



UTC Spotlight

University Transportation Centers Program

This month: The Mississippi State University | February 2014

Mission Intermodal Excellence

Mississippi State University



MIE participants visiting the Union Station in Meridian, MS.

During the summer of 2013, the National Center for Intermodal Transportation and Economic Development (NCITEC) at Mississippi State University (MSU) hosted an on-site, 3-day training workshop with K-12 teachers from around

Mississippi. Through classroom instruction, hands-on activities, and field trips, the workshop introduced strategies that teachers could use to show their students the benefits and challenges of intermodal transportation. This workshop marked the beginning of Mission Intermodal Excellence (MIE), a 6-month-long program, started at MSU's campus and continued at 20 different middle and high schools around Mississippi during the fall 2013 semester.

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In-Class Presentation by Starkville School District Transportation Director in Starkville, MS.

MIE's overall goal is to introduce young people to these concepts through the lesson plans and activities suggested by the summer training workshop. The MIE program aims to increase students' awareness about some of the important, transportation-related social and environmental issues that can be solved using industrial and civil engineering skills. Another program goal is to improve students' math and science skills.

The lectures delivered during the summer training workshop at MSU introduced K-12 teachers to different performance measures related to intermodal transportation. The lectures, delivered by MSU professors from Industrial and Systems Engineering and Sociology Departments, covered topics such as transportation safety, traffic flow, transportation emissions, transportation cost analysis, etc. The hands-on activities included a number of transportation-related tabletop games designed to engage students and help them think about the different facets of transportation. The level of complexity of the lectures and hands-on activities varied based on the respective grade levels of the participating K-12 teachers.

Activities developed for students in lower level grades encourage them to think about the benefits of using different modes of transportation through familiar examples to which they can relate. For example, young students can discuss how they arrive at school, which could be by car, walking, or biking, or by taking the school bus. Teachers encourage students to discuss the benefits of each respective mode of transportation. Finally, the students use a map to identify paths for the school busses.

Activities developed for students in higher level grades are more complex. For example, one of the games requires students to identify the routes their personal computers traveled: from the country where they were produced, all the way to their homes. Students

are provided with a map, as well as unit cost and unit emission estimates for different transportation modes. Students identify transportation routes, calculate the costs and emissions along these routes, and discuss their findings. This game enables students to understand how they have access to all the goods they use on a daily basis and better appreciate the role of transportation in their lives.



Participating teachers taking a boat ride to the Tombigbee River Locks in Columbus, MS.

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External speakers from FedEx and Port of New Orleans, as well as the Transportation Director of Starkville School District, presented topics related to real-life applications of intermodal transportation. Teachers visited intermodal facilities, such as the Union Station in Meridian and Tombigbee River Locks in Columbus.



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An MIE teacher talking about her experience at the River Walk in Columbus, MS.

Teachers used the knowledge they gained from their summer training to develop lesson plans appropriate for their classrooms. To help teachers to develop these lesson plans and hands-on activities, the MIE team made corresponding materials available on the web, including practice worksheets, and workshop presentations. Additional resources for classroom use were also provided.

During the fall 2013 semester, teachers delivered the lesson plans and led classroom activities. At the end of the semester, students of participating teachers developed Public Service Announcements (PSA) related to intermodal transportation. Garnett McDaniel teaches 6th graders at Central School in the West Point School District, and his students developed these messages: "The right way to cross the road is look both ways and then run," and "No child or adult should ever walk on train tracks." Richard Humphries teaches 9th graders at St. Martin High School in the Jackson County School District, and his students delivered these PSA slogans: "Be aware of the blind spots," "Always check for the warning signs," "Do not race a train to a crossing," and "Don't let a choo choo train cause a bad boo-boo pain." Carol Davidson's 4th grade students came up with "ICS (intermodal cargo service): it's economical, it's safe because it's an intermodal box, it's quicker and it's environmentally friendly."

Participating teachers said they thought the MIE workshop's lessons and activities would help them increase students' awareness about transportation issues that can be solved using industrial and civil engineering skills.

The team that put together the training workshop consisted of two industrial and systems engineering professors, and two staff members from the MSU Bagley College of Engineering's K-12 Outreach Office.

About This Project

MIE organizers at MSU include Sandra D. Eksioglu, Ph.D. (sde47@ise.msstate.edu), Education Coordinator of NCITEC; Eksioglu, Ph.D. (be52@ise.msstate.edu), Director of NCITEC; N. Eric Heiselt, Ph.D. (nericheiselt@bagley.msstate.edu), Director of the Outreach and Support Programs of Bagley College of Engineering; and Christina McDaniel (cm1064@bagley.msstate.edu), a staff member of the Outreach and Support Programs Office. The author of this article is Sandra D. Eksioglu. Information about the lesson plans developed, hands-on activities, and registration for the 2014 workshop is available at www.bagley.msstate.edu/outreach/mission-eggcellence/2013-mission-intermodal-excellence/.

This newsletter highlights some recent accomplishments and products from one University Transportation Center (UTC). The views presented are those of the authors and not necessarily the views of the Office of the Assistant Secretary for Research and Technology or the U.S. Department of Transportation, which administers the UTC program.

