

Cyberchase

Season 5 Pilot Summative Research: How Are Outreach Materials Used?

Executive Summary/Overview of Results



Shalom Fisch, Ph.D.

Research conducted for Thirteen/WNET
June, 2006

MediaKidz Research & Consulting

78 Grayson Pl.
Teaneck, NJ 07666
Ph/Fax: (201) 833-9415
E-mail: mediakidz@lycos.com

To prepare for future summative research on the synergy among multiple educational media, the present pilot research explored real-life use of *Cyberchase* outreach materials. The present pilot study included: a Web survey of 48 outreach providers (representing over 3000 children in 19 states), follow-up phone interviews with 26 of these providers, and in-person observations at two outreach sites, one in New York and one in Massachusetts. With an eye toward future summative research, the resulting data yield conclusions and implications in two broadly defined areas: providers' use of *Cyberchase* outreach materials and possible directions for measuring the outcomes of such use.

Use of Outreach Materials

Taken together, the data from the Web survey, phone survey, and in-person observations encompass a wide variety of providers in a wide variety of outreach settings (schools, after-school programs, museums, libraries, educational sessions led by engineers, etc.). Some general trends emerged that held true across all of these settings – for example, most providers used more than one type of *Cyberchase* outreach materials, most sessions were conducted with groups of between 1 and 30 children, and most sessions ran between 16 and 30 minutes.

However, as expected, the data also make it abundantly clear that there is no such thing as one “typical” pattern of use. We observed great diversity in virtually every aspect of use: the providers' purposes in using the materials, the audiences they served, the ways in which they selected the hands-on activity for a given session, the ways in which they presented the activities, the amount of guidance and instruction they provided during a session, and how (and whether) they integrated the hands-on activities with other *Cyberchase* media or non-*Cyberchase* materials/activities. Indeed, these did not only differ between different types of providers (e.g., after-school leaders vs. engineers), but within each type of provider too.

Certainly, some of this diversity might be attributed to the inclinations of individual providers. Yet, several factors emerged that appeared to contribute to some of the diversity of use. If so, these factors might also be used to help predict some of the variation that might be observed in future summative research (or in the real world):

- As might be expected, school and after-school staff more often worked with children on an ongoing basis, allowing them greater opportunities for knowing the children's levels of ability and using *Cyberchase* in more than one session with the same children.
- To some degree, the nature of the provider and the audience influenced the purposes for which the outreach materials were used – that is, whether they were used to educate children about a particular mathematical topic, stimulate children's interest in mathematics or engineering in general, introduce parents to ways to use *Cyberchase* at home with their children, and so on. Depending on the purpose of the session, providers might then employ the activities or other *Cyberchase* media differently.

- Providers often modified both the activities they presented and the amount of guidance they provided, as a function of the age of the children they served.
- Providers who were more experienced with *Cyberchase* used a greater variety of *Cyberchase* outreach materials and were more likely to use multiple media. This might be due to their becoming more facile with *Cyberchase* materials over time, and/or to receiving other outreach materials that had been produced in past seasons.
- Providers' decisions as to whether to divide children into small groups for outreach activities appeared to be influenced by: the size of the overall group, the type of media being used (e.g., computers were often used by children individually or in pairs), children's level of math performance (with small groups more likely to be used for at-risk children), and perhaps the type of provider and setting (e.g., museum educators may have been less likely to divide children into groups).
- Some providers appeared to apply the *Cyberchase* TV series and Web site somewhat differently. The TV series was often closely integrated with a hands-on activity, as a means of motivating children and/or introducing the topic. By contrast, the fit was not always as tight between hands-on activities and online games. Although some providers spoke about selecting specific *Cyberchase* online games because they dealt with similar mathematical content, others seemed to treat the games more as "free play" to be done at the end of the session.

In addition, most providers also spoke about educational benefits of *Cyberchase* that they had observed among the children they serve. These observations not only serve as informal indications of impact, but also suggest possible directions for attitudinal and academic outcomes that might be measured more systematically in future summative research:

- Indicators of attitudinal outcomes included: enthusiasm and excitement during *Cyberchase* activities, spontaneous references to *Cyberchase* during non-*Cyberchase* math activities, retelling the plot of *Cyberchase* episodes seen at home, less complaining about math, parent reports of children's spontaneous positive comments at home, choosing to play *Cyberchase* games during free computer time, and increased requests for math-related books.
- Indicators of academic outcomes included: increases in mathematics test scores, the sophistication of children's performance while working on *Cyberchase* activities, their use of mathematical vocabulary (e.g., words such as "inverse"), and the degree to which children tended to speak spontaneously about mathematics.

In sum, the present study fills a necessary prerequisite for future summative research on children's learning from multiple media. The study contributes to our understanding in several respects: (1) by lending insight into the broad range of ways in which outreach materials are used in the real world, (2) by opening a window into some of the ways in which outreach materials are integrated with other media, and (3) by suggesting some possible areas of impact and observable means of gauging these outcomes. All of these new understandings will be crucial in approaching the design of future summative research. Perhaps most important, though, a richer understanding of real-world use can also help to inform the creation of future outreach materials, so that they can be as useful and effective as possible.