Implementing Adaptive Educational Methods in IMS-LD

Marcus Specht and Daniel Burgos
Open Universiteit Nederlands
adaptation in educational systems
learning paths, exploration in adaptive systems, flexible content and systems
educational patterns, learning design, and adaptation
Project AUTC
Intended Learning Outcomes:
Development of a wide range of abilities appropriate for a beginning medical practitioner, clustered under 4 themes:
- basic and clinical sciences
- patient-doctor
- community-doctor
- personal and professional development.
Adaptive Methods and a Classification Schema
### Taxonomy of Adaptive Methods

**What is adapted ...**
- Learning goal
  - Content
- Teaching method
  - Content
  - Teaching style
  - Media selection
  - Sequence
  - Time constraints
  - Help

- Presentation
  - Hiding
  - Dimming
  - Annotation

**... to what features...**
- Learner
- Preferences
- Usage
- Previous knowledge, professional background
- Knowledge
- Interests, Goals
- Task
- Context
- Complexity
- Situational Context
- Position

**... and why?**
- Didactical reasons
- Preference model
- Compensation of deficits
- Reduction of deficits
- Ergonomic reasons
- Efficiency
- Effectiveness
- Acceptance
<table>
<thead>
<tr>
<th>What</th>
<th>To What</th>
<th>Why</th>
<th>How</th>
</tr>
</thead>
<tbody>
<tr>
<td>adaptive sequencing 1</td>
<td>sequencing learning activities</td>
<td>tested knowledge, quiz</td>
<td>user tracking</td>
</tr>
<tr>
<td>adaptive sequencing 2</td>
<td>introduction of interaction possibilities</td>
<td>level of expertise</td>
<td>usability, focus on learning activity</td>
</tr>
<tr>
<td>adaptive presentation</td>
<td>selection of media (DIVs)</td>
<td>preferences, learning style</td>
<td>compensation, acceptance</td>
</tr>
<tr>
<td>adaptive navigation support</td>
<td>hyperlink annotation</td>
<td>knowledge</td>
<td>guidance</td>
</tr>
<tr>
<td>adaptive navigation support 2</td>
<td>hyperlink annotation</td>
<td>community activities</td>
<td>social guidance</td>
</tr>
</tbody>
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Implementation in IMS LD
main components of IMS-LD to model adaptivity

- Local, Global, Group, Role Properties
  -> Adaptation to Knowledge, Preferences, Attributes, Group, Stereotypes

- Environment
  -> Adaptive User Interfaces and increasingly interactive learning environments

- Conditionals and Calculations
  -> Adaptive Content Presentation

- Roles -> Collaborative Distributed Learning, Adaptability
<table>
<thead>
<tr>
<th><strong>what</strong></th>
<th><strong>to what</strong></th>
<th><strong>why</strong></th>
<th><strong>how</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>adaptive sequencing, jazz example</td>
<td>predefined activity-structures</td>
<td>preferences, knowledge quiz</td>
<td>activity structures, assessment LO, user dialogue</td>
</tr>
<tr>
<td>adaptive user interface, interaction facilities</td>
<td>introduction of environment LO, annotation possibilities, blog or wiki facilities</td>
<td>level of expertise, number of contributions or interactions</td>
<td>usability, focus on learning activity</td>
</tr>
<tr>
<td>adaptive content presentation</td>
<td>selection of media (DIVs)</td>
<td>preferences, learning style</td>
<td>properties, usage tracking, conditionals, calculations</td>
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<tr>
<td>tutorial navigation support</td>
<td>hyperlink annotation</td>
<td>teacher feedback,</td>
<td>local and global properties, roles, calculations</td>
</tr>
<tr>
<td>social navigation support</td>
<td>hyperlink annotation</td>
<td>average learning success of peers in same activity</td>
<td>local and global properties, roles, calculations</td>
</tr>
<tr>
<td>synchronized collaborative learning</td>
<td>scaffolding activity structure</td>
<td>peer success in learning activities</td>
<td>blended collaborative learning</td>
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