

Linking Girls and Their Technological Futures Through Informal Science
An Implementation Model in Iowa

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LINKING GIRLS AND THEIR TECHNOLOGICAL FUTURES THROUGH INFORMAL SCIENCE, is a collaborative project led by the Program for Women in Science and Engineering (PWSE) of Iowa State University (ISU), to create positive permanent change in the Iowa informal education infrastructure by increasing participation of women and girls in hands on science activities. Partners in this effort are the Moingona Girl Scout Council, Selzer-Boddy, Inc., ISU Extension Service's Science, Engineering and Technology (E-SET) wing, and the ISU Research Institute for Studies in Education (RISE). The National Science Foundation (NSF) is funding the project under its Experimental Project for Women and Girls (EPWG) initiative.

We are using a pass-through training model developed by the American Association for the Advancement of Science (AAAS) that trains adult volunteers to train others to conduct hands-on science and math activities in community groups, such as the Girl Scouts and 4-H. In our project adult trainers will train high school volunteers who in turn will train peers and middle schoolers to continue the chain: the idea is to have female role models who the audience can readily identify with, lead the hands-on activities. Dissemination of the model will take place through training sessions across the state and will also make use of the existing fiber optic network that links all 99 counties in Iowa.

The original training module consisted of 14 hours of directed training, two hours of small group planning time, and two hours of video taping/critiquing of activities presented by the trainees to the large group and took place over three days. The directed training included three main components: Gender Equity, Presentation Skills, and Hands-on Activity training. Twenty-eight participants underwent this training in September 1995.

The activities curriculum from AAAS as it stands is very rich in content. But for volunteers without extensive training and comfort level in science, its presentation style can be daunting. Since the success of our project is critically linked to our ability to enthuse and retain volunteers at a diversity of age and experience levels, we felt a strong need to revise the curriculum and customize the training schedule to align with our goals and objectives. The 4-H experiential learning model is serving as a guide in the modification of the activities and preparation of the training and activity manuals. Our proposal to submit the curriculum for inclusion into the national 4-H one has prompted this choice.

The first phase in the revised curriculum incorporates 17 activities into a student (4-6 grade) manual and there will be an accompanying helper's manual to assist leaders (middle school and high school girls, college students and adult volunteers) in delivering it. A Trainer

Training Manual is also under preparation. The educational specialist is working with graphic designers to produce manuals that have visual appeal and are user friendly.

The first group of trainers were invited to critique the revised format. We piloted the activities with groups of target age children in four Girl Scout troops and an after school program at a local elementary school. The response of the children to the activities as well as to the leaders (in pairs, one adult and one college student) has been very positive.

Based on feedback from the focus group with participants at the first training, the training session has been modified to fit a four hour core format with the option available to expand on specific components of the training based on need. For example, Girl Scouts trainer/trainees indicated the preference for expanded hands-on activity training while the College students expressed a greater need for the presentation skills component.

The college women who were trained at the first training session had the opportunity to practice the gender equity and effective presentation strategies in leading elementary school age girl scouts in hands-on science activities developed by the national science Partnership project funded by NSF. There was a total of 310 girl scouts reached in three activity sessions. The first trainer group is also providing support in piloting the modified curriculum.

A total of nine focus groups were conducted with the project target audience throughout the state in order to 1) assess overall attitudes and awareness levels about math and science among youth, 2) examine the potential for linking this project to existing organizations, 3) evaluate respondent interest in participating in the project and response to proposed activities, and 4) examine the role/need for gender equity awareness/training. The results from the analysis of the focus group information are being fed back into our project design and delivery. The key results from the focus group research are being presented at the WEPAN poster session.

The first year focus of the project has shifted more towards development and refinement of the activities and training modules. Extensive piloting with test groups is an ongoing process. Focus group findings from our target audience are being used to refine the project and optimize delivery. We are collecting data with all participants relating to the training, interest level in continued participation as well as any attitudinal changes relating to math and science.