Discovering the Educational Consequences of Advanced Technological Education:

The DECA Project

Presentation at the NSF ATE PI Meeting
October 22, 2009
Washington, D.C.
DECA Project Background

- As of 2007 fewer than five projects had been recommended for funding in the NSFATE Targeted Research track
- June 2007 ATE program evaluation advisory panel meeting
  - Participants identified a need for NSF and other stakeholders to more clearly articulate specific lines of inquiry required in technician education
  - Requires a more complete understanding of research needs in this arena
- Original project funded as a supplement to work being conducted at the Evaluation Center, Western Michigan University
DECA Project Background

- **Purpose**: Introduce researchers to the NSF ATE program and advance dialogue among research stakeholders
- **Special invitations and funding to attend the Annual ATE PI Meeting (2007)**
- **Solicitation of research ideas**
- **Workshop to gather participants interested in enhancing the science education community’s and ATE’s understanding of research needs and encourage additional targeted research in the ATE program**
- **Development and submission of umbrella project proposal**
Ten Projects Under One “Umbrella”

- Most of the proposed research—six of the nine funded proposals—examines issues associated with two well-defined ATE activity categories: *program improvement* and *curriculum and educational materials development*

- A third category defined as *crosscutting research* addresses questions that are explicit and implicit in the ATE program’s central goals
Strategies for Improving Recruitment, Retention, & Placement

Ron Anderson and Wayne Welch

- Rainbow Research, Inc.

- There is an insufficient number of students being recruited into technology programs

- Focus: Overall national technician workforce education system pipeline
  - Recruitment, retention, articulation, placement, retraining
  - Individual technology (ATE) projects
  - Analyze diversity
Individual Differences in Technological Proficiency & Work Readiness

Darrel Hull and Rebecca Glover

- University of North Texas

• Little empirical information regarding abilities possessed by individuals who enroll in technological education programs and effects programs have on career preparation

• Focus: Discern variation in core psychological variables common to students as they enter two-year technical education programs
Framing Research to Develop Successful Articulation Models Between Two- & Four-Year Technology Programs

Gloria Rogers and Susan Schall

- ABET

- Studies on articulation between two-year and four-year institutions have not focused on technology programs

- Focus: Identify the areas of research required to develop models that can be replicated to promote the articulation of students from two-year to four-year technology programs

- Possible identification of support needed from industry, government, and accrediting bodies to improve articulation in technical education
Identifying the Impact of ATE Centers on Their Home Institutions: An Exploratory Study

Charles Henderson, Herb Fynnewever, and Heather Petcovic

- Western Michigan University

Sustainability of ATE activities is threatened by misalignment between institutional priorities and NSF goals

Focus: Identify the undocumented and, perhaps, unanticipated impacts (both positive and negative) of mature national ATE Centers on their home institutions

- Extent and mechanisms of ATE efforts on home institutions
Identifying the State of Online Instruction in ATE-funded Technical Education Programs at Community Colleges

Brian Horvitz and Richard Zinser

- Western Michigan University

- Limited data on the use of increasingly used online technologies in technical education programs
  - Cost
  - Impact on student career preparation

- Focus: Provide key stakeholders with information to make decisions regarding the allocation of resources to online instructional innovations
  - Ultimate plan to develop a larger, national research project
Developing Scales for Classifying Innovative ATE Instructional Materials

Louise Yarnall and Geneva Haertel

- SRI
- Why do ATE supported instructional materials succeed and fail?
- Focus: Develop and pilot test rating tools to permit comparing and contrasting different innovative instructional materials
  - Case-based
  - Problem-based
  - Simulation-based
Research Needs Identified by ATE Leaders

Norena Badway, Barb Anderegg, and Jerry Somerville

- Madison Area Technical College and University of the Pacific
- There is a void in priorities of future ATE research
- Little research conducted jointly by educational researchers and ATE practitioners
- Focus: Engage ATE center PIs and university and community college researchers in strategically reflecting upon:
  - Needs
  - Challenges
  - Next steps
Research to Define & Measure Effectiveness of ATE Centers/Projects

Steven Magura

- The Evaluation Center, Western Michigan University
- No generally accepted common metrics or methodologies to measure effectiveness of ATE activities
- Focus: Develop measurable criteria of effectiveness for ATE centers/projects across the range of ATE priority areas
  - Materials Development
  - Professional Development
  - Program Improvement
Assessing & Improving the Sustainability of ATE-Supported Projects and Centers

Wayne Welch and Ron Anderson

- Rainbow Research, Inc.

- How does the goal of ATE continue after funding stops?

- Focus: Assessing and improving long-term program impact
  - Meaning of sustainability
  - Indicators for determining residual impact of ATE projects and centers
  - Sustainability of projects and centers no longer receiving ATE funds
ATE Research Outreach Program

- SRI and University of Colorado
  - Focus: Aggregate and disseminate information about the foundational efforts of the researchers working on the umbrella grant during 2008-2010
    - Establish a model for linking new researchers to the ATE program
Research: Primary Stakeholders

1. NSF ATE program officers and the EHR directorate
2. ATE projects and centers
3. Researchers in four-year colleges and other research settings
4. Business and industry groups

White Paper:
“Facilitating An Understanding Of Advanced Technological Education Targeted Research Needs”
Research: Primary Stakeholders

- ATE Projects & Centers
- Business & Industry
- Researchers

NSF ATE Program
Selected Research Questions/Topics

Handout
Discussion Questions

1. What are the challenges and opportunities associated with conducting research in a community college setting?
2. What incentives are there for ATE PIs to engage in research or facilitate others’ research efforts?
3. To what extent are research questions raised by PIs and business/industry similar or different?
4. What specific types of ATE-related research are currently needed?
More information…

www.decaproject.com

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