A REAL-TIME LINK TO RESEARCH

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ABSTRACT: Live from Monterey Canyon is an educational exhibit at the Monterey Bay Aquarium which introduces the public to ongoing deep sea research. The program takes advantage of microwave and multimedia computer technology as well as personal interpretation to give the audience a direct link to the research expeditions. Interpreters use an electronic encyclopedia of video images, still photographs and illustrations on laser disk. They encourage audience participation and use the visual encyclopedia to adapt the program to each audience’s interests. An Asynchronous Transfer Mode (ATM) Internet connection carries the interpreted program from Monterey to San Jose where it serves as an exhibit at the Tech Museum of Innovation.

INTRODUCTION

For many people, observations and interactions with researchers doing science can provide a unique, personal link with the scientific process. Live from Monterey Canyon provides such an opportunity as one of the educational collaborations between the Monterey Bay Aquarium Research Institute (MBARI) and the Monterey Bay Aquarium (Connor & Deans, 1993). The program takes advantage of technology and the special relationship between the two institutions to bring current marine engineering and scientific research to the public.

The Monterey Canyon, a deep submarine canyon that carves the bottom of Monterey Bay, meanders out from its head near Moss Landing seaward to the abyssal plain 4,000 meters deep. The proximity of the canyon allows scientists at MBARI to investigate and experiment in deep sea habitats on daily cruises. On those cruises, biological oceanographers, ecologists, geologists, and geochemists at MBARI use a remotely-operated-vehicle (ROV) equipped with video cameras and instruments for collecting samples. The ROV is attached by cable to the research vessel and is capable of sending video images and other data up to the ship from the depths of the submarine canyon.

TECHNOLOGY FOR PUBLIC EDUCATION

MBARI brings its research to Monterey Bay Aquarium visitors by sharing information and live video images from the submersible while it’s working deep in the bay. Engineers at MBARI have established a permanent microwave link between the ship and land. Images from the deep sea habitats are instantly relayed by microwave broadcast signals back to the aquarium and projected on a large screen in the auditorium.

The Live from Monterey Canyon program takes advantage of both technology and spirited personal interpretation to give the audience a direct link to the scientific process (Connor, 1991). The live program runs every day that the MBARI ships and submersibles are working at sea; a taped video program is available at other times. Aquarium visitors can join the program and stay in the auditorium as long as they like. Trained staff from the aquarium and the research institute are on hand during the proceedings to interpret the ongoing research and answer questions.

The interpreters (who include MBARI scientists and technicians as well as aquarium educators and biologists) are an important element in keeping the program effective and entertaining. All have an academic background in marine sciences, reinforced with interpretive training sessions, current reading
materials and lectures. Most of the interpreters have had first-hand experience on board the ship; some use the submersible for their own research.

Because each day's research dive is unique, the great challenge is to interpret the live video broadcasts with their unforeseen events and unfamiliar animals. An electronic encyclopedia based on multimedia technology provides innovative support to the interpretation. Interpreters stand at a podium and use a computer touch screen to access the visual encyclopedia. The encyclopedia includes moving video images, still photographs and illustrations of the submarine canyon geology, deep sea organisms, the researchers and research tools on a laser disk. The computer program also contains background information notes on the topics. An interpreter who can't remember facts about a particular technology or animal or other topic can quickly and discreetly check the notes and review the information on that topic.

High speed data communications using the fast (155 million bits per second) Asynchronous Transfer Mode (ATM) allow us to transmit data, audio and video of the Live from Monterey Canyon program to the Tech Museum of Innovation in San Jose. The two way link permits visitors to the Tech Museum to watch the proceedings and then join in by sending a signal to the interpreter at the aquarium. The interpreter, who sees Tech Museum visitors on a small video monitor in the podium, can turn on an audio connection to take questions from San Jose. The pace of interactions with two distinct audiences can sometimes be a challenge to the interpreter. Those of us who interpret the "link" support and encourage our fellow interpreters to rise to the challenge.

DISCUSSION

The most educational and entertaining link sessions occur when the audience gets actively involved in the program. Individual interpreters have developed effective ways to encourage audience participation. Because the interpreters share information and techniques, we all learn from one another. Sometimes, like at the IAMSLIC conference, an interpreter needs only to ask for questions to initiate a dialogue with the audience. On other days, the interpreter may choose to display some strange and beautiful organisms (Deans, 1996) or introduce a controversial topic to stimulate questions.

Live from Monterey Canyon is the only program of its kind in the world. The program represents a long-term commitment to educational collaborations between a public aquarium and a research institution. Innovative computer and microwave technologies coupled with traditional interpretive techniques allow us to adapt the program to the specific interest of almost any audience and send the program out to distant sites.

REFERENCES

