Barriers to Teachers’ Adoption and Use of Technology-Supported Learner-Centered Pedagogies

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Background

♦ Need for students to develop problem-solving skills
♦ Changing expectations require new instructional approaches
♦ Learner-centered pedagogies help meet 21st century needs

Learner-centered Pedagogy

♦ Learning grows out of a need to know
♦ Students work toward a common goal
♦ Teachers assume a facilitative role
♦ Students create meaningful artifacts
♦ Tools are used in authentic ways
♦ Students and teachers collaborate during the learning process
Examples

- Problem-based learning
- Project-based learning
- Inquiry learning
- Cognitive apprenticeships
- Learning environments

21st Century Professional Development Needs

- Embedded within multiple contexts
- Focused on content
- Promote active learning
- Foster coherence across a range of teacher activities
- Incorporate collective participation of groups of teachers

Tech-Know-Build Project

- 5-year Technology Innovation Challenge grant
- Combines laptop technology with adoption of problem-based pedagogy
- Brings teachers from rural and urban schools together
- Provides professional development through partnerships with IUPUI and Purdue
Evolving Professional Development (2000 - present)

- Changing emphasis on pedagogy
- Changing emphasis on technology
- Changing levels/types of ongoing support

Evolving emphasis on pedagogy

- General approach
  - Modeling activity
  - Technology as a tool
  - Development of units
  - Implementation of units
  - Follow-up reflection and support

Barriers to pedagogical change

- Lack of knowledge
  - Background vs. Foreground
  - Implicit vs. Explicit
- Uncertain/unattainable focus
  - Narrow-focus vs. Wide focus
  - Interdisciplinary vs. Multidisciplinary
- Building a critical mass
  - Private vs. shared practice/planning
Evolving emphasis on technology

- Finding the right balance
  - Background | Foreground | Background
  - Equal emphasis ??
- Skill-based vs. tool-based

Barriers to technological change

- Hardware problems
- Software problems
- Network problems
- Operator problems

Teachers’ evolving needs for support

- Building technology skills & knowledge
  - On-site courses
  - Summer intensive workshop
  - Mini-workshops
  - Media fairs
- Scaffolding pedagogical change
  - On-site courses
  - Dinner seminars
  - Classroom observations
Changing Results
- Feedback from teachers
  - Related to pedagogy
  - Related to technology
- Rate of implementation
- Rate of continued use
- Sample units

Discussion
- Relatively few teachers have embraced PBL.
- However, some have shifted toward learner-centered pedagogy.
- Technology can provide a supportive platform for growing learner-centered practices, once basic skills are mastered.

Realizations
- Need to take baby steps when adopting new pedagogies.
- Need to increase understanding and buy-in for learner-centered pedagogies.
- Need to provide ongoing pedagogical support to implement learner-centered practices.
Questions

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• To visit the TKB website:
  – http://research.soe.purdue.edu/challenge
• For a copy of the paper:
  – http://www.edci.purdue.edu/ertmer/conferences.htm