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ABSTRACT

As part of a statewide campaign to increase both awareness of the problem of littering and illegal dumping, and participation in recycling activities, Humboldt County, California, began a recycling and antilittering education project in 1981. Pre- and postcampaign survey data suggest that the 9-month program, relying largely on television and radio public service messages, had little effect on residents' attitudes toward waste disposal or recycling. This lack of response may be due to the project's failure to supplement its eduction measures with programs reinforcing recycling behavior. Also, as 74.7% of the residents already recycled material, the community may already have reached its expected level of adoption. Nonrecyclers--generally older than the average resident, inactive in community affairs, with less education but higher incomes--may have been influenced more by the inconvenience of collecting and transporting recyclable material than by the financial benefits of recycling stressed by the campaign. Though not influencing this group, the project did increase the concern of those already recycling. Moreover, as this period witnessed no drop in recycling behavior despite the community's increased unemployment, discontinued bottle and can pickups, and decrease in the price paid for aluminum cans, the campaign can be considered a limited success. (MM)

"WAR ON WASTE": A PUBLIC-EDUCATION CAMPAIGN

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Abstract

This study examines the development of the state-wide campaign, "War on Waste," which was designed to promote recycling in California. It describes in detail the development of one education program within that campaign and evaluates its effectiveness. Pre- and post-campign survey data suggest the education program had little effect on county residents in changing attitudes toward littering and illegal dumping or in increasing recycling behavior. Possible explanations for this result are discussed.

"WAR ON WASTE": A PUBLIC-EDUCATION CAMPAIGN

Because of safety, health and environmental hazards, all open burning dumps in California were closed by state legislation in 1970. Since then, all of California's municipal waste has been disposed of in sanitary landfill sites. Sanitary landfills are land areas where solid wastes are disposed of by an engineering method designed to protect the environment. The solid wastes are spread in thin layers, compacted and covered by soil at the end of each day. California has approximately 600 sanitary landfill sites, but some of these are being forced to close because of health and safety violations. Others are rapidly being filled to capacity. The California State Solid Waste Management Board estimates that nearly a third of California's available landfills will close by 1985.[1] Few alternative sites are available, and those that can be used are many miles away from the communities they must serve. These landfill closures will result in an increase in state waste disposal costs from $1.6 billion per year in 1981 to more than $2 billion per year by 1985.

Littering and illegal garbage dumping constitute another serious solid waste problem in California. This type of refuse disposal pollutes water, creates fire hazards, and threatens human health and safety. It is also a waste of tax dollars. In 1980, California spent $100 million in tax revenue to clean

littered streets, roads, parking lots, vacant lots and recreation grounds.

The California State Solid Waste Management Board (SSWMB) was created by the California Solid Waste Management and Resource Recovery Act of 1972. The Act also directed each county to develop a solid waste management plan and authorized the establishment of state-wide standards for the collection of solid waste. While local governments are responsible for their own solid waste management and planning, the State Solid Waste Management Board ensures that counties live up to state and federal standards. The Board also directs the state's efforts to develop recycling, litter control and resource recovery. Part of these efforts involves developing and supporting public-education programs to inform citizens about solid waste management issues.

According to data produced by the SSWMB, Californians recycle only 5 to 7 percent of accumulated solid wastes.[2] Therefore, as part of its mission to reduce the rate at which landfill sites are filling, the SSWMB began in 1980 to promote recycling in a statewide campaign called the "War on Waste." It hired a public relations firm which developed a state-wide mass-media campaign promoting greater public awareness of resource recovery and increased voluntary compliance with recycling activities.

The focus of the state-wide campaign was the message that "The Garbage Crisis Is Real." Television and radio public service announcements were produced around this theme, and the press and free media campaign publicized landfill closures, siting difficulties and other related problems.

After nine months of the program, pre- and post-campaign public opinion surveys showed increases in how Californian's rated the seriousness of the garbage crisis. The post-campaign survey also showed, however, that while Californian's were participating in recycling, waste reduction and other environmentally sound practices, they were not doing so on a regular basis.

This evidence should not have been surprising, since research on public information campaigns points out the weakness in relying solely upon mass-media channels for eliciting behavioral change in public awareness campaigns. For example, McAlister points out the importance of interpersonal support for mediated communications:

> Mass communication media may effectively inform, persuade and train their audiences, but lasting change will not be achieved in the absence of a supportive social environment. Because it is easier to distribute printed or audiovisual messages to mass audiences than it is to organize supportive interpersonal communications on a large scale, campaigns have tended to rely solely on mass communications. This narrow approach to the problem has yielded relatively poor results. But researchers now realize that campaign effectiveness may depend upon the creation of opportunities for interpersonal communication, participation, and social reinforcement. This has led to attempts to efficiently integrate mediated and interpersonal communications.... 3

Flay and Cook also support this view:

> One of the current trends in the design of campaigns is to stress combining media materials with face-to-face interventions.... The assumption behind this mix is that under most conditions the media are most useful for creating awareness and perhaps changing knowledge and feelings than they are for changing long-held behaviors or preventing behaviors that are socially approved in some subcultures (e.g., drug-taking among adolescents). Moreover, a growing professional consensus is emerging that social factors may be especially important in maintaining any new behaviors once they have been acquired. 4

After finding little evidence of behavior change, the Board re-directed its public-education plan in 1981 to include campaigns

to promote recycling to be conducted at the community level. It advertised a grant program by which ten community-level programs could be funded (up to $20,000 each).

The Humboldt County Recycling and Anti-Littering Education Project was created through such a grant (for $10,000) awarded to the senior author and the Arcata Community Recycling Center (non-profit) in March, 1981. The objectives of the Education Program were to increase public awareness of resource recovery and problems associated with litter and inappropriate dumping of waste materials, and to increase voluntary compliance with recycling activities and laws intended to reduce littering and illegal dumping of garbage. The campaign was to consist of a county-wide publicity campaign centering around the benefits of recycling and the presence of recycling centers in Humboldt County; the problems associated with solid-waste disposal in a large, rural area; and, the need for compliance with anti-dumping laws (stressing social costs and individual responsibility).

The components of the nine-month campaign included activities centered around Recycling Month (October) and Anti-Littering and Illegal Dumping Month (November), a speakers bureau, information booths at public events like the county fair, the development of a poster and brochure, preparation of public service announcements and public service programming, preparation of news releases and production of a slide set (Table 1).

In developing themes for the campaign, we first looked at consumer attitudes toward energy conservation that appeared related to recycling behavior:

1. Energy-wasting behavior is an ingrained part of American lifestyle.

2. Many Americans believe -- either consciously or subconsciously -- that technology development will obviate the need to change individually with regard to energy use.

3. Conflicting messages regarding the national energy shortages have confused many people.

4. Changing consumer behavior to an energy-conserving lifestyle can be viewed as innovative for a substantial portion of the general public. [5]

As Blackburn points out, though recycling is easy, not recycling is even easier.[6] It is also easier or cheaper to litter or illegally dump garbage than to use proper disposal methods. What appeared to be needed in both of these instances is persuasive "why" information explaining why people should go to the trouble of engaging in environmentally sound waste disposal practices and in recycling behavior.

According to Liu, persuasive campaigns in the People's Republic of China that excessively emphasized "collective" benefits at the expense of "individual" benefits were counterproductive.[7] Atkin also states that "actual attention is primarily determined by the extent to which the receiver perceives that the message will provide consummatory gratifications or instrumental utilities that justify the time and effort to process the content."[8] This suggested an emphasis on benefits to the individual rather than to society, e.g., "not littering will preserve recreational land for your use and save you tax dollars...."

To aid in the search for effective persuasive appeals and to provide base-line data for evaluation purposes, the Education Program conducted a pre-campaign survey of Humboldt County residents in June, 1981. The survey first asked respondents what

they believed to be the most important problem in Humboldt County. The majority cited unemployment and economic development as the two top problems in the county. This suggested economic gain would be a major value for these residents, so a persuasive appeal associating recycling with this value was used throughout the campaign.

Respondents in the pre-campaign survey were also asked for situational inconveniences associated with recycling. Those cited included: general inconvenience, unpleasant to work with and sort, too time consuming, storage problems, difficult to transport or the center is too far away, inconvenient hours at nearest center or pick-up point, unfamiliarity with the recycling process and a shortage of recyclable items. Surprisingly, respondents who recycled also mentioned many of these situational inconveniences.

Respondents who recycled were also asked what they perceived as the benefits of recycling. Responses included: re-use and preservation of resources, responsibility and personal satisfaction, economic benefits, and disposal of waste.

Since persons who recycled in Humboldt County apparently believed that the perceived benefits of recycling outweighed the perceived situational inconveniences of recycling, it seemed logical to focus the campaign's persuasive appeals around the above perceived benefits of recycling, rather than to attempt to reduce the perceived levels of situational inconveniences. It should be noted that the campaign did include information which related to reducing the perceived inconveniences of recycling in many elements of the educational program.

The goals of this Education Program were: to increase the extent to which residents of Humboldt County perceived littering, illegal dumping of garbage and recycling as important problems; to increase the levels of residents reporting that they purchase products because they are biodegradable or because the packaging is recyclable; and to increase the levels of recycling behavior.

RESULTS:

The pre- and post-campaign surveys of Humboldt County residents permitted an evaluation of whether the public-education campaign had contributed to any of the above goals. It is important to note that the Educational Program was only one of many factors occurring during this time period.

As shown in Table 2, Humboldt County residents were very similar before and after the public education campaign in how they rated littering and illegal dumping of garbage as important problems. There was also no change in reported levels of purchasing products because they were biodegradable or because the packaging was recyclable.

About the same percentage of Humboldt County residents reported that they recycled after the campaign as before (Table 3). No changes in the types of items recycled were found after the campaign, either. An increase in the number of residents who recycled more than four items was found, which suggests more persons were recycling more items (Table 4). We also found little change in the percentage of respondents who reported they knew where a recycling center was located (Table 3).

Before the campaign, recyclers did not differ from non-recyclers in how they rated littering and illegal dumping as important problems. But after the campaign, persons who recycled differed significantly from non-recyclers in how they rated littering ($p < .08$) and illegal garbage dumping ($p < .04$) as important problems (Table 5).

As might be expected, recyclers differed significantly from non-recyclers both before and after the campaign in levels of buying products because they were biodegradable ($p < .05$) and because the packaging was recyclable ($p < .0003$), in knowing where to find a recycling center ($p < .004$) and in interest in recycling ($p < .0001$) (Table 5).

DISCUSSION:

In comparing pre- and post-campaign survey data, we found little change in overall attitudes about littering or illegal dumping of garbage or in levels of recycling behavior. Several explanations for the lack of change are possible.

It is possible, for example, that the Education Program as designed had no effect because it did not create ample opportunities for interpersonal communication, participation and social reinforcement.

The campaign also may have had no effect because the majority (74.7 percent) of Humboldt County residents had already adopted recycling behavior. The county may have reached the upward portion of the S-shaped cumulative adoption curve described by Rogers and Shoemaker even before the campaign began.[9] The remaining non-recyclers may never adopt this behavior or perhaps they would be the last to be reached (over time) as the information

is disseminated.

To seek greater clarity as to what factors were related to recycling behavior, a stepwise regression analysis was conducted using the following predictors of recycling behavior: age, income, education, an index of six community involvement measures, an index of media use (watching television, listening to the radio and subscribing to a newspaper), attitude toward litter as a problem in Humboldt County, and attitude toward illegal dumping of garbage as a problem in Humboldt County. As shown in Table 6, education and community involvement were significant positive predictors of recycling behavior while age and income were negatively related.

This evidence suggests that non-recyclers are older, have less education, make higher incomes and are relatively inactive in the community. Persuasive appeals to publics with high incomes may not be effective when economic benefits are stressed. In addition, older persons perhaps will find the situational inconveniences associated with recycling more significant due to age-related physical problems. Grunig's decision-situation theory of communication behavior suggests that persons who tend to be less socially involved or who do not recognize the problem often exhibit fatalistic behavior; the individual will unquestioningly follow the most readily available alternative (which in this case would be to continue to throw recyclable materials in the garbage).[10] The non-recyclers were certainly less involved in the community and less likely to consider littering or illegal dumping of garbage as important problems in this case. Grunig's research gives some evidence

in how to approach even fatalistic publics.

It may also be significant to note that attitude change did occur during this time period among persons who already recycled in terms of rating littering and illegal dumping of garbage as important problems. This suggests that the information campaign was more effective among members of the public who were already active in related behavior. Grunig's theory would predict that members of a public which is involved in an issue are more likely to communicate actively about that issue.[11] Passive publics, Grunig suggests, seldom develop organized cognitions or solutions for problems as they tend to retain only bits and pieces of disorganized information that may come from an educational campaign.

In conclusion, a more pleasant explanation to consider for the lack of pre- and post-campaign differences would be that the campaign had the effect of reinforcing recycling behavior that otherwise may have lessened or discontinued altogether. During the time period of this campaign, a number of factors occurred which may have negatively affected recycling behavior. Humboldt County underwent a severe economic slump, which created even higher unemployment (18-20 percent). This could have created apathy towards recycling or curtailed the amount of products people were able to buy and consume before recycling. Large drops in prices paid for aluminum also occurred in this time period, which no doubt affected the motivation of potential recyclers.

In addition, one for-profit recycling center went out of

business and non-profit recycling centers were forced to end regular pick-ups of recycled items in four rural communities during this time period.

Given all of these circumstances, it is tempting to conclude that just maintaining recycling levels at the pre-campaign levels during this time period was a significant achievement.

FOOTNOTES:

1 California State Solid Waste Management Board. Winning The War On Waste: Community Organizing Strategies. 1981. (1020 9th Street, Suite 300, Sacramento, California 95814).

2 California State Solid Waste Management Board. Ibid.

3 A. McAlister, "Anti-smoking campaigns: progress in developing effective communications." In R.E. Rice and W.J. Paisley (eds.), Public Communication Campaigns. Beverly Hills, Calif.: Sage, 1981.

4 B.R. Flay and T.D. Cook, "Evaluation of mass media prevention campaigns." In R.E. Rice and W.J. Paisley (eds.), Public Communication Campaigns. Beverly Hills, Calif.: Sage, 1981.

5 B. Farhar-Pilgrim and F.F. Shoemaker, "Campaigns to affect media behavior." In R.E. Rice and W.J. Paisley (eds.), Public Communication Campaigns. Beverly Hills, Calif.: Sage, 1981.

6 D.J. Blackburn, "The publicity campaign to stem the tide of trash." California Journal, July, 1981, pp. 242-244.

7 A.P.L. Liu, "Mass campaigns in the People's Republic of China." In R.E. Rice and W.J. Paisley (eds.), Public Communication Campaigns. Beverly Hills, Calif.: Sage, 1981.

8 C.K. Atkin, "Mass media information campaign effectiveness." In R.E. Rice and W.J. Paisley (eds.), Public Communication Campaigns. Beverly Hills, Calif.: Sage, 1981.

9 E.M. Rogers with F.F. Shoemaker, Communication of Innovations (2nd ed.). New York: The Free Press, 1971.

10 J. Grunig, "A multi-systems theory of organizational communication," Communication Research 2(2): 99-136, 1975; J. Grunig, "Communication behaviors occurring in decision and nondecision situations," Journalism Quarterly 53(2): 252-263, 286, 1976; J. Grunig, "The message-attitude-behavior relationship: communication behaviors of organizations," Communication Research 9: 163-200, 1982; J. Grunig, "Developing economic education programs for the press," Public RelationsReview 8: 43-62, Fall 1982.

Footnotes (cont.):

[11] J. Grunig, "A theoretical anatomy of a public communication campaign." Paper presented to a joint session of the Foundation For Public Relations Research and Education and the Educators Section of the Public Relations Society of America, San Francisco, Nov. 7, 1982.

TABLE 1. Media Forms Used in Components of Campaign

Media Forms:	Components of Campaign: Public events	Recycling month	Anti-litter month	Speakers bureau	Other
Posters	X	X	X		X
Brochures	X	X	X	X	X
Newspaper articles		X	X		
Radio		X	X		
Television		X	X		
Slides/speaker		X	X	X	

TABLE 2. Pre- And Post-Campaign Comparisons Of Attitudes Toward Littering And Illegal Dumping Of Garbage And Of Purchasing Behavior.

Variables:	Pre-Test (f)	(%)	p	Post-Test (f)	(%)
Littering is a problem or a serious problem	273	70.5	(N.S.)	194	64.7
Illegal dumping is a problem or a serious problem	206	53.2	(N.S.)	161	53.6
Buy products because they are biodegradable	174	45.0	(N.S.)	122	40.7
Buy products because packaging is recyclable	155	40.1	(N.S.)	124	41.3

TABLE 3. Pre- And Post-Campaign Comparisons Of Percentage Of Respondents Who Recycle, Percentage Of Respondents Who Know Where A Recycling Center Is Located And Percentage Of Type Of Items Recycled.

Variables:	Pre-Test (f)	(%)	p	Post-Test (f)	(%)
Do recycle	289	74.7	(N.S.)	231	77.0
Know where a recycling center is located	352	91.0	(N.S.)	268	89.3
Type of Item:					
Aluminum cans	244	63.0	(N.S.)	200	66.7
Newspaper	139	36.0	(N.S.)	119	40.0
Glass	128	33.0	(N.S.)	116	39.0
Tin cans	54	14.0	(N.S.)	47	16.0
Cardboard	30	8.0	(N.S.)	35	12.0
Egg cartons	11	3.0	(N.S.)	18	5.0
Motor oil	11	3.0	(N.S.)	16	5.0
Other	28	7.0	(N.S.)	6	2.0
N.R.	98	25.3		68	22.7

TABLE 4. Comparison Of The Number Of Items Recycled Before And After Campaign.

Number of items:	Pre-Test (f)	Pre-Test (%)	Post-Test (f)	Post-Test (%)
0	98	25.3	68	22.7
1	105	27.1	82	27.3
2	81	20.9	53	17.7
3	56	14.5	44	14.7
4	25	6.5	26	8.7
5	22	5.7	27	9.0

TABLE 5. Pre- And Post-Test Campaign Comparisons Between Recyclers And Non-Recyclers Of Attitudes Toward Littering And Illegal Dumping Of Garbage And Of Purchasing Behavior.

	Pre-Test			Post-Test		
	Recyclers $\bar{x}$	p	Non-Recyclers $\bar{x}$	Recyclers $\bar{x}$	p	Non-Recyclers $\bar{x}$
Variables:						
Littering is a problem or a serious problem	2.00	(.337)	2.08	1.93	(.080)	1.75
Illegal dumping is a problem or a serious problem	2.27	(.746)	2.24	2.09	(.046)	1.83
	YES (%)		NO (%)	YES (%)		NO (%)
Buy products because they are biodegradable	51.8	(.023)	36.9	45.7	(.056)	31.3
Buy products because the packaging is recyclable	49.8	(.000)	20.9	48.4	(.000)	21.9
Knowing where a recycling center is located	94.5	(.000)	81.1	92.2	(.004)	78.8
	$\bar{x}$		$\bar{x}$	$\bar{x}$		$\bar{x}$
Interest in recycling	3.39	(.000)	2.90	3.36	(.000)	2.75