K-12 Education Initiative

PURVAC and the Purdue Homeland Security Institute (PHSI) and have been working on educational outreach initiatives aimed at informing PK-12 students and teachers about the broad range of topics related to visual analytics and homeland security. These efforts are focused in the three areas listed below.

Homeland Security – Science, Technology, Engineering and Mathematics (HS-STEM) Career Development Program

PHSI / PURVAC were awarded $500,000 in scholarship money from the Department of Homeland Security for students who are interested in working in Homeland Security related fields. During the Fall of 2007, seven graduate students were awarded scholarships. With the goal of informing high school students about HS-STEM opportunities in college and beyond, these scholarship recipients will partner with local high schools to visit science, math and technology classes to speak with students about their college research areas and career aspirations. These graduate students are currently performing research in: Terrorism and Infectious Disease, Cyber Threats, Analysis of Linked Animal and Human Data, Explosive and Radiation Detection, Border Security, and Cargo Container Detection.

Middle School Curriculum

Since 2005, PHSI / PURVAC have partnered with two middle school teachers from the Penn Harris Madison School Corporation in Granger, Indiana. The teachers, Kent Mikel/Science, and James Howard/Social Studies, have created modules for middle school students in Indiana that teach the concepts of Homeland Security and Visualization and Analytics. The developed curricula can readily be integrated into PK-12 instruction as an adjunct to current studies and are aligned to Indiana’s State Department of Education standards. The module topics have included: causes of terrorism, effect of climate and geography on people, sensor technologies that address real world problems, and visualization of data to show cause and effect. As these modules are taught, various life skills are introduced: evaluating available resources, teamwork, observation skills, and decision making. Research has confirmed that students also need to be able to critically analyze data, and the above modules were constructed with that objective in mind. Plans are to continue curriculum development that can reach additional PK-12 students as well as establish website resources and present materials at conferences.

Teacher Workshops

PHSI / PURVAC are developing a two day workshop for the summers of 2008 & 2009 that will introduce Homeland Security topics to teachers, offer hands-on experiences and provide the opportunity to share existing lesson plans, obtain feedback and expand upon curriculum ideas. These workshops will allow teachers from many school districts to create their own programs applicable to their schools, therefore enabling these Homeland Security topics to reach many children throughout Indiana.

Benefits: Training the next generation of citizens, researchers, and analysts in visual analysis and homeland security issues is a critical mission to secure the future of our nation.

Collaborators:
• Purdue University Homeland Security Institute (PHSI)
• Indiana Department of Homeland Security
• Penn Harris Madison School Corporation

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• US Department of Homeland Security

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