



## Professional Development Challenge

State and local school systems, both large and small, are confronted with a dilemma. Their needs for additional curriculum support and teacher in-service are increasing, while their staff limitations and budgets can not meet the challenge. Demands are increasing for a rigorous program that results in higher student achievement for all students.

The Center to Advance the Teaching of Technology & Science (CATTS) has been created to help overcome this dilemma, it answers the need for providing current, relevant, research-based curriculum and services which methodically improve and develop the teaching of technology and science without major expense to the school system. With the challenge of an ever-changing curriculum, the Center's Consortium is a built-in means for continually obtaining direction and relevancy.

The Consortium strengthens the capacity to develop materials and services for current and projected professional development needs. Its educational leaders and practitioners continually assess needs and determine the products and services that will advance teaching and learning for a world informed by science and shaped by technology. The pooling of resources and alliances formed by Consortium participants enables the Center to research and prepare solutions to State's respective needs at a fraction of the cost if each State worked independently.



**"The cost effectiveness for being a member of the consortium is tremendous. Especially, once schools start to implement the curriculum and see the value of the curriculum and how it helps to meet not only state standards, but also national standards."**

*- Steven Parrott, Principal Education Consultant  
Illinois State Board of Education*



## Career Clusters and Pathways

The EbD™ Program is a model used by schools developing themes in the STEM and IT Clusters that are seeking to increase all students' achievement in technology, science, mathematics, and English through authentic learning. The program is built on constructivist models and creates awareness and competence over time as it builds on learned knowledge and skills—aligning closely with the Cluster and Pathway Knowledge and Skills in both the STEM and IT Clusters.

The EbD™ Program was designed to maintain integrity through two delivery scenarios.

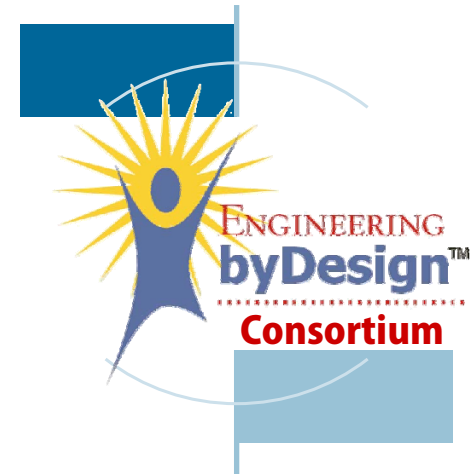
- Pathway program, where schools adopt the articulated sequence of courses in a STEM- and/or an IT-themed academy.
- Modularizing the components and adapting the design themes to support the STEM, IT, or other academy models. In this scenario, as in many career-themed academy models, some modification is required to ensure themes are aligned with the Cluster Knowledge and Skills.



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**An Alliance of States Working Together to Develop Standards-Based K-12 Curriculum, Instruction and Assessments**



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## Consortium Membership



**Consortium members** work collaboratively to develop the means to assist teachers to improve student achievement and in becoming technologically literate. The Consortium is guided by four primary goals:

### Research on Teaching and Learning

Plan and support research on factors that underlie effective teaching and learning of science, technology, engineering and mathematics (STEM.) The Center accumulates a comprehensive knowledge base about learning and teaching in science, technology, engineering and mathematics (STEM) in order to meet the current and future needs of teachers and decision makers.

### Curriculum Development

Plan and support curriculum and instructional material development that build upon research and incorporate appropriate content; instructional delivery; and assessments. Development ranges from revising existing materials to creating new ones, from developing a series of units at a single grade level to an articulated curricula across grade levels, and from addressing one subject to integrating several disciplines into the school curricula.

### Teacher Enhancement

Plan and support the development of programs to strengthen the preparation of teachers at all grade levels to effectively include the study of science, technology engineering and mathematics (STEM) within the school curriculum. Teaching enhancement provides teachers with appropriate content and pedagogical knowledge through synchronous and asynchronous learning communities.



### Curriculum Implementation & Diffusion

Plan, market, and disseminate professional development products and services in ways that encourage and assist the initiation, maintenance, and promotion of the study of science, technology, engineering and mathematics (STEM.)

*"Somewhere, something incredible is waiting to be known."*

*- Carl Sagan*

*The Consortium serves as a means for organizations and agencies to form alliances and pool resources to expedite solutions to their respective needs for high quality teaching and learning about science, technology, engineering, and mathematics (STEM.) A contractual agreement and fee entitles participants to become Consortium members and receive specified deliverables. Consortium members can actively influence emerging education to prepare learners to be technologically literate. Collectively, members determine and clearly define professional development needs and priorities. Benefits to Consortium membership include:*

### Leadership & Innovation through Involvement

- Member states help to determine a consistent and focused direction by which standards-based technology education is implemented by producing model course guides, developing assessment materials, and providing professional development opportunities.

### Cost-effectiveness through Partnering

- By working collectively, member states more efficiently develop high quality curriculum materials and provide professional development opportunities for teachers than would be the case if each state worked independently. Two standards-based Model Course Guides for middle and high school are developed, and field tested each year. Consortium members may freely reproduce the materials for use within their respective states.

### High Quality through focused Research & Development

- Standards provide direction to a stringent process of program, curriculum, assessment, materials, and professional development. Consortium states are provided the first opportunity to participate in grant-related research and development as ITEA receives national grants. This provides Consortium states with research-based curricula, professional development, student assessments and program evaluation.

### Efficiency through Outsourcing

- Consortium states systematically identify needed products and services. CATTs staff ensure that the work gets done on schedule. This process enables the states to work at other responsibilities while Consortium initiatives are being completed.

### Effectiveness through Professional Learning Communities

- A professional development plan is approved by the Consortium for implementation based on standards from the National Staff Development Council and Achieving Excellence in Technology Education. The format is consistent with State Professional Development requirements.
- Train-the-trainer workshops are provided to designated persons from each state. ITEA Institutional Members (universities) also attend. Workshop materials and other resources are provided to the states.
- eTIDEonline Each consortium state is provided two slots in the eTIDEonline courses offered during the school year. Consortium states may port the eTIDEonline courses for use in their professional development plan.



*"Providing quality, standards-based resources for teachers helps ensure consistency of content delivery. Coupled with professional development, and the availability of CATTs staff and consortium members to provide assistance and support, membership in the Consortium enhances opportunities for teachers to improve instructional delivery of the content and for students to achieve their full potential."*

*- Melissa Morrow, Director of Career and Technical Education, Sarasota, Florida*