THE NEED TO SUPPORT INDEPENDENT STUDENT-DIRECTED LEARNING

Dr. Bowen Hui
Computer Science, UBC Okanagan
bowen.hui@ubc.ca

Dr. Constance Crompton
Critical Studies, UBC Okanagan
constance.crompton@ubc.ca
Problems with Linear Course Delivery

• Concept based assessments
  • No easy planning + performance analytics tool
  • Excel? Too much work on the user
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- Individualized learning paths
  - Most relevant in large classes
  - Maintain top students’ interest
  - Slower students have chance for structured review
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- Individualized learning paths
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- Pedagogical motivation
  - Concept maps used in course design training centres
The Idea: Concept Navigator

• Course structure presented as a concept map (i.e., graph)
  • Key concepts are nodes
  • Related concepts are connected by edges
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- Presented as a course navigation tool
  - Students see a graphical layout of their course
  - Students see explicit relationships of key concepts across lectures
  - Students navigate to interested topic while knowing relative paths
A Course Prototype

Diagram showing the relationship between access, digital divide, economic opportunity, issues for developing countries, skills, digital participation, crap detection, info management, levels of participation, and info credibility.
A Course Prototype (cont.)

- Digital Participation
  - Skills
    - Crap Detection

- Exercises
- Assessments

- Lecture Videos and Slides
- Key Concepts:
  - Author credibility
  - Information credibility
  - Rule of three
  - Gateway sites
  - Web utilities
- Exercises
- Assessments

Learning Outcomes:
The student will be able to ...

- ✓ Apply the Rule of Three strategy in determining information credibility.
- ✗ Differentiate between gateway sites and credible, definitive sources.
- ✓ Use online tools to identify the registered owner of a website and the site traffic.
- ✗ Identify the credibility of online information.
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<thead>
<tr>
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<th>Exercises</th>
<th>Assessments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skills</td>
<td></td>
<td></td>
</tr>
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Alternative View: Learning Outcomes

- Some students are more driven by real world connections
- Proposal: Parallel interface of connected learning outcomes
- Navigation by learning outcomes
- Learning outcomes tied to professional roles
- Improves real world connections
  - Awareness of roles outside of programming
- Supports individualized goal setting
Support for Self-Regulated Learning

• Non-linear navigation
• Individualized learning paths
• Better understanding of course structure
• Goal setting with respect to learning outcomes and professional roles
• Student-driven progress monitoring
Summary and Future Work

• Flexible course tool showing explicit relationships and key concepts
• Novel, alternate view by learning outcomes
• Next steps:
  • Interface for navigation by learning outcomes
  • Prototype web platform, “plug-in” course specifics, testing
  • Adding social and intelligent features
• Challenge:
  • How to encourage instructors to create concept maps?
Thank You

• Feedback?
• Email: bowen.hui@ubc.ca