“Technological Literacy for All”

Preparing Children for Future STEM Careers: An Upstate South Carolina Case Study

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Building Partnerships: A STEM Initiative

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Upstate South Carolina: Technological Literacy for All and sTEm Education

Why is the conversation important?

“What does it mean to grow up in South Carolina?”

• Ranked 46th in well-being of young people
  (Annie E. Casey Foundation, 2007)
• Ranked 46th in overall health of its citizens
  (SC DHEC, 2005)
• Per capita income 43rd / Poverty 12th highest
• 24% of adults have less than high school education
  (SC Budget and Control Board, 2005)

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- Associated Press, Washington, Jan. 25, 2010
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The Power and Promise of Technology is Based on the Need for Technological Literacy: The Ability to Use, Manage, Evaluate/Assess, and Understand Technology

What is Technology?
- Technology is how people modify the natural world to suit their own purposes (Knowledge, Processes, Artifacts, and Volition)
- Greek word techne - means the act of making or crafting
- Diverse collection of processes and knowledge that people use to:
  - extend human abilities
  - satisfy human needs and wants
- “the innovation, change, or modification of the natural environment in order to satisfy perceived human wants and needs”

(Standards for Technological Literacy, ITEEA, 2000)

What is Engineering?
- “Engineering is the profession in which a knowledge of the mathematical and natural sciences gained by study, experience, and practice is applied with judgment to develop ways to utilize economically the materials and forces of nature for the benefit of mankind”

(ABET - Accreditation Board for Engineering and Technology, 2002)

- The engineering profession is working with educators of technology to develop alliances for infusing engineering concepts into K–12 education (ASEE – American Society for Engineering Education)
- New technologies are the result of the engineering design process
Technology vs. Science

Technology
- Study of the human made world
- Created by people
- Invention and innovation
- Asks “How?”

Science
- Study of natural world
- Discovered by people
- Observation and description
- Asks “Why?”

Technology Education vs. Educational (Instructional) Technology

Technology Education
- A school subject
- Teaches about technology
- Deals with technological knowledge and concepts
- Goal: Technological literacy

Educational Technology
- A teaching method
- Teaches with technology
- Deals with instructional hardware and software
- Goal: Improving teaching and learning

Challenge!

AOP - STEM Education Activities
- Spring 2006 - Grant Taskforce Assembled
- Fall 2006 Seminar
- STEM Listserv
- Spring 2007 Seminar
- Summer 2007 Institute – 17 elementary teachers
- Fall 2007 Article - Newspaper
- Summer 2008 Symposium
- Spring 2009 Article – “The Technology Teacher”
- Summer 2009 Symposium
- Grant and Summer 2010 Symposium Taskforce Assembled
- Summer 2010 Institute – August 2 – 4, 2010
- Eb D Consortium Membership

“We Live in a Technological World”

2010 Institute Promotes Technological Literacy through STEM
- What: The Anderson, Oconee, and Pickens Institute on Integrative Science, Technology, Engineering, and Mathematics (STEM) Teaching and Learning
- When: August 2-4, 2010
- Where: BorgWarner manufacturing facility
- Participants:
  - Seventy-five (75) educators
  - Elementary school, middle school and high school teachers and administrators from the School Districts of Anderson, Oconee, and Pickens Counties
- Focus: ITEEA standards for technological literacy and Engineering ByDesign

Getting Partners and Funding
- Join the ITEEA Consortium: “STEM Center for Teaching and Learning”
- STEM partners: Search for what we have in common
  - AOP business and industry support
  - AOP school districts support
  - AOP college and university support
- Largest Impact: Elementary technology and engineering education
- Support collaborations: grants, workshops, seminars, etc.

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