

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



**KIMBERLY LUCAS
EDUCATION DEVELOPMENT CENTER, INC.**



Overview



- 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

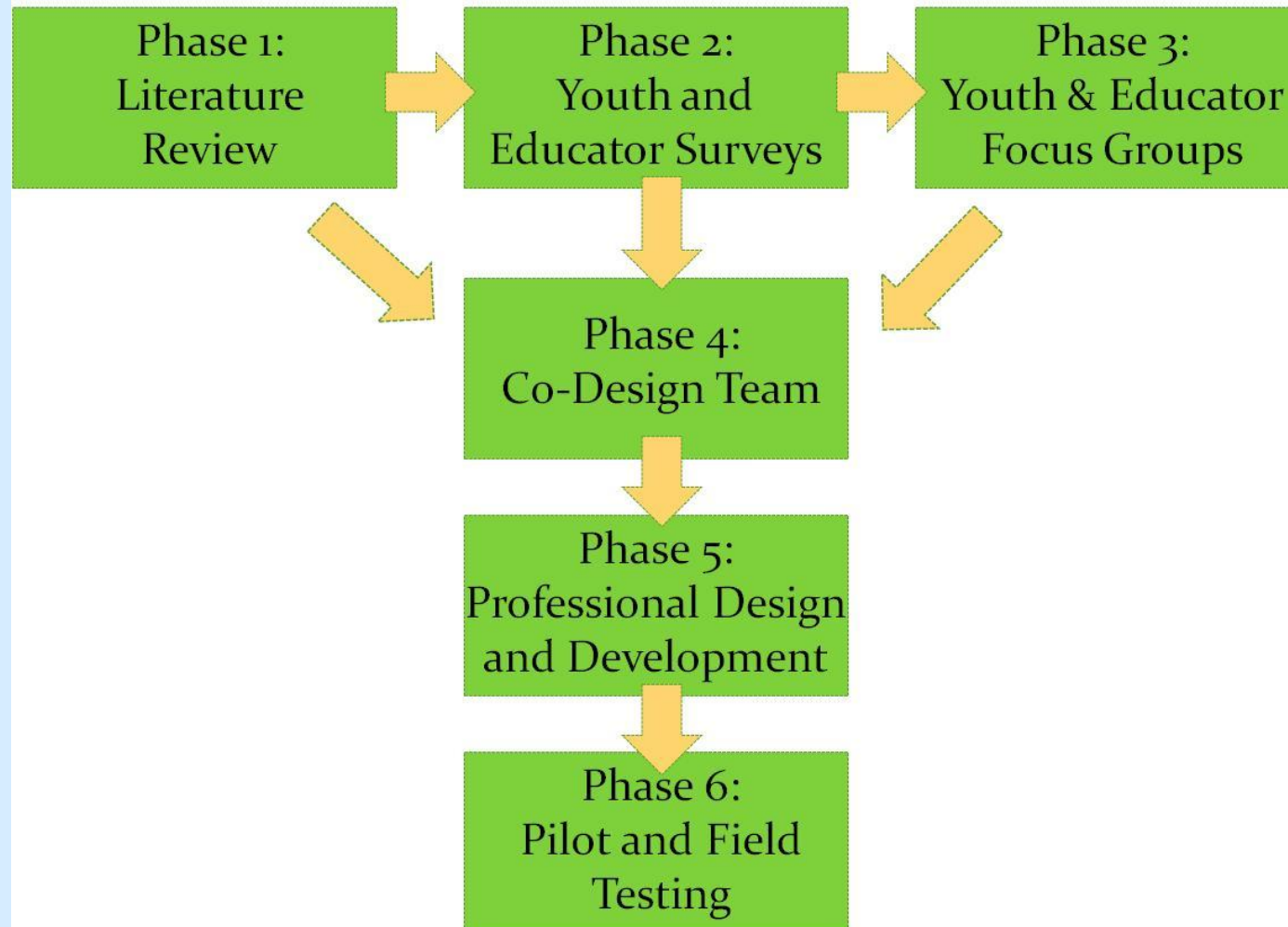
MSP₂ VLEs: SMARTR

- 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

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

Phase 2: Surveys

MSP₂ VLEs: SMARTR

- National online survey
- 6 week open availability (May-June 2009)
- Reached through previously established partnerships

- 440 youth participants
- 617 educator participants

NSDL Youth Resources

- National online survey
- 6 week open availability (April-May 2010)
- Reached through previously established partnerships

- 45 youth participants
- 154 educator participants

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

- 3 focus groups
 - ✦ Omaha, NE
 - ✦ Winthrop, MA
 - ✦ Rockland, ME
- 6-7 educators per site

Phase 4: Co-Design Team(s)

MSP₂ VLEs: SMARTR

- South End Technology Center, Boston, MA
- 9 youth participants
- 10 week process—
afterschool
 - ✦ April-June 2009
 - ✦ 2 times per week
(Tuesday/Thursday)
 - ✦ 2 hours per meeting

NSDL Youth Resources

- TBD
 - Concurrent youth *and* educator teams
- Youth participants
- Currently written as a 2 week (2 times per week) process
- Educator participants
- Currently written as a 4 week (2 times per week) process

Phase 4: Co-Design Team(s)



MSP₂ VLEs: SMARTR



Phase 4: Co-Design Team(s)



MSP2 VLEs: SMARTR

The screenshot displays the SMARTR VLE interface with several annotated elements:

- Navigation:** Home | Products | Company | Blog
- Header:** SATOR AREPO TENET OPERA ROTAS
- Games:** games (jumpin sam and more click hear)
- Word Search:** word search (math words, sciences words, click hear)
- Image:** Image not found
- Homework Help:** homework help (ela, math, and more click hear)
- Math Helper:** math helper (adding, time, and more click hear)
- Science Work:** science work (lean more about science work, science game)
- Videos:** videos (math videos, fun videos, cool videos, best video of the week)
- Calendar:** FEB 2008 (5/9 / 09 11.25)
- Sign Up:** sign up click hear
- User Login:** user name, password, forgot password click here, sign up
- Annotations:** A yellow sticky note says "fun way to learn math click on post it" with an arrow pointing to the games menu. A large white arrow at the bottom points right.

Phase 5: Professional Design and Development



MSP₂ VLEs: SMARTR

smartr*
VIRTUAL LEARNING EXPERIENCES

Search

home science math about us

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

[more](#)

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!

Crocodile Attack!

Ratios Probability Weather Earthquake Chemistry

Tech Tools
Need help snazzing up a homework assignment?
[Get tools!](#)

Chat Online
Coming soon.

Question
Send us your feedback, questions and comments.
[Ask us!](#)

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!



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NSDL Youth Resources: Findings and Challenges



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Overview



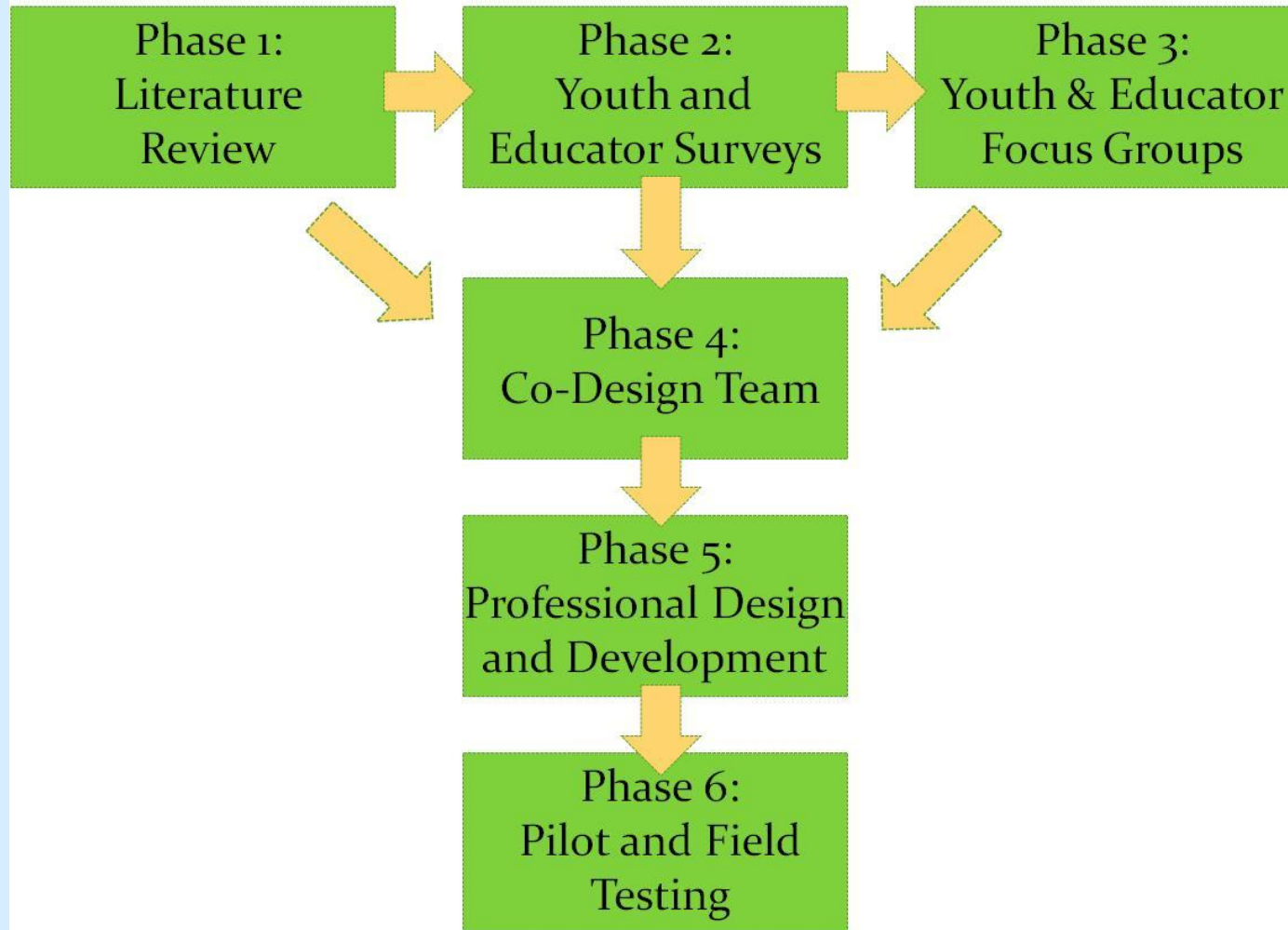
- Education Development Center, Inc.
- NSDL projects:
 - Gender & Science Digital Library (gdsl.org)
 - Effective Access Research Project
 - The FunWorks (thefunworks.org)
 - Girls Communicating Career Connections (gc3.edc.org)
 - Middle School Portal 2: Math and Science Pathways (msteacher2.org)
 - ✦ Youth Virtual Learning Experiences (smartr.edc.org)
 - NSDL Youth Resources

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



Surveys: Youth Findings



Table 12. Ways in Which Youth Decide to Look at Sites During a Search

	N	%
I read through the descriptions and click on the one I think will have the most useful information	23	51.11%
I just click on the first site in the list	9	20.00%
I click on sites until I see a picture that looks interesting	1	2.22%
I click on sites that look interesting and will have useful information	1	2.22%
TOTAL	34	75.56%

Surveys: Youth Findings



Table 13. Information Youth Look for to Determine Whether a Site is Useful - Youth Using Search Engines

	N	%
Text (words) describing the topic I'm looking for	27	60.00%
Photos of the topic I'm looking for	4	8.89%
Videos of the topic I'm looking for	2	4.44%
Games on the topic I'm looking for	2	4.44%
Any photos	1	2.22%
Any videos	1	2.22%
Any games	1	2.22%
TOTAL	38	84.44%

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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