

March 1988

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Frantz, Stephen C.; Comings, John P.; and Roter, Debra L., "PHOTONOVELS PRODUCED BY CLIENT/PROFESSIONAL PARTNERSHIPS: AN EDUCATIONAL APPROACH TO COMMENSAL VERTEBRATE IPM" (1988). *Proceedings of the Thirteenth Vertebrate Pest Conference (1988)*. 11.

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# PHOTONOVELS PRODUCED BY CLIENT/PROFESSIONAL PARTNERSHIPS: AN EDUCATIONAL APPROACH TO COMMENSAL VERTEBRATE IPM

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**ABSTRACT:** Since commensal vertebrate pest problems are largely "people problems," a well-planned and executed educational intervention could be the single most important component in an integrated pest management (IPM) program. The basic purpose of educational interventions is to bring sufficient information and understanding to affected clients so that they can and will intercept and control pests in the infested habitat. The encouragement of client participation in producing educational materials is consistent with learning theory and pest management principles. Such production methods allow materials to be closely aligned with client concerns and establish a climate for mutual exchange of ideas between the clients and the IPM professionals. Furthermore, this partnership approach provides an avenue by which a pest management agency may invest its efforts in community-empowering activities aimed at future collective actions which need not depend on professionals, and may be an important step for agency personnel (government vector-control experts, international aid organizations, etc.) in eliminating victim-blaming exercises in futility. The photonovel technique discussed here emphasizes the utilization of client-community resources to enhance the efforts of outside professionals. While the specific example described and analyzed applies to urban rodent control, the concept is applicable to many subjects (including vertebrate IPM and disease prevention programs), to most cultures (in developed and developing countries), and to a broad range of clients (community members, food plant staff, etc.).

Proc. Vertebr. Pest Conf. (A.C. Crabb and R.E. Marsh, Eds.),  
Printed at Univ. of Calif., Davis. 13:45-52, 1988

## INTRODUCTION

Educational intervention is an essential element of a successful vertebrate pest management program. This concept is well documented in the pest control literature, and field practitioners are well aware of its necessity (Brown 1969, Taylor et al. 1970, Mancke et al. 1976, Olkowski and Olkowski 1984, Cohen 1985). In fact, the opening remarks of the previous Vertebrate Pest Conference (Salmon 1986) stressed that one of the main objectives of the conference was "to foster educational work in vertebrate pest management." However, during that conference none of the 63 informative presentations had any major relationship to education as a pest management intervention. A review of most other vertebrate pest control seminars will reveal a similar trend.

This apparent lack of attention to education is distressing since it often leads to inefficient and ineffective applications of otherwise valuable technologies. Educational interventions are important for many reasons, including the following:

- Public and private resources usually are not sufficient to control vertebrate (and other) pests without the assistance of the people living in or utilizing the infested areas.

- Even when an outside agency can resolve a particular pest problem in a community (e.g., residential, commercial, manufacturing), the people who live and/or work there must

be educated to maintain the pest management strategy.

- If a comprehensive pest management program is in effect in a community, independent action by individuals may interfere with the efficacy of that program.

- People should participate in the decisions that affect their living/working environment; and if they are not educated to understand the measures being taken, they may prevent such actions from occurring.

- Many of the chemicals and some equipment used in vertebrate pest management can be hazardous to those individuals not properly educated to apply them, and to other non-target species (humans, pets, wildlife, etc.).

Examples of vertebrate pest problems where the solution would be not only assisted by education, but where education is essential, are many. This paper will provide a detailed case study of a community education project in Troy, New York, that had as its overall goal the reduction of conditions fostering rodent infestations in and around inner-city housing. The study presents various issues involved in education for vertebrate pest control, and as such is useful to those who are cognizant of the importance of educational intervention but have yet to put it into action. Following the detailed description, examples of other projects are given which used the same educational approach and show a wider range of possibilities for such interventions.

## METHODS AND MATERIALS

### Background and Definitions

The non-formal educational technique discussed here emphasizes the utilization of community resources to assist outside experts. The participatory concept can be applied or adapted to many subjects other than the control of vertebrate pests, and to most cultures, and lends itself to photonovel and other media (e.g., video) production.

A photonovel is similar in design to an American comic book, but photographs are used in place of cartoons. A dramatic story is presented with a compact and pointed plot in which the written narrative is subordinate to photographic representation. The dialogue is written in word balloons that appear to come out of the mouths of the characters, and the action deals with human experience - a dramatic story is common. Photonovels are a popular form of entertainment literature in Latin America and parts of Africa and Europe. Typically, they are professionally produced and have occasionally been used as an educational tool (e.g., in literacy programs).

The focus of this presentation is on a photonovel published in 1978 in Troy. This photonovel used a standard design format, but was produced by a partnership of two community organizations with two professional organizations. The clients were residents in an economically depressed section of the city of Troy. The practitioners were three officials of the New York State Department of Health and two consultants from the University of Massachusetts.

The study was designed as a research project to test whether the participatory photonovel could be accomplished and to measure its effect. Participation means taking part in both the activities and decisions involved in the development and use of the products. Therefore, participation includes: initiation of the project, design and production of the material, utilization of the final products and evaluation of the project's impact. Obviously, the process of participation is a continuum from token consultation with the clients to full client control; the Troy project endeavored to reach a middle ground of collaboration, a client/professional partnership.

### Initiation

It is an accepted fact that action on the part of a community is a necessary component of commensal rodent control programs. The problem area in this project had a significant rat infestation and although the various government programs had educational materials (pamphlets, flyers, posters, cartoon booklets and cine films), they had not been able to motivate the community to actively address the problem.

The practitioners were committed to the idea of having community people design and produce their own educational material — the photonovel. However, there was some possibility that the practitioners might inadvertently dominate this group process. In order to control for this the practitioners processed each day's experience by having each member address the following questions:

1. When did you feel uncomfortable and why?
2. When did you observe someone else being uncomfort-

able, and why were they uncomfortable?

The first question allowed each practitioner to discuss times when s/he refrained from speaking in order to allow clients to speak or act. The second question focused each practitioner's attention toward the feelings of the clients. If community people appeared to be comfortable and enjoying themselves, the work was probably progressing well; if they appeared uncomfortable, there might have been a problem that should be considered. This daily processing (Comings 1981) helped mold the practitioners' behavior and prevented their domination of the photonovel design.

At the outset, the practitioners had had no previous contact with the community, did not know the location of the most significant rodent infestations, nor where they might find cooperation for this project. As a starting point, the practitioners met with local health department staff to get advice and a local perspective regarding rodent problems. They had many useful suggestions including their view that the basic problem was one of people mishandling household rubbish, thus providing food and shelter for rodents. They expressed an interest in the proposed work and assigned an outreach worker to provide a tour of the problem area and to introduce the practitioners to knowledgeable residents.

By the end of the first day in the field, the practitioners had established a working relationship with the local health department and two neighborhood families, and had arranged a meeting (through a neighborhood contact) with a community organization for the following day. By the end of the second day, the assistance of a primary community organization, N-ACT (Neighborhood Action Council of Troy), which represented ten smaller community groups from throughout the city, had been enlisted.

The meeting with N-ACT led the practitioners to meet with another key organization, TINC (Troy Inner-City Neighborhood Center), the following week. With that meeting the working group had expanded to include two community organizations, several local residents, and the practitioners. The concept of the photonovel project had been presented and reviewed, and numerous basic issues that concerned the community had been discussed, and common interests had been explored, including rodent infestations, rubbish accumulations, the need for people to be better informed, racism, government corruption, and employment problems. Consensus was reached that the photonovel project was desirable, could be completed, and designing would begin at the next meeting (the following, or third, week). While the basic origin of this project was a decision of the practitioners, the community was brought into the process very early. In a sense, the practitioners managed the project, but the community regulated the content of the material and attendance at meetings. One major benefit of the initiation phase was that the process provided all participants with a more realistic knowledge base from which to examine the problems and possible solutions. Secondly, this phase enhanced the formation of bonds between the client community and the practitioner professionals. Both of these effects are extremely important and often overlooked in government

or other community aid programs.

### Production

The composition of the working group varied in size from six to fifteen people from meeting to meeting. At the first design meeting, the clients decided that the central theme of the story would be the sanitation problem in their neighborhood. Two other issues - racism and unemployment - were most critical to community interests and were assigned prominent roles in the storyline.

Writing was done with all participants sitting around a large table at TINC, an actual community center. One person served as a transcriber at each meeting with the responsibility periodically rotating to other group members. A general outline was made in 16 squares on a large sheet of newsprint paper, representing 16 pages of the final product. In a more detailed draft, each square was enlarged to include several frames with each containing stick figure characters and basic dialogue. A third design draft contained stick figures with dialogue and notes regarding props, expressions, etc.: pages of this draft had the same dimensions (21.5 cm x 28.0 cm) as would the final product. Later, this draft served as the guide and script for photography sessions and for developing the printing layout.

The time from first contact between practitioners and clients until completion of the final design draft was about six weeks. There were three design sessions in which clients took the lead roles and decided on the theme, characters, dialogue, action, etc., all to reflect what was occurring in their lives. The use of the story format made it possible for people to present issues that they might not have been comfortable discussing in other situations. Content decisions were sometimes made in collaboration with the practitioners, but the client framework was not altered.

Unfortunately, an early onset of winter with heavy snowfall delayed the outdoor photography sessions for nearly four months. Community enthusiasm waned somewhat during this lag period, but the local organizations promptly arranged for the community actors and scheduled photography sessions when the weather was suitable. Two people (usually one practitioner-photographer and one client-assistant) worked together to conduct the photography. Photography could be completed to a greater degree by clients as in one of the photonovels (Rudd and Kichen 1980) modeled after the Troy project. The month of photo sessions (on six different days) required working occasional nights and weekends when working community people would be at home. A neighborhood clean-up party was also photographed for the photonovel; this activity was not staged for this project, but was implemented by N-ACT and TINC during the spring following the project's initiation. This coordinated community action may have been the first measurable product of this project

When all photographs had been printed, one of the practitioners assumed responsibility for matching them to the original sketches of the final design draft. A few retakes (new photographs) were necessary, but most photographs were

directly applicable because the final design draft had been followed closely. A final edited set of sketches was then prepared using the final design draft and the photographs as a guide. These final sketches were paired with the photographs and presented to the clients for their final comments, editing, and approval for printing. The final sketches with photographs were the basis for the paste-up (for printing) which was done by a professional graphic artist in the State Health Department. Use of the graphic artist was a unnecessarily elaborate step that resulted in a fine product, but delayed completion of the project for several months.

The photonovel product, "A Working Neighborhood... What Does it Take?" (Frantz et al. 1978), had an orange cover selected by the client community to parallel the color scheme at the TINC center. Since a central issue was rubbish, the working group decided to have the photonovel printed on recycled paper; the lead content of this paper was also analyzed to ensure its safety to small children who might chew on it. The story concerns a black and a white family who are neighbors, but with a trash-ridden vacant lot between their two houses (see Fig. 1). The men from both households work at the same factory; when a layoff becomes imminent, each of the men suspects the other will take his job. Each of the families accuses the other of being the cause of the rubbish problem and the accompanying rats. After both men lose their jobs, the two families express and then resolve their racial tensions. Eventually, both families come together with other community members to clean up the vacant lots in their neighborhood. The story finishes with an emphasis on the need for community cooperation and unity to resolve issues of community concern. Credits for project participants were given on the inside front cover on the photonovel; the inside rear cover contained advertisements for services offered by the two community organizations (see Fig. 1). The outside rear cover showed a scenic photograph of the neighborhood to stimulate people to examine the booklet. Similar layout designs have been used for other photonovels which have followed the Troy project.

A primary benefit of the production phase is that an intense experience is provided in which clients and practitioners work together as equals in a problem-solving situation. Channels of open communication become firmly established. Professional practitioners are able to view their clients intimately, as real people in real life situations; such experience should lead to more humane, human-scale policies. A tangible photonovel product is produced that is relevant to community needs and contains information to benefit the community. The overall participatory process may effect behavioral changes in the client community and/or professional practitioners which would provide for long-term enhancement of the community environment

### Utilization/Evaluation

By the time of utilization some enthusiasm had been lost, largely due to the long delays in final production and printing of the photonovel. Representatives of the two community groups and the practitioners decided to distribute the pho-

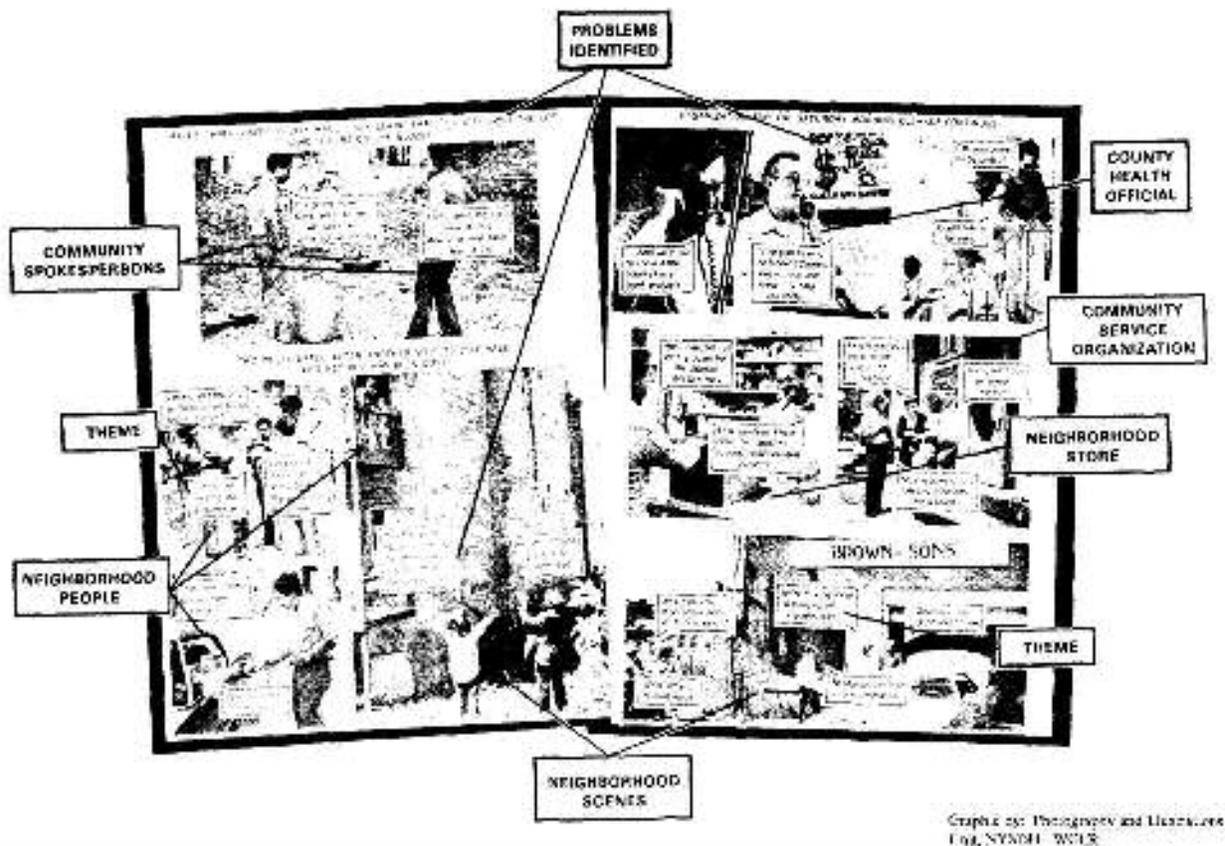


Fig. 1. Basic features of the Participatory Photonovel.

tonovel only after first conducting an evaluation of its educational and attitudinal impact as compared to a more traditional, non-participatory, expert-produced material (RCHD and NYSDH 1969) which had been widely distributed by the local health department. The hypothesis to be tested predicts recognition and identification with the community-produced material and a consequent positive response to the material's message. After the evaluation, a community party and press conference was planned to acknowledge the help of all participants and to promote use of the photonovel.

Names of people cooperating in the evaluation came from mailing lists of N-ACT and TINC and from a random sampling of the local postal directory; people who had been direct participants in the project were excluded. Evaluation participants were randomly assigned to one of the three mailing groups: (1) an experimental group receiving the photonovel; (2) a placebo group receiving the non-participatory, comic-style material entitled "Rudy Rat Says"; and (3) a control group which received no educational intervention. The first and second groups also received a questionnaire designed to measure attitudinal and informational responses to the educational booklets; the third group received a questionnaire to determine baseline attitudes in the community. Of the two hundred people in each evaluation group (600 total), an average of 24% completed questionnaires.

The questionnaires were designed to tap a number of attitudes and recall of specific information including:

1. Satisfaction with the booklet - Do respondents believe the information presented and do they derive satisfaction from the booklet they received?
2. Cultural relevance - Does the booklet relate to respondent's life experiences?
3. Attitude toward collective action -- Do respondents consider trash and rats a community problem that needs a community solution?
4. Attitude toward individual action — Do respondents consider trash and rats an individual problem that should be solved by individuals?
5. Attitude toward local health department—Do respondents feel positively or negatively about the health department?
6. Willingness to participate in a neighborhood clean-up campaign.
7. Information recall -- Do respondents learn the information presented and correctly recall it?
8. Health locus of control -- Do respondents consider the locus of control over health matters close to (internal) or far away from (external) themselves?

Statistical reliabilities were computed on the basis of internal consistency for the questions devised to measure the above items of interest. That is, the degree of consistency of

answers to the questionnaire items had to be assessed. One might expect items placed at the beginning of the questionnaire to be answered in the same manner as those related items positioned at the middle or end of the questionnaire. The similarity of strength of correlations among the items reflects the internal consistency of the questionnaire. Cronbach's Alpha calculated on the basis of Pearson's product-moment correlation coefficients (Cronbach 1960) was used for this initial analysis. The Alpha reliabilities (e.g., 0.80=strong; 0.50=moderate) were in the respectable range: the satisfaction scale had a reliability of 0.80; attitude toward collective action was 0.60; attitude toward individual action was 0.43; attitude towards the local health department was 0.65; and health locus of control was 0.70. The locus of control items represented the only scale on the questionnaire which could be compared to "standard" reliabilities computed on other populations (Roter 1978, Wallston et al. 1978); the findings here were consistent with those in the literature.

Non-parametric (two-tailed) tests were applied to determine significance of difference in the distribution of questionnaire answers, strength of association between variables (Gamma) and, where appropriate, the significance of difference in means (t-test). Differences in the predicted direction were apparent between the experimental and placebo groups on most indicators of interest; an overview of the statistical results will be given here.

Differences were evident in expressed satisfaction with the two products (approached statistical significance) and information recall, indicating that the photonovel was regarded by the experimental group with greater satisfaction and its information retained with more accuracy than was the comic book by the placebo group.

Experimental group participants were better able to relate to their product than the placebo participants. Although prior to the evaluation a greater number of respondents had seen the comic book than the photonovel, respondents indicated that they had recognized people and places in the latter. Moreover, members of the experimental group responded positively to items reflecting similarity of events in the photonovel to their own lives and people and places in the photonovel to those in their neighborhood. This may have been expected since the "Rudy Rat Says" booklet took a cartoon format to which respondents did not relate well.

Respondents in the photonovel group were much more likely to indicate a willingness to participate in a neighborhood cleanup than were placebo or control respondents. Consistent with this willingness, photonovel respondents were more likely to view collective action as more effective in dealing with community problems than individual action (this message had been emphasized in the photonovel). Photonovel respondents also indicated a more positive attitude toward the local health department than placebo or control respondents (in the photonovel the health department had assisted the neighborhood in solving a sanitation problem).

Measures of attitude toward the effectiveness of individ-

ual action on the rat problem were significantly lower among experimental than among placebo group participants. However, confidence in the ability of the community to collectively solve its problems was higher and in the predicted direction (although not significantly) among experimental group members. Differences were consistent and significant when comparing the experimental group to the control group regarding effectiveness of community and individual actions. Differences between the placebo and control on these measures were not significant. The results suggest that a major effect of the photonovel may have been a lessening in a sense of individual power in affecting community problems and a concomitant rise in a sense of collective power to solve community problems. This attitudinal reassessment does not appear to have resulted from cynicism or apathy, in light of the positive response of the experimental group to the behavioral intention question concerning willingness to participate in a community cleanup.

There was some support (though not statistically significant) for a trend rating the placebo group higher on internality measures of health locus of control than the photonovel group. Originally, we expected the experimental group to score higher than the placebo group on internality, thus reflecting greater personal identification and involvement in the photonovel. On re-examining the circumstances, the opposite finding a clearly understandable; it is consistent with a decrease in a sense of personal effectiveness in dealing with community problems for the experimental group to evidence a decrease in internal locus of control. One might suggest that the measure of internality as solely individual power is not sufficiently sensitive to reflect one's sense of collective or community responsibility and power. It may be that a sense of collective effectiveness is a more appropriate value for dealing with environmental problems than individual powerfulness, as it is more reflective of the objective reality. It could be erroneous for us to conclude that the individuals who indicate their health status is beyond their control, and that they are ineffective in changing health-threatening conditions by themselves, are completely resigned to ineffectualness. It may well be that a sense of community transforms personal powerlessness to collective confidence and ability to act.

At the conclusion of the evaluation work, the community party/press conference was held at the TINC center as planned. The printer of the photonovel, located in the same neighborhood, used the front cover design to produce 200 posters which were donated to the project. Some of these posters were used to advertise the party and others were kept to be used later for advertising community events. TINC and N-ACT sent letters of invitation to members of local governments, the press and other community members. Those who attended the party actively participated in group discussions regarding the concept of community/government collaboration, the issues presented in the photonovel. And, as a side benefit, residents had the unusual opportunity to discuss municipal service problems face-to-face with those respon-

sible in local government, including the mayor.

Everyone attending the party received a copy of the photonovel and the two community organizations each received 200 copies to use as they desired; later, an additional 400 copies were mailed to evaluation participants who had not previously received it. A few hundred copies were retained by the State Health Department to promote the concept of community-produced media.

## RESULTS

The results of the evaluation, through mailed questionnaires, were not as conclusive as might be desired, but the assumptions about attractiveness and cultural relevance were supported. A significant positive effect of the participatory process on the attitude toward community action was also indicated. Additional information from interviews of participants, though less objective, support the evaluation data and may indicate that the process of participation is more important than the effects that process has on a final product (i.e., educational medium). Of the professional practitioners, at least one official of the State Department of Health indicated that, without the photonovel project, she would have had virtually no direct contact or personal knowledge that year of the clients of those programs in which her work influences policy decisions. The project definitely reinforced the belief of the State officials in the value of involving people in a process that affects their lives. This type of benefit is difficult to measure because it exists in the attitude of officials who make long- and short-range policy decisions which affect many other people, officials and the public.

The community members who participated in the project did show the photonovel to their friends, neighbors, and relatives. When others saw the photonovel, they often asked the participants for more details about the project. No measure of this effect was attempted, but all client participants who were asked questions about the project, and their neighbor-interviewers, learned some environmental health information in the process. Whether this knowledge was transferred to the community-at-large is unknown, but the participants who acted in the photonovel were recognized for their roles by other community members. There was a strong base on which to build a horizontal communications process in the community, and this process could have been used in other community efforts if the project had had sufficient resources, time, and direction to use it. Recall that this particular project was a test of a concept and was not part of an ongoing program with follow-up activities.

At least one of the participating community organizations promoted use of the photonovel. TINC used it for educational purposes in the public elementary schools and to promote a large-scale community cleanup campaign the year after this project ended. In fact, the municipal government provided financial and manpower assistance for summer cleanup programs during at least the two years following the project.

After the project was completed, interviewed clients stated that they believed they could produce their own

photonovels since: there were amateur photographers in the neighborhood; the clients in the original project were confident they could design and produce the material; and the layout could be completed by a local printer. All of these skills probably existed previously, but were mobilized and brought to awareness by the participatory process. If desired, professional practitioners could now tap this resource through the community organizations. The project demonstrated that this potential could be easily developed while the ability, per se, to produce a participatory photonovel had not been previously demonstrated in the community or the government agency.

## SUMMARY AND CONCLUSIONS

Overall, the evaluation results of this study suggest that the participatory process, with proper application and follow-up, should lead to a more sustained effect than non-participatory methods. The photonovel would appear to be a more beneficial or useful tool for changing behavior than more conventional public information materials.

It must be re-emphasized that the participatory planning and implementation of a photonovel project as described here has two distinct ways of influencing and enlisting the interest of the client community. First, those community members who actually participate in the project get direct attention from the professional practitioners and other community members. Secondly, those people who were unable to work on the production aspects will, in reading the photonovel product, find that they were indirectly receiving attention. Both the process and the product are important when the client community participates as equals with professionals in the production of such materials. Overall, a whole new level of shared respect, competence and interdependence is stimulated with the collaborative model described.

Enlisting community participation in the development of environmental health education (or other) materials as described here is not a mass media or "cookie cutter" technology. The process is labor intensive and should ensure that the material is tailored to local environmental, socioeconomic, and political conditions. Avoiding most of the time delays which occurred during this project, the total time for initiation to utilization of a photonovel should be only about three months.

Photo literature, e.g., the photonovel, is a medium which "stays with" the clients in a physical sense; they can carry it with them, and it requires no special equipment for its utilization. Lastly, the material, production, and printing costs of client/practitioner-produced photonovels are relatively low in contrast to more conventional materials of similar quality. In 1978, the total cost for 1500 copies of "A Working Neighborhood ... What Does It Take?" was about 20% of the production (only) costs of "Rudy RatSays", which was expert-produced nine years earlier. The expense of collaboratively produced media depends largely on the nature of the materials selected by the client-community, not on profit margins. In producing educational literature through community participation and debate over issues of social/

health value, each of us is an "expert."

Each individual can be viewed as unique and special, who has something of value to contribute to the development process, and who has a right -- even an obligation -- to participate in the decisions and events that affect his or her life and that of the community-at-large. While client participation is an effective tool for development, including vector control, it is also an ethical statement by virtue of its social and economic consequences. The ethics under which the development process takes place may very well become the ethics of the resultant developed world of the future. If we want a world where people at all levels of the social strata actively direct the course of their own lives, the responsibility to act as a catalyst for that change is everyone's.

#### OTHER EXAMPLES

Literature regarding participatory educational interventions in support of vertebrate pest management programs is generally wanting. However, some projects about which the authors have personal knowledge and other activities that have occurred in support of environmental health programs can serve as useful models.

##### Childhood Lead Poisoning

As a result of the Troy project, the local health department initiated a photonovel project for preventing childhood lead poisoning (RCHD and HVFIG 1979). Not only was a photonovel produced, but the process resulted in the formation of a rural community organization (with members from three small towns) to monitor and intervene in local health issues.

##### Teens and Decision-Making

Another spin-off participatory photonovel was completed in Massachusetts (Rudd and Kichen 1980) regarding the issues of decision-making and smoking. This project also demonstrated the capability of county technical high schools to produce low-cost, relevant educational materials for other schools in their area. In addition, this project developed a booklet on how to produce photo-literature (Rudd et al. 1980) and a teacher's guide for utilizing the photonovel.

##### Crown-baiting for Rat Control

In the Philippines, the Denver Wildlife Research Center developed a method of baiting the crowns of coconut trees to decrease losses due to rats. The technique was simple, easy to perform, safe and inexpensive. The Coconut Board of the Philippines had 500 extension workers to carry the technology to the farmers, but they needed a systematic way to learn and to teach the technique. The scientists who developed the technique collaborated with extension educators and produced a flip chart to be used to teach the extension agents and with which they would teach farmers. The materials were developed in the field with coconut farmers to be sure that the message would be understood. The final product was an 18-page flip chart and an 8-page manual for the extension agents to follow (Comings 1982).

##### Asbestosis Prevention

In Baltimore, Maryland, The Johns Hopkins University School of Hygiene and Public Health, in collaboration with

the Building Trades Council (representing seven local unions), produced a photonovel that focused on asbestosis (Roter et al. 1983). The story originated from a discussion with construction workers who were involved with asbestos (and some who had been diagnosed as having asbestosis), and they were helped to communicate the dangers of and necessary precautions when working with asbestos. The workers who wrote the story also acted in the photonovel which shows them at work, at home, at a physician's office, and at a union meeting. The photonovel not only directly passed on the information about asbestos hazards, it also caused the workers themselves to discuss the topic and to decide what they should do to protect themselves (Roter et al. 1987).

#### ACKNOWLEDGMENTS

The authors wish to express sincere thanks to the many community people and organizations whose care for their fellow community members made this work possible. In part, this study was financed by USDHEW, PHS Grant No. 02-H-000-070 to the New York State Department of Health.

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