuals can solve the problem. (By switching to compact fluorescent lighting, energy efficient appliances and home remodeling, and using mass transit, walking, or biking rather than cars, we can prevent the energy crisis from becoming an energy emergency.) The public service advertising agency asks you PLEASE CONSERVE ENERGY.

continued . . .

Study 2, Recycling

Sick Baby (Information)

We are being buried in our own garbage. On average, each American produces nearly a ton of garbage every year. Mountains of garbage, increased by a steady unending stream of delivery trucks. And soon, no place to put it! Our landfills are nearly filled; in fact, within five years, over 90% of the current landfills will be filled and closed! Creating new landfills will raise taxes and present potential dangers wherever they are placed. We must do something. Now. Over half of household garbage is recyclable, and the material that can be recycled is valuable. So recycling makes sense on two counts: It saves valuable material that can be used again. And it saves landfill space for the real garbage. (Recycling is easy; just take these three simple steps: First, sort and store your paper and newspaper, clear glass, and aluminum and "tin" cans to be delivered to collection sites or picked up at curbside. Second, collect lawn and yard trimmings in a compost pile. Third, if you change your own motor oil, return the used oil to a gas station or auto parts store.) Stop the garbage explosion; please do your part to recycle.

Well Baby (Information)

We are being buried in our own garbage. On average, each American produces nearly a ton of trash every year, producing a growing mountain of garbage. But it's not a mountain that can't be climbed. We can solve this problem; you can take actions that will slow the growth to a manageable level. At the current pace, within five years over 90% of the current landfills will be filled and closed. But, you can slow down the pace. Over half of household garbage is recyclable, and the material that can be recycled is valuable. So recycling makes sense on two counts: It saves valuable material that can be used again. And it saves landfill space for the real garbage. If you recycle you can save a thousand pounds of trash every year. (Recycling is easy; just take these three simple steps: First, sort and store your paper and newspaper, clear glass, and aluminum and "tin" cans to be delivered to collection sites or picked up at curbside. Second, collect lawn and yard trimmings in a compost pile. Third, if you change your own motor oil, return the used oil to a gas station or auto parts store.) Stop the garbage explosion; please do your part to recycle.

Study 2, Solid Waste Reduction

Sick Baby (Information)

We are being buried in our own garbage. On average, each American produces nearly a ton of garbage every year. Mountains of garbage, increased by a steady unending stream of delivery trucks. And soon, no place to put it! Our landfills are nearly filled; in fact, within five years, over 90% of the current landfills will be filled and closed! Creating new landfills will raise taxes and present potential dangers wherever they are placed. We must do something. Now. Recycling is important, and recycling helps; but not enough. Too few materials are actually recycled; and, even if they are recycled, they usually end up back in the trash. We need to solve the problem at the source—cut down on the stream of solid waste we produce. (Three ways to reduce solid waste are (1) Avoid excess packaging—don't buy brands that are over-packaged and do buy products in bulk to reduce the total amount of packaging, (2) Don't buy disposable products or containers—take your own bags, boxes coffee cups, and deli-containers, and (3) Reuse products that still have life—give books, magazines, clothing, and appliances to schools, libraries, hospitals, nursing homes, charities, or anyone else who can use them.) Stop the garbage explosion; please do your part to reduce solid waste.

Well Baby (Information)

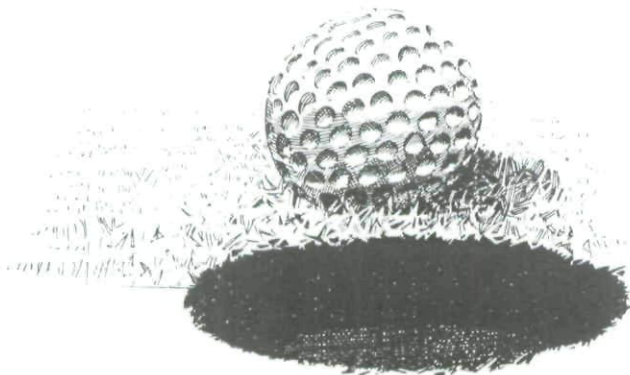
We are being buried in our own garbage. On average, each American produces nearly a ton of trash every year, producing a growing mountain of garbage. But it's not a mountain that can't be climbed. We can solve this problem; you can take actions that will slow the growth to a manageable level. At the current pace, within five years over 90% of the current landfills will be filled and closed. But, you can slow down the pace. First, you can recycle, but recycling alone is not enough; you need to cut the flow of trash down at the source, not merely redirect it. You need to reduce your level of solid waste. By creating less waste to begin with and recycling, you could reduce your trash by over a thousand pounds each year. (Three ways to reduce solid waste are (1) Avoid excess packaging—don't buy brands that are over-packaged and do buy products in bulk to reduce the total amount of packaging, (2) Don't buy disposable products or containers—take your own bags, boxes coffee cups, and deli-containers, and (3) Reuse products that still have life—give books, magazines, clothing, and appliances to schools, libraries, hospitals, nursing homes, charities, or anyone else who can use them.) Stop the garbage explosion; please do your part to reduce solid waste.

Appendix 2
Dependent Measures^a for Study 1^b

1. HOW LIKELY IS IT THAT THE COMMUNICATION ABOVE WOULD INFLUENCE YOU TO TAKE STEPS TO CONSERVE WATER (ENERGY)?
2. HOW EFFECTIVE DO YOU THINK THE COMMUNICATION ABOVE WOULD BE AT GETTING MOST PEOPLE TO CONSERVE WATER (ENERGY)?
3. THERE IS NOT MUCH ONE INDIVIDUAL CAN DO ABOUT THE WATER (ENERGY) PROBLEM.
4. THE CONSERVATION EFFORTS OF ONE PERSON ARE USELESS AS LONG AS OTHER PEOPLE REFUSE TO CONSERVE.
5. I FEEL I HAVE PERSONAL CONTROL OVER THE SOLUTION TO THE WATER (ENERGY) PROBLEM.
6. THE WATER (ENERGY) PROBLEM DOES NOT AFFECT ME PERSONALLY.
7. THE WATER (ENERGY) PROBLEM IS EXAGGERATED, IN THE LONG RUN THINGS BALANCE OUT.
8. I DON'T THINK THE WATER (ENERGY) PROBLEM IS VERY IMPORTANT.
9. THE POTENTIAL SERIOUSNESS OF THE WATER (ENERGY) PROBLEM IS FRIGHTENING.

^aAll items were measured on 5-point, Strongly Agree-Strongly Disagree scales, coded such that higher numbers reflect greater communication effectiveness, perceived consumer effectiveness, or perceived importance.

^bDependent measures for Study 2 were essentially the same, with different issues identified, except for the change in items 1 and 2 to refer to likelihood to change the relevant behavior.



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