Criteria to Assess the Quality of Virtual Patients (VP)

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MIE Pisa, 28.08.2012
OVERVIEW

• Background
• Usage scenarios
• Available Resources
• Methods
• Challenges and next steps
Background

- VPs important part of medical curricula
- Many local VP collections (e.g. LMU >1000 VPs)
- Creation of VPs timeconsuming and expensive
  - Exchange
  - Reuse
I don't feel very well at all today. I've been feeling funny, it comes and goes, but I don't get back to the best back before it begins. Again, I start shivering and feel really cold.

Temperature action: Take temperature. Finding: 38.1 Celsius (°C), 38.1 Celsius (°C).

You take his temperature using a thermometer disposable thermometer.

Possible next cards: (21940)(21941) [Take patient history, (21941) [Prescribe Paracetamol, (21942) [Physiological salt water, (21950)(21950) [Prescribe Antibiotics]]

Induct 4.5 (stag: 18750)
Background

- VPs important part of medical curricula
- Many local VP collections (e.g. LMU >1000 VPs)
- Creation of VPs timeconsuming and expensive
  - Exchange
  - Reuse
- VP Repositories/Referatories: e.g. MedEdPortal, eViP
- MVP standard developed
  - Many metadata defined and searchable (Healthcare LOM)
  - BUT: No quality criteria included
### Summary of your case session

Do you want to select a new case or to quit the application?

- Quit
- Cancel
- Case selection

**My rating:** ⭐⭐⭐⭐⭐

**Casename:** A 48 yr old male with severe chest pain

<table>
<thead>
<tr>
<th>Cardname</th>
<th>Card comment</th>
<th>Answer type</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 First Impression</td>
<td></td>
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<tr>
<td>2 Anamnesis</td>
<td></td>
<td>Non-evaluated freetext</td>
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<tr>
<td>3 Anamnesis continued</td>
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<tr>
<td>4 Laboratory Tests</td>
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<td>Freetext Answer</td>
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<tr>
<td>5 Enzyme kinetics after MI</td>
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<td>6 Findings-ECG</td>
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<td>Multiple Choice Answer</td>
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<tr>
<td>7 Diagnosis</td>
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<td>Multiple Choice Answer</td>
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<tr>
<td>8 Primary Care</td>
<td></td>
<td>Multiple Choice Answer</td>
</tr>
<tr>
<td>9 Cardiac catheterization</td>
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Usage Scenarios

• Quality check for reusage processes
• Supporting quality assessment of VPs within a repository/VP collection (Teachers, Students & Curriculum developers)
• Enhanced search functionality
• Quality checklist/guide for authors & reviewers of VPs
Resources

- Articles/Guides about quality criteria for E-learning/WBT
- VP related articles and guidelines
- Resources and tools to assess quality of components

➤ not designed for VPs
➤ often too general, not detailed enough
➤ covering only some aspects/components
Method – Data collection

• Literature research: Currently > 70 criteria identified
Method - Example

- Formal quality (typos, grammar, clearly understandable, ...)
- Type, answer options & solution appropriate?
- Question relevant (e.g. concerning learning objectives)?
- Feedback/Scoring available & appropriate?
- Level of difficulty appropriate ( -> Target Group)
- Reliability, Validity
- Overall number of assessment items related to VP length
- .......
Challenges and Next Steps

• Prioritize key criteria and verify methods together with experts
  • Granularity of criteria
  • Time and effort to assess these criteria

• Cross platform/institutional pilot study with eViP VPs
• Provide data in useful way depending on usage scenario
  -> software/database?
• Include quality criteria into MVP standard
Thank you!

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Summary

• Assessment of VP Quality an important topic so far only covered rudimentary
• Existing standards (MVP) need to be expanded
• For each criterion expert input

Thank you!
Contact: Inga.Hege@med.uni-muenchen.de
## METHOD - CATEGORIZATION

<table>
<thead>
<tr>
<th>Source(s)</th>
<th>• title of source(s)</th>
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<tbody>
<tr>
<td><strong>Category/Subcat.</strong></td>
<td>• Analysis/Planing</td>
</tr>
<tr>
<td></td>
<td>• <strong>Design/Development</strong></td>
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<td>• Implementation</td>
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<td></td>
<td>• Evaluation/Optimization</td>
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<tr>
<td><strong>Context</strong></td>
<td>• VP</td>
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<td></td>
<td>• VP system</td>
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<td></td>
<td>• Organization</td>
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<tr>
<td><strong>Method</strong></td>
<td>• how can it be measured</td>
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<td>• expected outcomes</td>
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<td>• required resources</td>
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</tbody>
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- Learning objectives
- Content concept
- Didactical concept
- Organizational concept
- Technical concept
- Interaction design
- Media design
- Communication concept
- Test design

-> evtl raus?

* based on ISO/IEC 19796-1 (Information technology – Learning, Education and training – Quality management, assurance and metrics)
Main Categories (based on ISO) & Examples

Needs Analysis/Planning
- Staff qualification
- Learning objectives

Conception, Implementation
- Assessment items
- Quality of texts

Evaluation and optimization
- Learner support
- Update workflow
Main Categories (based on ISO) & Examples

• **Needs and framework analysis** (Planning) with e.g.
  • Qualification of involved staff/authors
  • Copyright and data protection issues

• **Conception/Design and Development**, e.g.
  • Quality of text, questions, media,…

• **Implementation**
  • User Support, Availability,…

• **Evaluation/Optimization**
  • Evaluation results, Peer-review process?