Alcohol and Inquiry-Based Science: Putting a New Face on Prevention

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Underage drinking is a substantial problem that needs to be addressed by educators. Adolescents who drink before age 13 are seven times more likely to binge drink frequently as high school students than those who begin drinking later (Grunbaum et al. 2004). Studies also reveal that alcohol is the most commonly used drug among 12–20 year olds (SAMHSA 2002). New research also shows that the adolescent brain is more sensitive to the effects of alcohol on both memory and learning than an adult’s brain (White 2004).

A variety of approaches have been used to educate young people about alcohol. Some of these take the form of didactic lectures that focus on the negative consequences of drinking. When used alone, these have not been found to be effective. Other methods are student-centered, are part of a more comprehensive approach, and have demonstrated clear benefits (Williams 1998). But implementing and sustaining such supplementary programs has become difficult as educators contend with increasingly prescribed curricular demands. A new science education approach complements traditional prevention strategies for students by aligning alcohol education content with national and state standards, weaving it seamlessly into the academic environment, and allowing students to think critically about the implications of the science.

The National Institute of Alcohol Abuse and Alcoholism (NIAAA), the lead federal agency charged with conducting and funding alcohol research, has funded and developed highly engaging, flexible, and constructivist-based science education programs that integrate classroom concepts with real-life applications. The main objective of these programs is to provide alcohol content that fits in with a variety of course objectives, including the scientific method; physiology of the brain, heart and liver; embryology; data collection and graphing; environmental and social implications; and laboratory research skills.

An essential aspect of NIAAA’s mission is translating and disseminating research findings to the public. Young people are a particularly important audience to reach with messages regarding alcohol. Students actively participate in discussions, conduct experiments, and use critical thinking skills to understand the underlying science and the implications thereof. Program content includes the physical features and behavioral impact of Fetal Alcohol Syndrome; the physiology of the heart, brain, and liver and alcohol’s impact; and the social aspects of each of these.

Science education that focuses on alcohol allows students to draw conclusions for themselves based on the most current research findings in hands-on, laboratory-based settings. In doing so, students can learn about alcohol’s effects on a developing organism, how alcohol distributes throughout a body, and how laboratory animals can teach us about ourselves.

It has been shown that interactive instructional methods, such as inquiry-based teaching, are an important component of effective prevention programs (Center for Substance Abuse and Prevention 1999). While the overall behavioral impact of these programs has not yet been determined, a greater vested interest in the learning goals of these curricula is evidenced by students who participate. If it can be demonstrated that this positive learning impacts future life choices, then the power of science education as an alcohol prevention method will be established.

References

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