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Presentation Overview

- The nature of Disciplinary Education Research?
- Scholarly educational practice
- A framework and its applications
- Conclusions and discussion
Disciplinary Education Research

• To define the role of Disciplinary Education Research it is useful to first discuss the nature of scholarship.
• Boyer [1990] has had considerable influence, defining four scholarships
  ○ Discovery – traditional conception of research
  ○ Integration – multi/inter-disciplinary research
  ○ Application – moving beyond discovery
  ○ Teaching – inspiring future generations
Defining Scholarship

Clear Goals - The scholar states the basic purposes of her work clearly and defines objectives that are realistic and achievable?

Adequate Preparation - The scholar shows an understanding of existing scholarship in the field, and brings the necessary skills to bear.

Appropriate Methods - The scholar uses methods appropriate to the goals, applying them effectively in the chosen domain.

[Adapted from Glassick et al. 1997, pp 36]
Defining Scholarship

**Significant Results** - The scholar's work contributes consequentially to the field. The scholar's work opens up additional areas for further exploration.

**Effective Presentation** - The scholar uses appropriate forums to communicate the work to its intended audiences. The scholar presents her message with clarity and integrity.

**Reflective Critique** - The scholar critically evaluate his own work? Does the scholar use evaluation to improve the quality of future work?
Disciplinary Education Research

- Education Research
- Disciplinary Science Research
- Teaching and Learning Of The Discipline
Research focus

- What is researched?
  - Computing educations (communities of practice)
  - Mediation and tools (technology)
  - Threshold and key concepts
  - Realistic environments

- How is it researched?
  - Quantitative/comparative studies (c.f. medicine)
  - Qualitative (interview, observation, etc.)
What can be researched?

- Depends on what one is trying to achieve
  - Collect evidence to motivate systemic change
  - Understanding to improve individual practice
  - Contributions of theory
What can be researched?

- Who are we trying to convince?
- Computing expertise is vital
- Knowledge of educational research, and collaboration with educational researchers is increasingly valued.
What is our goal?

Introspection

Teaching Practice in our Discipline

Intuition

Evidence

Scholarly discourse
Evidence Based Reflective Practice

Scholarly practice & reflection

Student learning

Disciplinary and Development of general education learning environment

Quality Framework
Quality and Sustainability

Adapted from (Owlia & Aspinwall 1997)
Learner Development

Conceptions of knowledge

Dualism
- Knowledge as absolute, provided by authorities
- Multiple perspectives - opinions of equal value
- Awareness of knowledge as provisional

Relativism
- Evidence used to reason among alternatives
- Commitment to a personal, reasoned perspective

Pivotal position
- Expanding awareness through a broader, integrative conception

Recognising differing forms of knowledge and learning processes

Threshold
- Acquiring factual information
- Memorising what has to be learned
- Applying and using knowledge
- Understanding what has been learned
- Seeing things in a different way

Reproducing
- Seeking meaning

Conceptions of learning
Modelling Reflective Practice
Practitioner Pragmatism

External Scope

- Objectives
  - Content
  - Students

Teacher Realm

Explicit Tacit

learning philosophy
learning outcomes

Assessment Tools

interest in learning
generalizability
quality assurance

questions

?
Practitioner Pragmatism
Practitioner Pragmatism

- Research Tradition
- Research Approach
- Study Environment
- Study Approach
- Data Collection & Analysis
- Students Teachers Environment Time & Place
- Aspect of Answer
Unrealistic?

- Surely we cannot expect every university teacher to be a teaching and learning researcher in their discipline?

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<thead>
<tr>
<th>Intention /Strategy</th>
<th>Know the literature</th>
<th>Improve teaching</th>
<th>Improve student learning</th>
<th>Improve student learning generally</th>
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<tr>
<td>Collect and read literature</td>
<td>A</td>
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<td>Investigate own teaching and student learning</td>
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<td>Relate discipline knowledge to teaching and learning literature</td>
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<td>Communicate results of own work and existing literature</td>
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Closing remarks

- Computing education research is an important resource in maintaining educational excellence
  - provides a bridge connecting disciplinary and educational research
  - informs good teaching practice
  - provides mechanisms for quality assurance and renewal
- In knowledge lies strength, let us use that strength to the benefit of our students and our discipline.
References


