Seven Essential Teaching Skills for CTE Instruction in the 21st Century

ACTE

November 17, 2011

St. Louis

CTE Teacher Preparation Project
## Professional Development Needs of Teachers in Instructional Planning

<table>
<thead>
<tr>
<th>Topic/Need</th>
<th>% Expressing Need</th>
<th>Number of Hours in Past 3 Years</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>None</td>
</tr>
<tr>
<td>Align course standards to national academic and skill standards</td>
<td>52</td>
<td>34</td>
</tr>
<tr>
<td>Use methods to integrate reading, writing, and communication skills</td>
<td>54</td>
<td>24</td>
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<tr>
<td>Do collaborative planning with other teachers</td>
<td>60</td>
<td>33</td>
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<tr>
<td>Prepare a syllabus for teaching to challenging standards</td>
<td>49</td>
<td>41</td>
</tr>
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</table>

*CTE teachers with less than 5 years of experience. Source: *HSTW* Teacher Survey—2006.
# Professional Development Needs of Teachers in Embedding Academics

<table>
<thead>
<tr>
<th>Topic/Need</th>
<th>%Expressing Need</th>
<th>Number of Hours in Past 3 Years</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td>None</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Less Than 40 Hours</td>
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<tr>
<td></td>
<td></td>
<td>More Than 40 Hours</td>
</tr>
<tr>
<td>Use reading and writing for learning in the content area and across the curriculum</td>
<td>46</td>
<td>19</td>
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<td>72</td>
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<tr>
<td></td>
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<td>9</td>
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<tr>
<td>Use teaching methods to integrate high-level mathematics into my class</td>
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<td>37</td>
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<tr>
<td>Get students to elaborate on their understanding of content through extended writing</td>
<td>56</td>
<td>48</td>
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<td>49</td>
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<td>3</td>
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<tr>
<td>Use applied learning strategies to teach higher-level academic content</td>
<td>57</td>
<td>36</td>
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<tr>
<td></td>
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<td>58</td>
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<td>5</td>
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<tr>
<td>Have students design and conduct research investigation</td>
<td>53</td>
<td>45</td>
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<td>51</td>
</tr>
<tr>
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</table>

*CTE teachers with less than 5 years of experience. Source: HSTW Teacher Survey, 2006.*
## Professional Development Needs of Teachers in Research-Based Teaching Strategies

<table>
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<tr>
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<th>Number of Hours in Past 3 Years</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td>None</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Use student-centered instruction to motivate and deepen student learning</td>
<td>60</td>
<td>42</td>
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<tr>
<td>Use project-based learning to deepen understanding of content</td>
<td>51</td>
<td>30</td>
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<tr>
<td>Teach students through cooperative learning</td>
<td>54</td>
<td>35</td>
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<tr>
<td>Establish a classroom environment that actively involves students</td>
<td>51</td>
<td>18</td>
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<tr>
<td>Help students make connections between classroom and the real world</td>
<td>58</td>
<td>40</td>
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<tr>
<td>Use research-based teaching practices to improve student learning</td>
<td>54</td>
<td>31</td>
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</tbody>
</table>

*CTE teachers with less than 5 years of experience. Source: *HSTW* Teacher Survey, 2006.*
## Professional Development Needs of Teachers in Classroom Assessment

<table>
<thead>
<tr>
<th>Topic/Need</th>
<th>% Expressing Need</th>
<th>Number of Hours in Past 3 Years</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td>None</td>
<td>Less Than 40 Hours</td>
<td>More Than 40 Hours</td>
<td></td>
</tr>
<tr>
<td>Develop rubrics in academic content areas</td>
<td>50</td>
<td>31</td>
<td>63</td>
<td>6</td>
<td></td>
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<tr>
<td>Use performance assessments</td>
<td>47</td>
<td>26</td>
<td>66</td>
<td>8</td>
<td></td>
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<tr>
<td>Use multiple forms of assessment to determine student progress</td>
<td>55</td>
<td>39</td>
<td>55</td>
<td>6</td>
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<tr>
<td>Use student portfolios across the curriculum</td>
<td>54</td>
<td>43</td>
<td>53</td>
<td>5</td>
<td></td>
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<tr>
<td>Have students assess and revise their own work to meet standards</td>
<td>56</td>
<td>51</td>
<td>45</td>
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</tr>
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### Professional Development Needs of Teachers in Classroom Management and Motivation

<table>
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<tr>
<th>Topic/Need</th>
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<th>Number of Hours in Past 3 Years</th>
<th></th>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>None</td>
<td>Less Than 40 Hours</td>
<td>More Than 40 Hours</td>
<td></td>
</tr>
<tr>
<td>Get at-risk students to master complex content</td>
<td>68</td>
<td>39</td>
<td>57</td>
<td>4</td>
<td></td>
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<tr>
<td>Raise expectations for student achievement</td>
<td>55</td>
<td>26</td>
<td>68</td>
<td>6</td>
<td></td>
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<tr>
<td>Use teaching methods that motivate students to do a variety of demanding tasks</td>
<td>64</td>
<td>34</td>
<td>59</td>
<td>7</td>
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<tr>
<td>Have a system of extra help to improve student achievement</td>
<td>56</td>
<td>39</td>
<td>57</td>
<td>5</td>
<td></td>
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<tr>
<td>Know how to work with students as a mentor and advisor</td>
<td>55</td>
<td>42</td>
<td>51</td>
<td>7</td>
<td></td>
</tr>
</tbody>
</table>

*CTE teachers with less than 5 years of experience. Source: HSTW Teacher Survey, 2006.*
The Route to Becoming a CTE Teacher

12,000 CTE teachers at HSTW schools in 30 states

- 25% entered through a university-based teacher preparation program
- 75% entered the field through alternative routes
The Project

- Develop and pilot a model for teachers seeking an alternative route to certification
- Improve competence, self-efficacy, and commitment to the profession
- Field test the model and refine it based on data
Instructional Skills for the 21st Century

**Instructional Planning:**
Create short-term and long-term standards-based instructional plans based on the varying learning needs of students.

**Instructional Strategies:**
Use instructional strategies that actively engage students in learning and encourage the development of problem-solving, critical thinking, and teamwork skills.

**Classroom Assessment:**
Use formal and informal assessment strategies to evaluate student progress toward learning goals and provide feedback to improve student learning.

**Classroom Management:**
Create a learning environment that encourages student motivation, positive behavior, and collaborative social interaction.

**Teacher Reflection:**
Reflect, both individually and collaboratively, on the effects of instruction and use the reflective process to continually improve instructional practice.
Seven Essential Teaching Skills

- Planning standards-based instruction
- Designing standards-based assessment
- Facilitating project-based learning
- Using cooperative learning
- Embedding literacy
- Embedding numeracy
- Managing the classroom to create a climate of personalization and support
Planning Standards-Based Instruction

- Curriculum Map
- Course Syllabus
- Unit Plan
- Lesson Plan
The Content of CTE Courses

- Technical Knowledge and Skills
- Academic Knowledge and Skills
- 21st Century Skills
Unit Planning Template

- Content
- Scenario or Problem
- Assessment
- Resources
- Support, Modifications and Extensions
- Calendar of Major Learning Activities

Handouts, pages 6-8
Rubric for Assessing Unit Plans

Criteria

- Standards-focus
- Scenario or problem
- Instructional activities
- Assessment
- Cohesiveness

Handouts, pages 4-5
Designing Standards-Based Assessment

**Formative**
- Interactive, to “form” learning
- Provides feedback
- Begins immediately and continues throughout learning
- Formal or informal

**Summative**
- At the end of a learning episode
Assessment Improves Achievement and Motivation When... 

- Clarifies quality
- Provides feedback to the students on their progress
- Provides information on the degree to which students have met learning goals
- Encourages effort with specific suggestions
- Rewards progress
Assessment Tools

Summative
- Test
- Performance
- Product

Formative
- Journals
- Plans
- Checklists
- Homework
- Questions and Checks for Understanding
- Peer Review and Feedback
Facilitating Project-Based Learning

- What is PBL?
- What are the characteristics of effective PBL projects?

Handouts, page 10
What is a CTE project?

Projects in CTE Classrooms

- Engage students in learning knowledge and skills through extended inquiry process
- Structured around complex, authentic questions and carefully designed products and tasks

What role do projects play in CTE?

- Support deep, meaningful learning
- Increases transfer of learning
- More flexible, useful kind of knowledge
- Positive changes in motivation, attitude toward learning, thinking skills and problem solving abilities
- Better match to learning style, particularly for students who have struggled in school
Activities vs. Projects

- Learning experiences that enable students to learn knowledge, procedures and/or skills
- Designed with a predictable outcome
- Means to an end, not an end in themselves
- Designed to last from 1 to 3 class periods

Projects are:

- Designed around authentic problems or tasks
- Structured so that students are involved in extended inquiry
- Of one or more weeks in duration

Source: Preparation for Tomorrow Project, SREB
Using Cooperative Learning

**Definition:**
- The instructional use of small groups so that students work together to maximize their own and each other’s learning

**Research Benefits:**
- Learn more and enjoy students more
- Develop social and interpersonal skills
- High-level reasoning
- More frequent generation of ideas
- Better transfer of learning
## Different Types of Learning

<table>
<thead>
<tr>
<th>Cooperative</th>
<th>Competitive</th>
<th>Individualistic</th>
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</thead>
<tbody>
<tr>
<td><strong>Positive interdependence</strong></td>
<td><strong>Negative interdependence</strong></td>
<td><strong>No interdependence</strong></td>
</tr>
<tr>
<td>“I reach my goals when other students also reach their goals.”</td>
<td>“I obtain my goals when others fail to obtain theirs.”</td>
<td>“Whether I achieve my goals is determined by a performance standard and is unrelated to what other students are doing.”</td>
</tr>
</tbody>
</table>
## Types of Cooperative Groups

<table>
<thead>
<tr>
<th>Type</th>
<th>Purpose</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Informal—For a few minutes or a class period</td>
<td>Engage students by focusing, processing, or providing closure.</td>
<td>Elbow partners Table groups during a lesson</td>
</tr>
<tr>
<td>Formal—From one class period to several class periods</td>
<td>For the completion of an assignment or project.</td>
<td>Project group</td>
</tr>
<tr>
<td>Base—Long-term groups with stable membership</td>
<td>To provide support, help, and encouragement</td>
<td>Study buddies Lab groups CTSO committees Work teams</td>
</tr>
</tbody>
</table>
Embedding Literacy

Assignments that Promote Literacy
- Read career-related articles
- Write weekly
- Prepare a written report

Activities That Use Content-Area Literacy Strategies

Examples:
- Two-Column Notes
- Frayer Model
- Word Sort
Building an Assessment Task for Writing in CTE

- Make an Argument
- Provide Information or Make an Explanation
- Tell a Narrative or Story

- Identify something the student is to read or do prior to the writing
- Describe what the students are to write
- Add instructions to increase the level of thinking
- Put all the sections of the assessment task together
Embedding Numeracy—Math Problems

- Is this problem authentic to the field?
- What mathematics process standards are evident?
- What mathematics content is evident?
Using Technology Effectively: CBRs

Interpret the meaning of slope and y-intercepts in situations using data or graphs.

Handouts, page 14
Strategies for Solving Mathematics Problems

- Alphabet math
- Chunking
- Good, better, best
- K-W-C
- Mathematically speaking

- Pictorial representations
- Think-solve-pair-share
Managing the Classroom--Three Levels of Interventions

Level 3
Automatic school-wide responses that directly involve the principal, dean, counselor

Level 2
Teacher responses to chronic unwanted behaviors and problem behaviors that don’t have a quick fix

Level 1
Immediate teacher responses to interrupt and redirect minor problematic behaviors

Handouts, page 16
Levels of Intervention—Level 1

- Personalization
- Rules and Procedures
- Guiding Behaviors
  - Proximity
  - Prompts
  - Invitations
  - Logical consequences
Personalization

Definition

- The teacher strives to know students well, respect them, and support them.

Characteristics

- Being aware of students’ needs, interests, learning styles, hopes and dreams
- Relating to students by listening to them and giving them complete attention
- Being culturally aware and responsive
Build Positive Relationships—Ways to Get to Know Your Students

- Introduce Yourself
- Learn Names
- Seek Information About Each Student
- Use Ice Breakers and Get-to-Know-You Games
- Encourage Positive Working Relationships
- Make Contact with Parents
- Connect with Students on a Regular Basis
Involve Students in the Development of Classroom Rules

- Brainstorm rules for the class, compare, and reach consensus
- Workplace rules comparison
- Small group poster contest
- Respect carousel
Levels of Intervention—Level 2

- Accountable consequences
- Parent phone calls
- One-to-one conferences resulting in contract to correct behavior
- “Owed” time before or after school
- Conferences with other school staff
- Office referral
Level 3 Interventions

- Automatic referral to administrators, counselors, and student support staff
- School-wide consequences
- Fighting
- Harassing
- Threatening
- Swearing to intimidate
- Assault on an adult
- Verbal threats or aggression toward an adult
Think About It...

- What one or two actions will you take to improve instructional skills as a result of this session?