OPERATION CLEAN DESERT

N. Duhe
Stoller-Navarro Joint Venture

K. K. Snyder
U.S. Department of Energy
Nevada Site Office

ABSTRACT

In order to gain a fresh perspective on information given to the public, as well as exploring new ways to explain the highly technical and often times confusing world of Environmental Management at the Nevada Test Site, the U.S. Department of Energy Nevada Site Office Environmental Management public involvement group teamed up with Advanced Technologies Academy High School in Las Vegas, Nevada through a grant to form the Environmental Management Student Forum.

During the student's first year, the students were tasked to come up with a concept for explaining Environmental Management activities occurring at the Nevada Test Site to children. After studying Environmental Management projects the Forum decided to create a children's display with a comic book theme called Operation Clean Desert. The goal of the display was to develop a communication tool that would be educational, interactive, and interesting to elementary school-aged children. Through the use of animation, interactive pieces, and bright colors, the completed display achieved all three goals.

Student Forum members were responsible for writing scripts, developing characters and creating animation for the display. After the scripts were prepared the text was then reviewed by U.S. Department of Energy Nevada Site Office scientists and project managers to ensure all topics were explained correctly and scientific information was not lost in the translation from technical jargon to laymen's terms. Dr. Proton and Adam the Atom were created as the main characters that would be used throughout the display. The animation was done in a comic book theme called anime, which is a popular style for interactive games as well as animated television programs. Interactive elements on the display were developed including questions that require children to wear special glasses to decode answers and doors that reveal hidden messages and pictures. With the use of the above-mentioned features the display explains all aspects of Environmental Management which include, Environmental Restoration, Waste Management, and Technology Development.

Even though the main focus of the display was to explain current Environmental Management activities at the Nevada Test Site, secondary topics are also illustrated adding to the usefulness and diversity of the display. These topics include, but are not limited to, the history of the Nevada Test Site, science of radiation and career opportunities ranging from communications to science.

In this era of advanced information, children are exposed to a large number of topics they might have questions regarding and do not fully understand. The U.S. Department of Energy Nevada Site Office's Clean Desert display is the perfect tool to help answer some questions children might have concerning a site that served as a nuclear testing area during the Cold War and is currently active in our country's environmental and defense missions.

BACKGROUND

A 1992 study revealed that nearly 50 percent of the American population does not read well enough to find a single piece of information in a short publication. Nor are they able to make simple inferences based on what they read. [1] It is often a challenge to develop informational material that is interesting and understandable for stakeholders but it is crucial to create products that the public can easily understand.

The need to make documents more readable to the general public is not only an idea, but a goal made to all federal agencies. In a memorandum released on June 1, 1998, heads of executive departments and agencies were directed to use plain language in all new documents that explain how to obtain a benefit or service or how to comply with a requirement. [2] The Administration at the time incorporated this effort into the National Partnership for Reinventing Government. [3] This presidential directive applies to much of the ongoing work at the Nevada Test Site, which is highly technical.

In spite of constant effort, stakeholder feedback has indicated that some publication materials generated by the U.S. Department of Energy National Nuclear Security Administration Nevada Site Office Environmental Management (EM) program were difficult to understand or were not presented in an appealing format designed to pique the interest of the average person. A fresh perspective on information given to the public, as well as exploring new ways to explain the highly technical and often times confusing world of Environmental Management at the Nevada Test Site was in order.

ENVIRONMENTAL MANAGEMENT STUDENT FORUM

To address this need, a student "sounding board" was envisioned by the EM Public Involvement staff that could provide objective views and insights related to potential enhancements and changes to informational material to make it understandable and reach a broad audience. Through a grant, the EM Public Involvement staff teamed up with Advanced Technologies Academy High School in Las Vegas, Nevada, to form the EM Student Forum.

The EM Student Forum, a pilot program formed in 2001, was designed to provide essential feedback on communication material and product development. Comprised of 6-10 students, the Student Forum work with members of the EM Public Involvement staff to:

- Review draft informational materials and provide feedback regarding readability, subject understanding, and graphic appeal;
- Develop/produce outreach products, such as the EM Clean Desert Display; and

- Support community outreach events in order to understand how the Public Involvement staff informs the public about EM programs through communication products.

In exchange for the students' participation, a five-year grant has been awarded to the school and each student receives an honorarium. By participating in outreach events, such as open houses, the students have strengthened their communication skills while explaining the EM Program to the public. Overall, the program has provided students with hands-on experience in writing and communications; potential career opportunities in the environmental field; a fresh look at college opportunities; community involvement; and awareness of environmental issues and concerns. That outcome, combined with improved communications materials has resulted in a "win-win" for the students, the Nevada Site Office, and the stakeholders of Southern Nevada.

The goal of the EM Student Forum is twofold: (1) develop inviting, understandable communications materials to enhance stakeholder understanding of EM programs, and (2) provide a mechanism for students to gain experience in day-to-day work activities (team work, writing projects, deadlines, working with outside agencies) while helping the EM Program strengthen public outreach materials.

Students have reviewed EM outreach materials for readability, subject understanding, and graphic appeal and have provided constructive feedback to the U.S. Department of Energy. This effort has resulted not only in better community information products, but has provided a mechanism for students and their teachers to learn about Nevada Test Site projects.

ABOUT ADVANCED TECHNOLOGY ACADEMY

Advanced Technologies Academy, recently recognized by the State of Nevada for outstanding student performance and test scores, was developed to provide students with the necessary education and training to compete in the highly technological world.

The mission of Advanced Technologies Academy is to provide ethnically diverse students with the knowledge and skills necessary to succeed in a highly competitive technological world. The integrated academic and career computer enhanced curriculum prepares students for entrance into post-secondary education and/or provides skills for a successful school-to-work transition. A student/teacher ratio of 21/1 and a computer/student ratio of 1/1.5 ensures that students become knowledgeable in theory, as well as experienced through hands-on, highly individualized learning techniques. Qualified students also participate in product development, business partnerships and internships during their tenure at the academy.

Academics

Acceptance to Advanced Technology Academy is based on academics, test scores, teacher recommendations, and interest in a selected program area as demonstrated in a writing sample. The Academy program areas are as follows: Business and Finance, Computer Art and Graphic Design, Computer Assisted Drafting & Design (CADD), Computer Science, Law Related Careers, Management Information Systems, Systems Technology Support, Technology Applications.

Approximately 1,000 applications are received each year for an available 200 seats. Upon admission, students decide on classes from their program area. Academic core classes are selected based on an identification of student strengths and weaknesses and input from former instructors, students and parents.

The school's academic level is challenging, requiring that students be focused, develop good study and time management skills, and be organized. Courses are provided in English, science, mathematics, social studies, health/physical education, humanities, and foreign language as well as courses in the student's selected program area of study.

The use of technology in all classes amplifies the math/logic-based thinking activities of the Advanced Technologies Academy student. Creative thinking, problem solving and decision-making skills are encouraged in all subject areas and students are supported in their pursuits of individual product and theory development. Students must maintain a minimum grade point average of 2.0 on a 4.0 scale to remain at the academy.

"OPERATION: CLEAN DESERT" DISPLAY

A major outcome of the EM Student Forum was design and development of the EM Kid's Exhibit known as "Operation: Clean Desert." The Forum was provided direction to create a fun, inviting exhibit aimed at primary to middle school students to explain EM activities at the Nevada Test Site.

The display features "Adam" the Atom and Dr. Proton, original characters designed and developed by the Forum to explain the historical testing program and subsequent environmental cleanup in a comic-strip type format. The majority of the graphics were developed by the students, and are comprised of a variety of pieces that are mounted on magnetic display boards to incorporate three-dimensional animation, removable parts, and interactive pieces. Measuring 11'(3.35 meters) wide, 7' (2.13 meters) deep, and 8' (2.43 meters) tall, the display includes a canopy and banner that invites visitors in. Once inside the exhibit, visitors are invited to don "decoder glasses" used to decode messages and puzzles embedded in the exhibit.

The display explains the mission of the EM Program while providing a hands-on learning experience for children of all ages. It combines easy-to read information related to historical nuclear testing activities, elements of language development, and provides colorful current project descriptions into a fun, easy-to-understand product for children and adults alike. All materials are copyrighted, and work is underway to trademark key elements of the exhibit. A positive response has been received from both children and adults who have visited and experienced the display. School teachers have expressed an interest in incorporating the exhibit into their curriculum and have given the entire approach a favorable review for an innovative approach to learning.

Completed in August, 2003, the display has been exhibited at the White Pine County Fair, the Pahrump Fall Festival, local libraries, science fairs, and community organizations.

Activity Book

To reinforce the topics of the display, the Student Forum has created an activity book which uses the same animation style and characters that were used in the display. In the activity book the kids are challenged by a variety of games such as: word searches, mazes, and word puzzles.

The advantage of having an activity book is children will not only learn while at the display but they can take the book away with them for future learning.

CURRENT PROJECTS AND TASKS

This year's Student Forum has been tasked with utilizing available EM products in an educational setting. One of the venues would include elementary science classes where Forum members will do hands-on experiments with children and then discuss the outcome with the children. Forum members will explain the experiment and help to answer questions such as, "Why was the sample taken?" and "What do you do with the results?" These activities will provide students with a wide variety of experiences and skills-building opportunities ranging from teaching to public speaking and EM also is getting information to the public about the various activities at the NTS.

This year's student forum group project is creating an interactive computer game that will mirror the topics of the display and activity book. The computer game will also use the two lead characters of Dr. Proton and Adam the Atom and will be posted on the Nevada Site Office website, the added feature will be a quiz that will allow the users to acquire points and if they get a high score it will be posted on the site.

CONCLUSION

In this era of advanced information, children are exposed to a large number of topics they might have questions regarding and do not fully understand. The U.S. Department of Energy Nevada Site Office's Clean Desert display along with the activity book are the perfect tools to help answer some questions children might have concerning a site that served as a nuclear testing area during the Cold War and is currently active in our country's environmental and defense missions. Also, having the EM Student Forum review and provide feedback on informational material, helps in the EM Public involvement staff development outreach products that are in a more comprehendible format.

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