Youth as NSDL Users...and Researchers!
Youth-Centered Design and the NSDL

KIMBERLY LUCAS
EDUCATION DEVELOPMENT CENTER, INC.
Education Development Center, Inc.

Portfolio of youth media and technology projects:
- The FunWorks (thefunworks.org)
- Girls Communicating Career Connections (gc3.edc.org)
- Middle School Portal 2: Math and Science Pathways (msteacher2.org)
  - Youth Virtual Learning Experiences (smartr.edc.org)
- NSDL Youth Resources
### Overview of Projects

#### MSP2 VLEs: SMARTR
- Develop increased STEM content knowledge in youth
- Increase youth ability to explore, discover, problem solve, think critically about STEM
- Increase youth awareness of the educational pathways that lead to STEM careers
- Increased awareness of new technological literacies/encourage productive/responsible use of technology

#### NSDL Youth Resources
- Determine what youth and educators identify and conceptualize as “high-quality” online STEM content
- Identify youth intended uses of this content
- Identify key vocabulary youth use to find STEM resources
- Provide NSDL collection owners with a way to identify and add quality content for youth
Youth-Centered Design Methodology

- Phase 1: Literature Review
- Phase 2: Youth and Educator Surveys
- Phase 3: Youth & Educator Focus Groups
- Phase 4: Co-Design Team
- Phase 5: Professional Design and Development
- Phase 6: Pilot and Field Testing
## Phase 1: Literature Review

### MSP2 VLEs: SMARTR
- Youth online technology use
- Youth general technology use
- Youth interest and motivation to learn about STEM subject/topic areas
- Participatory research and design with youth

### NSDL Youth Resources
- Available tools for creating and evaluating youth online technology use
  - Concept Inventories
  - Rubrics
- Available tools for identifying youth search criteria
  - Controlled Vocabularies
- Available guidelines for “quality” STEM resources
  - National standards
- Participatory research and design with youth
<table>
<thead>
<tr>
<th>MSP2 VLEs: SMARTR</th>
<th>NSDL Youth Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>National online survey</td>
<td>National online survey</td>
</tr>
<tr>
<td>6 week open availability</td>
<td>6 week open availability</td>
</tr>
<tr>
<td>(May-June 2009)</td>
<td>(April-May 2010)</td>
</tr>
<tr>
<td>Reached through previously established partnerships</td>
<td>Reached through previously established partnerships</td>
</tr>
<tr>
<td>440 youth participants</td>
<td>45 youth participants</td>
</tr>
<tr>
<td>617 educator participants</td>
<td>154 educator participants</td>
</tr>
</tbody>
</table>
## Phase 3: Focus Groups

### MSP2 VLEs: SMARTR

**Youth Participants**
- 1 focus group
  - Education Development Center, Inc. (Newton, MA)
- 5 youth

**Educator Participants**
- 1 focus group
  - NSTA Conference 2009 (New Orleans, LA)
- 6 educators

### NSDL Youth Resources

**Youth Participants**
- 4 focus groups
  - Dover, DE
  - Omaha, NE
  - Winthrop, MA
  - Rockland, ME
- 3-11 youth per site

**Educator Participants**
- 3 focus groups
  - Omaha, NE
  - Winthrop, MA
  - Rockland, ME
- 6-7 educators per site
### Phase 4: Co-Design Team(s)

<table>
<thead>
<tr>
<th>MSP2 VLEs: SMARTR</th>
<th>NSDL Youth Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>South End Technology Center, Boston, MA</td>
<td>TBD</td>
</tr>
<tr>
<td>9 youth participants</td>
<td>Concurrent youth <em>and</em> educator teams</td>
</tr>
<tr>
<td>10 week process—after school</td>
<td>Youth participants</td>
</tr>
<tr>
<td><strong>April-June 2009</strong></td>
<td>Currently written as a 2 week (2 times per week) process</td>
</tr>
<tr>
<td><strong>2 times per week</strong> (Tuesday/Thursday)</td>
<td>Educator participants</td>
</tr>
<tr>
<td><strong>2 hours per meeting</strong></td>
<td>Currently written as a 4 week (2 times per week) process</td>
</tr>
</tbody>
</table>
Phase 4: Co-Design Team(s)

MSP2 VLEs: SMARTR
Phase 4: Co-Design Team(s)

MSP2 VLEs: SMARTR
Phase 5: Professional Design and Development

MSP2 VLEs: SMARTR

Welcome!
Welcome to SMARTR! The only math and science site around created by youth just like you! Here you will find some amazing math and science games and activities. Search by topic (e.g., Weather) or subject (e.g., Math). Site back, relax and EXPLORE!

Science & Math News
THE WEEKLY SCOOP: Better living from scorpion venom
SCIENCE SNAPSHOTs: World’s tiniest fridge

Student Opportunities
Find the latest opportunities for adventures, challenges, contests, and camps.

Teachers
Are you an educator working with middle-school aged youth? Visit our companion site the Middle School Portal now!
Phase 6: Pilot and Field Testing

- Identify potential partner sites/groups of youth and educators for pilot/field testing
- Create feedback mechanism(s) for testers
- Incorporate usage/design feedback into product
Thank You!

Sarita Pillai, PI
spillai@edc.org

Siobhan Bredin, co-PI
sbredin@edc.org

Kimberly Lucas, Research Assistant
klucas@edc.org
Overview

- **Education Development Center, Inc.**
- **NSDL projects:**
  - Gender & Science Digital Library (gdsl.org)
  - Effective Access Research Project
  - The FunWorks (thefunworks.org)
  - Girls Communicating Career Connections (gc3.edc.org)
  - Middle School Portal 2: Math and Science Pathways (msteacher2.org)
    - Youth Virtual Learning Experiences (smartr.edc.org)
  - NSDL Youth Resources
NYR’s goals for youth:
- Determine what youth and educators identify and conceptualize as “high-quality” online STEM content
- Identify youth intended uses of this content
- Identify key vocabulary youth use to find STEM resources
- Provide NSDL collection owners with a way to identify and add quality content for youth

NYR products:
- Develop a **content-selection rubric** for our partners and other collection owners with a critical need to add youth-appropriate content to their collections
- Create a **controlled vocabulary** for the cataloging of youth resources for the NSDL
Youth-Centered Design Methodology

Phase 1: Literature Review

Phase 2: Youth and Educator Surveys

Phase 3: Youth & Educator Focus Groups

Phase 4: Co-Design Team

Phase 5: Professional Design and Development

Phase 6: Pilot and Field Testing
Table 12. Ways in Which Youth Decide to Look at Sites During a Search

<table>
<thead>
<tr>
<th>Description</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>I read through the descriptions and click on the one I think will have the most useful information</td>
<td>23</td>
<td>51.11%</td>
</tr>
<tr>
<td>I just click on the first site in the list</td>
<td>9</td>
<td>20.00%</td>
</tr>
<tr>
<td>I click on sites until I see a picture that looks interesting</td>
<td>1</td>
<td>2.22%</td>
</tr>
<tr>
<td>I click on sites that look interesting and will have useful information</td>
<td>1</td>
<td>2.22%</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>34</strong></td>
<td><strong>75.56%</strong></td>
</tr>
</tbody>
</table>
Table 13. Information Youth Look for to Determine Whether a Site is Useful - Youth Using Search Engines

<table>
<thead>
<tr>
<th>Information Sought</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text (words) describing the topic I’m looking for</td>
<td>27</td>
<td>60.00%</td>
</tr>
<tr>
<td>Photos of the topic I’m looking for</td>
<td>4</td>
<td>8.89%</td>
</tr>
<tr>
<td>Videos of the topic I’m looking for</td>
<td>2</td>
<td>4.44%</td>
</tr>
<tr>
<td>Games on the topic I’m looking for</td>
<td>2</td>
<td>4.44%</td>
</tr>
<tr>
<td>Any photos</td>
<td>1</td>
<td>2.22%</td>
</tr>
<tr>
<td>Any videos</td>
<td>1</td>
<td>2.22%</td>
</tr>
<tr>
<td>Any games</td>
<td>1</td>
<td>2.22%</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>38</td>
<td><strong>84.44%</strong></td>
</tr>
</tbody>
</table>
Focus Groups: Unexpected Educator Findings

- Educators who use online resources to support their teaching but are unaware of the NSDL
  - Summary
  - Group discussion:
    - Have others found same/similar/different things?
    - What are the implications for usage development?
    - Suggested strategies for addressing
- “Wikiphobia”
Focus Groups: Unexpected Youth Findings

• **Youth uninterested in exploring online resources of their own accord**
  - Summary
  - Group discussion:
    - Have others found same/similar/different things?
    - What are the implications for usage development?
    - Suggested strategies for addressing
  • “Wikiphobia”
Next Steps

- Identify a site for youth *and* educator co-design teams
- Implement Phase 4 of Youth-Centered Design Methodology using task agenda created from survey and focus group information
- Phase 5: Product creation
- Phase 6: Pilot and field testing
Thank You!

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