

formation area for typewritten copy is 3" wide by 4-1/2" long if the audience is to be able to read what is projected on the screen. At any rate, copywork should be prepared in a 2:3 ratio of width to length to match the format of 35mm slides.

Seventh, if available, use an IBM 10 pitch Orator ball or the equivalent when preparing typewritten copy for Vericolor slides. Tests conducted among 67 graduate students, teachers of vocational agriculture, and county Extension agents in Texas revealed an overwhelming preference for slides made from copy prepared with the Orator ball (45%), followed by 12 pitch Letter Gothic (27%), and then by 10 pitch Courier (21%).

Eighth, when typing photographic copy, type on non-bond paper such as duplicator or copier paper. Place one or two sheets of backup paper behind the sheet being typed so as to obtain uniform impressions. If you prepare "tape-up" or "paste-up" artwork to photograph, make a photocopy first and photograph that instead.

Ninth, a daisy wheel printer or a laser jet printer used with a word processor can make excellent letter quality work for photographing if printed on non-bond paper. The paper should be free of water marks as these may reproduce and degrade the background color. Using the "Bold" setting on some electronic typewriters or word processors also gives added density to the characters to be photographed.

Processing

Simply have the film developed by a commercial developer using Kodak C-41 processing, the same process that is used to develop color prints. (Do not have the film developed with E-6 chemistry; doing so will ruin the film.) Some commercial film processors have been encountered who must be convinced that the film should be developed with C-41 chemistry. It may be helpful to take the information sheet that comes with the film to processors to show them that the film is to be developed using the C-41 process. Kodak C-41 processing kits are also available for home developing, if desired. However, the convenience and rapidity of the one-hour or overnight commercial processing available today in most university communities is a factor that must be considered.

Can you vary from black-and-white copywork?

You certainly can. Be creative. Experiment! Bracket exposures. Try combining pastel-colored background paper with white background paper to provide visual emphasis in a series of "progressive disclosure" slides. For example, using both canary yellow and white in copywork for a title slide with a #25-A (red) filter will result in a slide with both pale turquoise and dark turquoise in the background. Using typed words and ball point pen ink in the same copy layout will give different line colors. Using pink or yellow Carter's "Hi-Liters" on the copy before taking the slide will also highlight material. Try different

approaches, but keep a record of what works so that you can duplicate the results as needed.

Summary

The two techniques described to produce textual, graphic, and title slides, namely, 1) photographing off a microcomputer's screen or 2) photographing printed copy using Vericolor S0-279 slide film, are very useful for university faculty in agriculture. Both are easy to use and produce slides quickly. The process using S0-279 film and typewritten or word processor printed copy results in slides of the best quality. For persons not having access to good personal computer programs, it is also the cheapest, with slides costing between \$.31 and \$.54, including processing.

Users need to examine their individual circumstances and select the appropriate option. Both have much potential for improving the quality of visuals used in meetings, seminars, and presentations.

References

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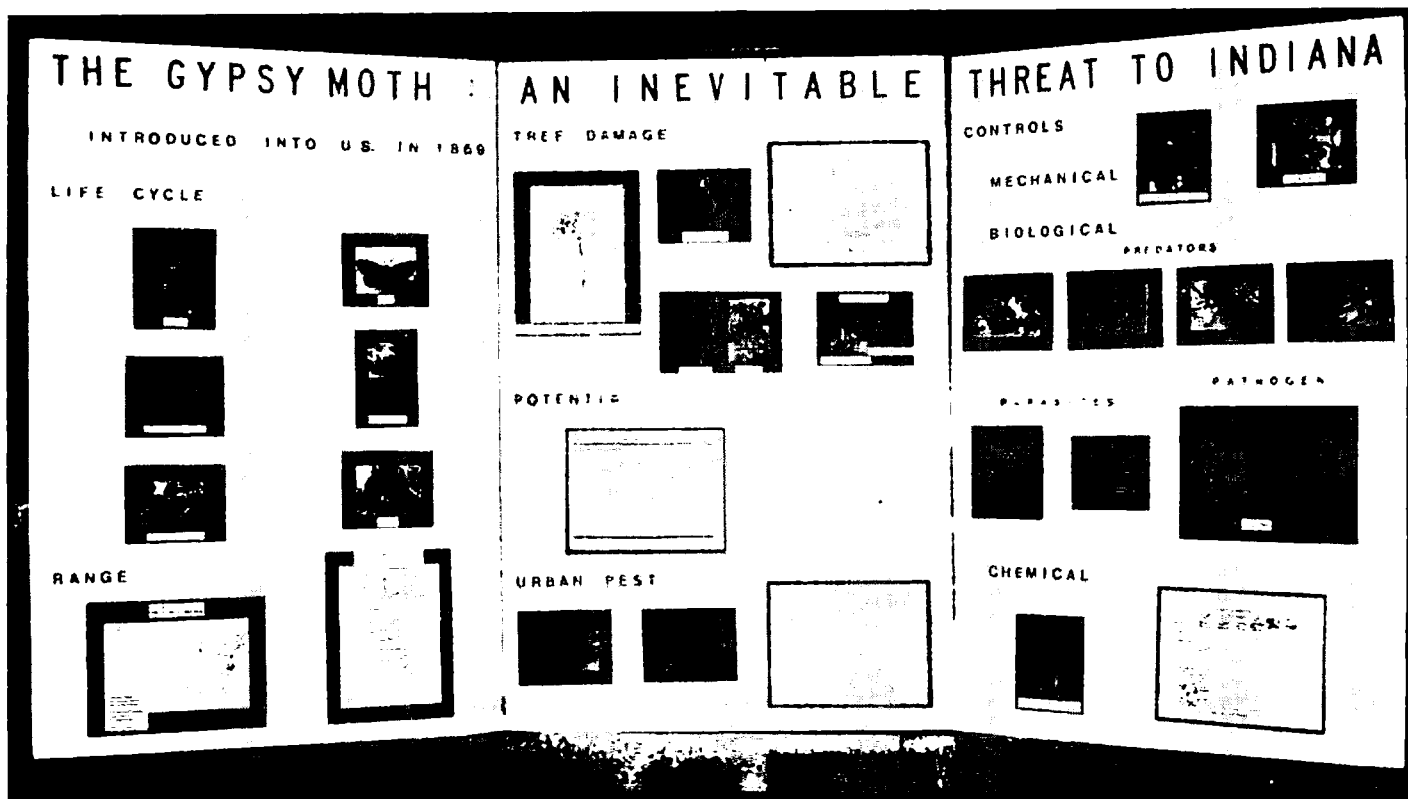
Student Assignment: Classroom Poster Presentation

Alan C. York

The Idea Sharing sessions of the 1984 NACTA Conference used posters for the first time while the Entomological Society of America, my own professional organization, has had posters as a part of its formal conference for about a decade. The popularity of posters is evidenced by the increase in numbers of such presentations from 94 in 1984 to 124 in 1985. Internationally, entomologists at the XVIIth International Congress of Entomology (Hamburg, Germany, Aug. 1984) used a total of 268 poster presentations. Recently, I observed on a trip to China that many research stations also presented their research methodology and results to us through the medium of posters.

Poster presentation has been widely accepted as an effective and efficient method of graphically communicating data from science and technology. The use of posters does not relegate oral presentations to a lesser position, nor do I think the number of oral paper presentations at scientific meetings will decrease

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significantly because of the inclusion of posters. In the Entomological Society meetings oral presentations are on the increase, and poster presentations serve to increase the efficiency of participation in meetings without the need for scheduling more oral presentations.

My personal experience with poster presentations nationally and internationally has allowed me to experience the interaction that occurs between presenter and audience and has brought me to the decision that by engaging in the learning experience of developing and presenting posters, students could benefit.

The Assignment

An upper class/graduate level pest management course I teach, with about 16 to 20 students, has utilized a poster project for the last four years. The poster project is introduced on the first day of class as a part of general philosophy, learning objectives, class procedure and assignments. Students are shown posters that I have personally presented at meetings, and my objectives for using such a methodology of presentation are discussed. Posters from previous classes are shown to the students along with a brief discussion of the good and bad points of each. For the last two years I have also given them reprints of John Forseth's article from *NACTA Journal* (1984) and follow-up articles from the same issue (Vol. 23 (3), p. 33-36).

Students are divided into groups of four or five people; four seems to work best, but either number is suitable. A group leader is appointed for each of the groups. This is usually a graduate student or responsible undergraduate student who can be counted on to keep the group functioning effectively. A list of suggested topics is provided but the groups are en-

couraged to find their own topic, subject to my approval. From past experience a wide range of topics has proved effective. The effects of modified tillage on crop pests; Can cockroaches be managed without pesticides?; Pesticides are a serious threat to honeybees; Advertising has a significant effect on insecticide purchases; The gypsy moth is a serious threat to Indiana forests. Good topics will have a somewhat controversial nature and will stimulate considerable discussion at a later date.

Students work in their groups to research, develop a thesis, write a paper, make a poster-display, and present and defend this display to the class. The group is free to divide up the responsibilities of the project as they wish, but I suggest that the project be broken into the following areas: topic research and report preparation, poster-display construction, abstract preparation, and display presentation and defense.

Students may present any view of the topic they choose, but they are cautioned that their position must be scientifically documented. The required written report must contain citations of documents referenced, and if need be, additional supporting material. An abstract of the report is to be prepared for distribution to the class one week prior to the poster presentation. This is critical because if students have not read the abstracts prior to the class presentation, discussion and interaction are considerably lessened. They are informed that an abstract should be "a summary of the information in a document" (Houghton 1975) and should not exceed 250 words.

The groups are encouraged to prepare a visually dramatic, scientifically accurate and informative pos-

ter-display. We provide 4 by 8-ft. sheets of white "foam-core" board for the backing of the displays, and the students are encouraged to use computer-drawn letters, vinyl letters, or template-assisted letters for the posters. The students have access to cameras and copy stands; film is provided; and university photographic services are used for processing. It is emphasized that if groups are to use photographs additional time must be allowed for processing. Departmental graphics equipment including a laser printer are also available for use. Most of the project's real expenses have been paid for by the department. The average poster project's cost for the past three years has been \$14.00 to \$16.00, an average of less than four dollars per student. The major cost has been the foam-core board.

Presentations are made during laboratory sessions, usually in the penultimate week of class. To ensure preparedness, "bench-mark" dates are set: end of week 4 of the semester — topic chosen and a list of references turned in; week 6 — table of contents and first sentence of each paragraph; week 8 — first draft of paper and preliminary poster plan and items needed; week 11 — report finished including references, figures, and tables; week 13 — abstracts due; week 14 — display *finished* except for finishing touches; week 15 — presentation.

In the laboratory session designated for the presentations, posters are set up about the room and the class visits them one at a time. A spokesperson for the designated group stands with the poster and interacts with the rest of the class. The first poster presentation of each year usually necessitates my asking some questions to stimulate discussion. Thereafter the class loses its reticence and considerable interaction takes place. The level of discussion usually depends on the topic chosen; hence, the need for forethought in picking topics of a volatile, controversial, or otherwise thought-provoking nature. Usually 30 to 45 minutes is spent with each poster.

The project is worth 100 points, about 15% of the semester grade, and is evaluated in the following manner. Visual appearance of the poster is worth 25 points. Enthusiasm and knowledge of the subject of the part of the poster presenter is worth 25 points. The content of the written report is worth 25 points, and the final 25 points comes from a review of each member of a group by the other members of that particular group. Each member of a group rates every other member of his or her group on a scale of 1 to 5 on each of the following attributes: creativity, initiative, dependability, cooperation, and quality of contribution. Students in their evaluation are encouraged to be as honest as possible. They are assured that the evaluation sheets for the remaining members of their group will be held in strictest confidence and will be destroyed after grades are assembled. The evaluation scores for a given student by the other members of his or her group are averaged and added to the remainder of the project score. Generally these evaluation scores range from 12

to 25, with an overall four-year average being about 19+. Dependability and creativity tend to receive the lowest scores.

The project has been extremely successful. While students complain loudly about the project early in the term, final comments are most favorable. In requested written evaluations of the course, comments are nearly always offered concerning the poster-project. One comment stated favorably, "a valuable learning tool, limited only by the student's ambition and initiative. It is a good exercise in doing research, defending your work and communicating your ideas. All are elements characteristic of a good scientist." Another student relayed, "... I was a bit apprehensive about it, but as I worked on it I found myself having fun and feeling creative. I found the discussion of each presentation informative and interesting. I think it should be used in the future."

Conclusions

1. The project is applicable to most areas of study and provides valuable learning experiences for students.
2. Students are exposed to and given practice with a communication tool being used by many professional organizations today.
3. Library, writing, and speaking skills are encouraged in a less traditional and more interesting manner.
4. While the students complain that it is difficult to get groups together to discuss and work on the project, cooperation, delegation of responsibility, and initiative become paramount in the completion of the project.

References

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