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Final Report

Evaluation of 2010-2011 *Energized Guyz* Elementary and Middle School Programs

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EXECUTIVE SUMMARY

The National Theatre for Children (NTC) has developed in-school energy literacy curricula to teach elementary and middle school students about energy production, conservation and water conservation. NTC has delivered its energy efficiency module, entitled *The Energized Guyz*, to elementary schools in the Tennessee Valley Authority (TVA) service territory since the 2008-09 school year, and added a curriculum for middle schools starting with the 2010-11 schools year. In the most recent academic year, the programs were delivered in 800 elementary schools and 300 middle schools.

In 2010, The NTC Research Foundation contracted with Research Into Action, Inc., to conduct an independent evaluation of the elementary and middle school programs in TVA's five-state service territory. The goal of the evaluation was to assess whether the programs help students learn key energy- and water-related concepts. Curriculum developers were also interested in how knowledge affected student attitudes toward conservation and self-reported conservation behaviors.

This report presents initial findings based on the first nine months of the planned three-year evaluation. The first-round evaluation examined whether students at schools where the curriculum was delivered (intervention group) showed improvement on a test of energy- and water-related factual knowledge. The evaluation also seeks to reveal changes in pro-conservation attitudes and self-reported behaviors among students exposed to the curriculum versus those students that did not receive the curriculum (control group).

Students were tested at the beginning the 2010-11 school year and near the end of the spring term; students at half of the intervention schools were also tested shortly after the curriculum was delivered (in the fall term). Analyses controlled for differences among schools in demographics (urban or rural, percent minority), grade level, previous school exposure to the program, and home language other than English. The curriculum differed for elementary and middle schools, as did the test. Although the program was presented to all grade levels in each school, the evaluation included only upper elementary grades (grades 3, 4, and 5) and grades 6, 7, and 8 in middle schools.

In elementary schools, *The Energized Guyz* curriculum increased knowledge for third graders, especially those who took the fall post-test. Researchers found that students in grades 4 and 5 scored so high on pre-test energy knowledge that there was little room for improvement of baseline knowledge. To address this issue, the research team recommends more challenging pre- and post-test standards in the 2011-12 academic year that will lead to a more robust test of curriculum effects.



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In middle school grades, the NTC program curriculum increased knowledge of both energy-related and water-related factual knowledge. The program effect showed statistical significance among all grade 7 and grade 8 students who received the intervention. While grade 6 students also showed knowledge improvement, the effect for this age group missed statistical significance.

At pre-test, students at both intervention and control elementary schools showed very high levels of agreement that saving energy was important. These data indicate that student awareness of energy issues is quite high and suggests that this student population may be predisposed to changing attitudes about energy consumption and may be receptive to take positive steps. Additional testing and analysis (in future school years) will help establish the relative strength of this link.

Overall, the analysis showed the curriculum effect increased factual knowledge – especially relating to water conservation – and students appeared to show short-term increases in both energy- and water-related pro-conservation behavioral intentions.

In upcoming school years, the research team intends to examine the long-term intentions of students, and establish differences between intervention and control students. These questions will assess pro-conservation attitudes and self-reported behaviors – areas of the study that may further connect the curriculum’s impact on factual knowledge.

