Game-Based Assessment

@KristenDiCerbo
The Digital Desert
The Digital Ocean
Instrument

Capture
Evidence-Centered Design

- **Student Model**
- **Evidence Model(s)**
- **Measurement Model**
- **Scoring Model**
- **Task Model(s)**

### Diagram Elements
- \( \theta_1 \)
- \( \theta_2 \)
- \( \theta_3 \)
- \( \theta_4 \)
- \( \theta_5 \)
- \( X_1 \)
- \( X_2 \)
- 1. xxxxxxxxx
- 2. xxxxxxxxx
- 3. xxxxxxxxx
- 4. xxxxxxxxx
- 5. xxxxxxxxx
- 6. xxxxxxxxx
- 7. xxxxxxxxx
- 8. xxxxxxxxx
<table>
<thead>
<tr>
<th>Level</th>
<th>Interpretation</th>
<th>Expression</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Achievement</td>
<td>Achievement</td>
</tr>
<tr>
<td>Preliminary</td>
<td>Reason-1-I-A</td>
<td>Reason-1-E-A</td>
</tr>
<tr>
<td></td>
<td>Identifies reasons people give to support a specific point</td>
<td>Generates at least one reason to support a specific point, in sentence form</td>
</tr>
<tr>
<td>Foundational</td>
<td>Reason-2-I-A</td>
<td>Reason-2-E-A</td>
</tr>
<tr>
<td></td>
<td>Identifies supporting reasons or evidence in an argument and relates them to the point they support</td>
<td>Generates multiple reasons to support a point, and uses these reasons to counter others' argument in an engaging, familiar context</td>
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<tr>
<td>Basic</td>
<td>Reason-3-I-A</td>
<td>Reason-3-E-A</td>
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<tr>
<td></td>
<td>Recognizes and explains the relationship between main and supporting points and keeps track of which evidence supports which point</td>
<td>Builds logical, hierarchically structured arguments by selecting and arranging reasons and evidence to support main and subsidiary points</td>
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<tr>
<td>Intermediate</td>
<td>Reason-4-I-A</td>
<td>Reason-4-E-A</td>
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<tr>
<td></td>
<td>Identifies specific points in a text that are vulnerable to objections and counterarguments</td>
<td>Creates simple critiques or rebuttals that critically provide summaries of or responses to other people’s arguments</td>
</tr>
</tbody>
</table>
Student Model ➔ Task Model

- Find evidence
- Evaluate evidence
- Critique argument
- Battle robot
- Equip robot
- Construct argument
Task Model
# Evidence Model

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Event</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>09-18-2013</td>
<td>23:34:17</td>
<td>Battle 00a8b490-f8a7-11e3-9f_set_up_battle</td>
<td>Player 3323 Opponent 3322</td>
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<tr>
<td>09-18-2013</td>
<td>23:35:18</td>
<td>Battle 00a8b490-f8a7-11e3-9f</td>
<td>Display PlayerOpeningStatement</td>
</tr>
<tr>
<td>09-18-2013</td>
<td>23:36:19</td>
<td>Battle 00a8b490-f8a7-11e3-9f</td>
<td>Display_OpponentOpeningStatement</td>
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<tr>
<td>09-18-2013</td>
<td>23:37:20</td>
<td>Battle 00a8b490-f8a7-11e3-9f</td>
<td>Start_Turn true</td>
</tr>
<tr>
<td>09-18-2013</td>
<td>23:38:21</td>
<td>Battle 00a8b490-f8a7-11e3-9f</td>
<td>Select_target</td>
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<tr>
<td>09-18-2013</td>
<td>23:39:22</td>
<td>Battle 00a8b490-f8a7-11e3-9f</td>
<td>Select_target</td>
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<tr>
<td>09-18-2013</td>
<td>23:40:23</td>
<td>Battle 00a8b490-f8a7-11e3-9f</td>
<td>Battle_Select_NotRelevant</td>
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<tr>
<td>09-18-2013</td>
<td>23:41:25</td>
<td>Battle 00a8b490-f8a7-11e3-9f</td>
<td>Display_BotDialogue</td>
</tr>
<tr>
<td>09-18-2013</td>
<td>23:42:10</td>
<td>Battle 00a8b490-f8a7-11e3-9f</td>
<td>Launch_attack</td>
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<tr>
<td>09-18-2013</td>
<td>23:42:10</td>
<td>Battle 00a8b490-f8a7-11e3-9f</td>
<td>Bot_killed</td>
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<tr>
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<td>Player 3322 Opponent 3321</td>
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<tr>
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<td>23:43:38</td>
<td>Battle 05599d0-f7e0-11e3-9f</td>
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<tr>
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<td>23:38:21</td>
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<td>Select_target</td>
</tr>
<tr>
<td>09-18-2013</td>
<td>23:39:22</td>
<td>Battle 05599d0-f7e0-11e3-9f</td>
<td>Battle_Select_NotSupporting</td>
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<td>09-18-2013</td>
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<td>Battle 05599d0-f7e0-11e3-9f</td>
<td>CORE_ATTACK_NOT_SUPPORTING_OpponentBot1</td>
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<tr>
<td>09-18-2013</td>
<td>23:42:10</td>
<td>Battle 05599d0-f7e0-11e3-9f</td>
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<tr>
<td>09-18-2013</td>
<td>23:42:10</td>
<td>Battle 05599d0-f7e0-11e3-9f</td>
<td>Display_BotDialogue</td>
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</tbody>
</table>

# FOTC2015

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Evidence Model
Final Thoughts

• It takes a village
• Validity, reliability, and fairness are still important
• There are many types and purposes for assessment, games don’t suit them all
• Our biggest challenge is not to recreate our current world with new technology but to reinvent our conceptualizations to take advantage of a digital-first world