Supporting Statement B for

***Brain Power!* The NIDA Junior Scientist Program** and the Companion Program, *Brain Power!* Challenge (BP)

Extension of Currently Approved Collection
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Prepared by:
Danya International Inc.
8737 Colesville Road, Suite 1100
Silver Spring MD 20910

Submitted by:
Cathrine Sasek, Ph.D., Project Officer
National Institute on Drug Abuse
National Institutes of Health
6001 Executive Boulevard, Room 5230
Rockville, MD 20892
Phone: (301) 443-6071
Fax: (301) 443-6277
Email: csasek@nih.gov

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B. COLLECTIONS OF INFORMATION EMPLOYING STATISTICAL METHODS

B.1 Respondent Universe and Sampling Methods

DeHavilland Associates will be responsible for recruiting participating schools. Participating schools will be recruited from the population of elementary and middle schools located in the Washington, DC; Atlanta, Georgia; and Raleigh-Durham, North Carolina, metropolitan areas. These areas were chosen primarily because each area is socioeconomically, racially, and ethnically diverse, thus providing an ideal population in which to conduct behavioral research. According to the National Center for Educational Statistics, during the 2003–2004 school year, the racial composition of students in the Washington, DC; Atlanta, Georgia; and Raleigh-Durham, North Carolina, metropolitan areas was as follows:

- Washington, DC, Metro Area:
  - American Indian/Alaskan Native—0.04%
  - Asian/Pacific Islander—8%
  - African-American—33.6%
  - Caucasian—45.3%
  - Hispanic—12.7%
- Atlanta, Georgia, Metro Area:
  - American Indian/Alaskan Native—0.2%
  - Asian/Pacific Islander—4.0%
  - African-American—38.7%
  - Caucasian—48.7%
  - Hispanic—8.4%
- Raleigh-Durham, North Carolina, Metro Area:
  - American Indian/Alaskan Native—0.3%

- Asian/Pacific Islander—3.4%
- African-American—33.1%
- Caucasian—55%
- Hispanic—8.2%

According to the U.S. Census Bureau, during 2004, the median annual household income in Washington, DC; Georgia; and North Carolina was $46,211, $42,679, and $40,863, respectively (U.S. Bureau of the Census, 2004).

B.2 Procedures for the Collection of Information

Given the demographic characteristics of the population within the recruitment areas, it is anticipated that a diverse sample of children will participate in the study. To ensure that group assignment is evenly distributed across socioeconomically, racially, and ethnically diverse communities, a stratified random assignment procedure will be used, in which schools willing to participate in the study are stratified by percentage of free and reduced-price lunches and percentage of non-Asian minorities. Each stratification variable will be divided into thirds based on the actual distribution of data, then one school from each of the eight outside cells and two schools from the middle cells will be randomly selected. Within these schools, one classroom at each selected grade level will be assigned to the Treatment group and one to the Control group. By using the within-school sampling procedure, factors associated with willingness to participate will not differ between the Treatment and Control groups. While seeking volunteers limits generalizing the findings to some extent, it is a practical constraint that must be respected, and such a limitation is acceptable in initial-outcome evaluations such as the one proposed.

It is estimated that the total student sample will comprise 640 students in grades K through 5 and 550 students in grades 6 through 9. The estimated total teacher sample will comprise

125 teachers. The choice of sample size is informed by power analysis. According to Cohen (1988), the power of a statistical test is the probability that it will yield statistically significant results. In other words, the higher the power coefficient, the less likely it is that one will accept a false hypothesis. The calculation of power coefficients depends on a number of factors: the within-cluster sample size, total number of clusters, effect size, intracluster correlation and variance. Under the assumption of medium effect size (0.20), the sample size has the power of 0.52, and with high effect size (0.50), the power is 0.98.

Immediately following OMB approval, the needed paperwork requesting permission to conduct this study in the participating schools will be submitted. Upon approval, principals in all participating elementary schools will be sent a preliminary recruitment letter inviting their schools to participate in an assessment of the *Brain Power!* curricula in their classrooms; a stamped and addressed "interest in participation" form will be included with the letter. Principals who return the form indicating an interest in participating will be sent a second letter with more detailed information about the project and the requirements of participation, including information about the within-school assignment approach and the fact that not all schools wishing to be included in the study can be accommodated. Principals will then be informed of classroom assignments, and materials describing the overall study and its approach will be prepared for them to share with teachers. Should the principals desire, project staff will attend a teachers meeting to explain the study in person and answer any questions that may arise. The *Brain Power!* curricula will be offered to all participating schools free of charge.

Letters will be sent home to parents of students in the participating classrooms, describing the study and the data that will be collected to evaluate the efficacy of the curricula. Parents will be instructed to read and sign letters of consent before the first scheduled time of

data collection. Letters of assent will be obtained from children at the first time of data collection. Only children with signed parental consent forms and signed assents will be allowed to participate in the study.

The following information will be collected from students before and after exposure to the curriculum: knowledge about the biology of the brain and the neurobiology of drug addiction; knowledge about drugs and drug addiction; attitudes toward science and scientists; understanding of scientific careers and the diversity of individuals who pursue science as a career; attitudes towards drug use; and intentions to use drugs. Data will also be collected in the evaluation from parents and teachers of children. Self-report measures have been developed to collect these data in the least time-intensive manner possible. Trained evaluators from Westat will collect all data from respondents in person. Table 7 below lists the questionnaires that will be used in this study.

Table 7. *Brain Power!* Study Instruments

Form	Study Instrument
Form A	Knowledge Questionnaire, Grades 2–3
Form B	Attitude Questionnaire, Grades 2–3
Form C	Interview protocol for K–1, Knowledge
Form D	Interview protocol for K–1, Attitudes
Form E	Knowledge Questionnaire, Grades 4–5
Form F	Attitude Questionnaire, Grades 4–5
Form G	Knowledge and Attitude Questionnaire, Grades 6–9
Form H	Survey for Grade 2–3 Treatment Group Teachers
Form I	Survey for Grade 2–3 Control Group Teachers
Form J	Survey for Grade K–1 Treatment Group Teachers
Form K	Survey for Grade K–1 Control Group Teachers
Form L	Survey for Grade 4–5 Treatment Group Teachers
Form M	Survey for Grade 4–5 Control Group Teachers
Form N	Survey for Grade 6–9 Treatment Group Teachers
Form O	Survey for Grade 6–9 Control Group Teachers
Form P	Classroom observation protocol for *Brain Power!* Lesson Modules
Form Q	Online Survey for Grade K–5 Teachers
Form R	Online Survey for Grade 6–9 Teachers
Form S	Parent Feedback Postcard
Form T	Protocol for Parent Interviews for *Brain Power!* Study

B.3 Methods to Maximize Response Rates and Deal with Nonresponse

All assessments will take place in the classrooms and will be conducted by the research team, which will enhance the likelihood of achieving very high response rates. The only factors that will diminish response rates will be refusal of parents to provide consent or extended student absence. An attrition rate of less than 5 percent is expected, based on the attrition rate for similar studies previously conducted in school settings by Danya. In an effort to encourage full participation, project staff will work closely with schools and parents to alleviate any concerns that may arise about this project.

B.4 Test of Procedures or Methods to be Undertaken

Questionnaires designed by Westat researchers to be used in the project (see section A.2) have been pretested with a small group of appropriate-age children to determine the readability of these measures, as well as to ensure that neither a ceiling nor basement effect exists. All instruments chosen for use in the study have been written specifically for use with children within the age range of those who will participate. The reading level of all new instruments will be assessed using the Flesch-Kincaid Grade Level measure.

B.5 Individuals Consulted on Statistical Aspects and Individuals Collecting and/or Analyzing Data

To control for potential researcher bias, Danya has subcontracted with Westat to conduct data collection and analysis for this project. Westat is a social-science research firm located in Rockville, Maryland, with extensive experience in program assessment. Westat employs a large group of senior scientists with the skills needed to develop the assessment instruments, design and select the sample, collect and analyze the data, and provide a summary of results. Westat has worked hand in hand with a variety of Federal agencies to collect scientific data that can be used

to provide a sound, rigorous evaluation. Westat will work with Danya as a collegial but independent agent to provide an assessment of the extent to which the curricula are successful in achieving their primary and secondary purposes.

Danya Project Manager:

Greta Tessman
Research Associate
8737 Colesville Road, Suite 1200
Silver Spring, MD 20910
(240) 645-1057
gtessman@danya.com