A Framework for Learning and Sharing: Helping OER Projects Conduct Case Studies to Assess and Share their Achievements

The Institute for the Study of Knowledge Management in Education (ISKME)

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Preface to the Case Study Framework

Background to the Case Study Framework

Numerous organizations and individuals are creating and sharing open educational resources (OER) for the benefit of all teachers and learners. Partly because the field is still new and partly because OER projects are scattered across the globe, we need to create new opportunities to share program learnings and advances across projects and boundaries. We need to:

- Increase understanding of issues that are common across OER projects, such as engagement of online communities, volunteer recruitment, and licensing decisions
- Create synergies and networking possibilities for field-building and leadership development

The Institute for the Study of Knowledge Management in Education (www.iskme.org) is working to develop ongoing mechanisms for knowledge sharing on open education initiatives worldwide, through research, field building, and innovations in web-based media. ISKME has been working with six projects over the past year to help create case studies and build capacity to track, analyze and share key developments in the creation, use and reuse of open educational resources (OER) within the projects themselves. The projects include:

- CurriculumNet (Uganda)
- Curriki (United States)
- Free High School Science Texts (South Africa)
- Mission 2007 Training Commons (India)
- Stanford Encyclopedia of Philosophy (United States)
- Teachers' Domain (United States)

The findings from the case studies of the projects above have been used to support the development this OER Case Study Framework, which seeks to assist any open education project that wants to track, share, and advance their learnings and successes. A comparative analysis from these case studies will be available in fall 2008.

The case studies and the case study framework have been developed with support from the Shuttleworth Foundation, International Development Research Centre, the William and Flora Hewlett Foundation, and Curriki. For more information about the case study project or the framework, contact Lisa Petrides at lisa@iskme.org, or Cynthia Jimes at cynthia@iskme.org.

About ISKME

ISKME is an independent, nonprofit research institute that engages in research, innovation, and field-building around information and knowledge sharing in education. OER Commons is one of its OER (Open Educational Resources) initiatives, which supports knowledge sharing of freely available teaching and learning resources, strategies, and curricula online. In addition to OER Commons, ISKME˙s initiatives include research and field-building efforts to build knowledge and share capacity around the development of OER globally. ISKME also offers education and strategic development to assist organizations, school districts, universities, states, and others in transforming knowledge sharing in an open, dynamic environment with resources that are shared, adapted, re-used, and improved by teachers and learners.

Why Do A Case Study?

The purpose of the tools and resources within this document is to assist OER projects in tracking, analyzing and sharing key developments in the creation, use and reuse of open educational resources. By using the tools to conduct case studies, projects can build capacity for inquiry and information sharing across projects worldwide, which can in turn help them to:

- Discover unknown potential within their projects;
- Learn how other OER projects have overcome similar challenges and fulfilled similar needs;
- Improve networking so that relevant learnings and opportunities can be identified and leverage; and
- Use their experience and expertise to help other OER projects and to advance the field at large.

There is enormous potential for knowledge-sharing to advance the development, use and reuse of open education content. The purpose of this document is to help OER projects build their capacity to do so.

Case Studies Can Help to Address…

Community Participation
- Why do people participate in OER projects? What do they have to contribute?
- What is the role of individual contributors of OER? Of groups of contributors?
- What processes best facilitate participation and contribution?

Users and User Testing
- Who are the intended users and stakeholders of OER? Are there others who might benefit?
- Is content adaptable to meet users' local teaching and learning needs?
- What kinds of user testing is being performed? How are the results being used?

Open Licensing
- How do projects license their content?
- How do current licenses serve the purpose of OER projects?
- How do projects communicate licensing options and the implications to stakeholders and users?

Sustainability and Resources
- How are leadership roles determined, allocated and sustained?
- Are OER projects creating revenue? If so, how?
- How are financial, in-kind and other resources solicited and allocated?
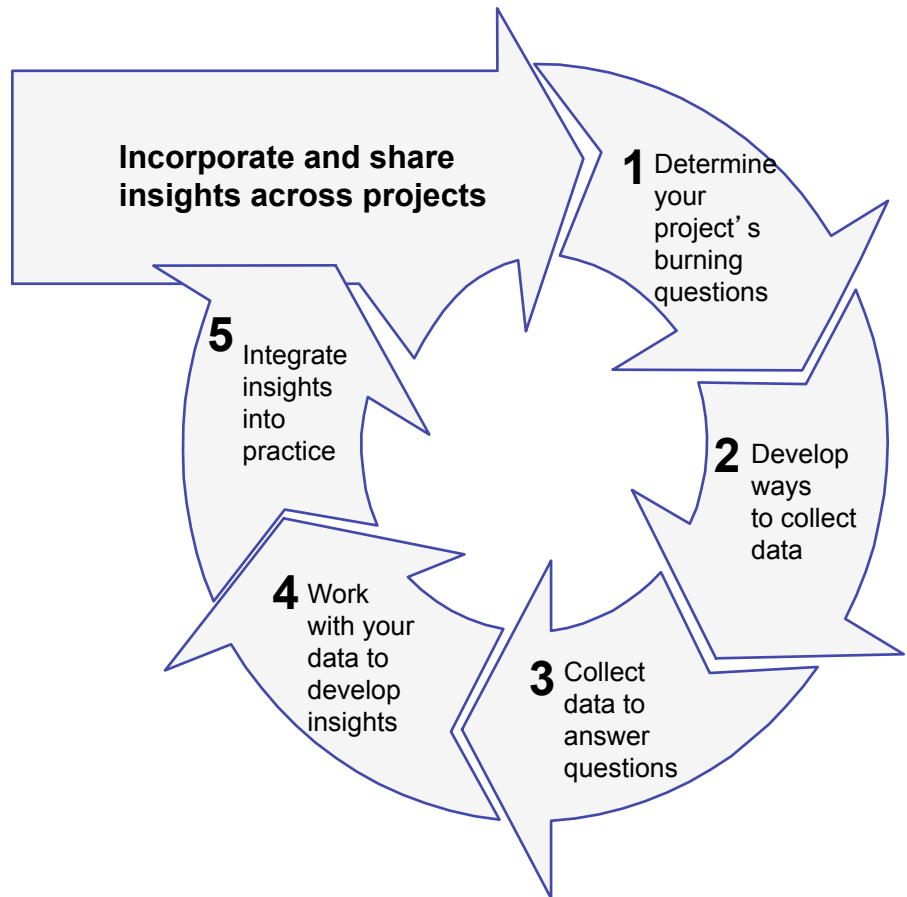
Overview of the Framework Components

Organization of the Framework

This framework seeks to help open education projects conduct case studies to build capacity to track, analyze and share key developments in the creation, use and reuse of open educational resources

The organization of the case study framework is outlined to the right. As depicted, the framework assumes that as OER projects move through the stages of the case study—from determining their research questions to integrating learnings into practice —that they will advance local knowledge, opportunities, and the OER field at large by drawing upon existing insights and sharing their own along the way.

How to Use the Framework

Each component of the framework provides tools, reflective questions, and examples that OER projects can draw upon in moving through the case study steps. What is most important, however, is to make it relevant to your local project's needs so that unique insights can be developed and subsequently shared.

Incorporate and share insights across projects

1 Determine your project's burning questions

2 Develop ways to collect data

3 Collect data to answer questions

4 Work with your data to develop insights

5 Integrate insights into practice

Most of the examples used in the framework have been culled from existing OER projects. As you work through and use the resources contained in this document, you might find your challenges and opportunities to be different from the examples provided. However, part of the purpose of participation in the case study framework is to be able to contribute your own practices as additional examples that can be added to the tools.

1. Determine Your Burning Case Study Questions
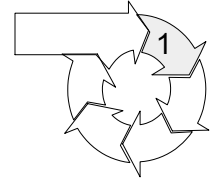
Prompts To Get You Started

What are the burning questions that you have about your project that you don't know the answers to? What do you need to know to move your project forward? What would the OER community benefit from knowing about your project? The prompts below can help you reflect on your project's successes, challenges, and opportunities. This in turn can help move you toward your specific research questions.

What is the project a shining example of? What has been the project's greatest accomplishment thus far?
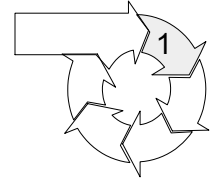
What is the biggest challenge that needs to be addressed to move the project forward?

What internal and external sources of data/information are needed to ensure the project's success?

What has been done well and what could be improved upon?

What's one of the most exciting things that's still left to do?

Exercise: Write Your Case Study Research Questions

Once you have identified the key issues that you need to explore to move your project forward, you can begin to formulate concrete research questions. Take a look at the examples below, and try to write one or more research questions that apply to your own project. In getting started, try to formulate what you want to know as 'how', 'why', 'what' or 'to what extent' questions.

Example:

How are teachers and learners using the resources on my site?

Your own question(s):

How_____

_____

_____

Example:

What incentives exist for facilitating authors' ability to contribute content?

Your own question(s):

What_____

_____

_____

Example:

Why do some funders participate in my project while others do not?

Your own question(s):
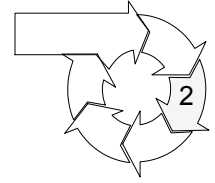
Why_____

_____

_____

Pointers

Your research questions should be answerable within a set amount of time and lead to actionable outcomes. They should be specific rather than broad.

Your research questions should ideally be answerable through existing resources available to your project.

2. Develop Ways to Collect Your Case Study Data

Scan the External Environment

Scanning the environment to leverage existing knowledge can cultivate insights that might help as you move further into your study. Scan the web for organizations, projects, and documents to see what information is already out there, what other projects have done, and gain insight into your own challenges.

Questions to get you started include:

- Are there reports, studies, or articles that have been written about OER that are relevant to your own project?

- Are there people in the field from whom you might gain insight or reflections on your project or research questions?

- What questions have other OER projects asked? How did they go about answering those questions?

Pointers

Examples of external resources that can be leveraged:

Other OER projects can provide documented insights and serve as discussion partners on relevant OER issues

The OLnet Evidence Hub (http://ci.olnet.org) provides research questions and findings from existing OER research projects, as contributed by various stakeholders in the global OER community

Take Inventory of Internal Expertise

Once you have determined your initial questions, you can move into the development of tools to collect data that inform those questions. Each OER project has unique people, practices and ways of communicating internally and externally. The questions below provide a way to help identify existing expertise so that you can start to develop tools for collecting data that are realistic to your project, your ways of working, and to the resources that you have available.

Which established methods of communication can be draw upon?

Some OER projects might have elaborate online content authoring platforms established for their OER communities, in which community members communicate through intranet forums or Wiki spaces. They might also use email as a means of facilitating workflow and communicating with community members. In reflecting upon your own methods of communication:

• What communication channels are typically used within you project?
• Are there communication channels in place that are not being used?
• How do distinct communities such as project leaders, funders, volunteers, teachers and learners communicate with one another?
• Are internal interactions and communication channels different from external ones?

**What people and technologies can we leverage?**

While some projects might include individuals with expertise in conducting research, others might consist more of individuals with teaching, management or general business knowledge. Create a list of the varied types of expertise that you have access to that you can draw upon in collecting and analyzing your data. Conduct a scan to understand which available software tools your team are comfortable with (such as Excel), which can be used to collect and analyze your data:

• Which project community members have the research skills necessary to develop out data collection tools and facilitate the case study process?
• Which technology resources can be used to help in facilitating the case study?

Pointers

Create a complete list of your projects' unique ways of communicating and interacting. For example, create a matrix with the categories of your stakeholders across the top (content creators, funders, project leaders, users, etc.). Under each category, list all of the methods of communicating used by each group.
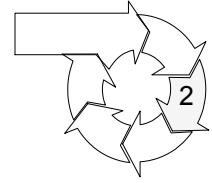
Create a list of individuals in your project, with their research and software expertise identified accordingly.
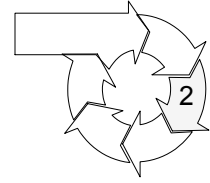
Identify Data Collection Tools

In identifying and determining the right data collection methods and tools, OER projects can reflect upon their established ways of working and communication and interaction channels in light of the research questions being addressed. Read through the examples below and then try to identify data collection methods to answer your own research questions.

| Research Questions	Established Practices/ Interactions	Data Collection Method
Examples		
1. How are teachers using the project's website?	The project website uses Google Analytics to track some aspects of how teachers use the site	**Analytics data** are culled from the Google Analytics reporting tool, which shows how many teachers visit the site daily, and where they are clicking and downloading. The data are pulled for a period of 12 months to determine behaviors over time.
2. What are the greatest technology hurdles for my community of authors?	Authors typically post technology questions on the intranet-based FAQ forum	**Forum postings** made by authors are culled on all technology-related issues and analyzed with an eye toward common hurdles being encountered by users.
Identify Your Own Data Collection Tools		
1.		
2.		

Practical Guide: Write Your Survey and Interview Questions

OER projects that wish to conduct surveys with stakeholders can benefit from careful formulation of their questions. Below are suggestions for composing and compiling your questions.

1. **Brainstorm what you want to know.** Based upon your overreaching case study questions, jot down a list of things that you want to know from your interview or survey participants.

2. **Draft your questions**. For interview questions, try to imagine the possible range of answers that might arise, and where participants might get stumped. From that, create prompts that you can use for each of your questions in case you need to spur their thinking, and get them talking and reflecting on a particular point or issue. For surveys, consider the type of questions to use. A mix of types is fine, it all depends on what you want to know:
   - Open-ended questions attempt to encourage a full answers based upon the participant's perceptions and knowledge (e.g., "How have you adapted or augmented the materials to meet your local teaching needs? Please explain."). They are the opposite of closed-ended questions, which encourage short or single-word answers (e.g., How many OER materials have you downloaded from the Connexions site this month?")
   - Multiple choice questions, such as a,b,c choices
   - Ranking and rating questions, such as "on a scale of 1 to 10 how does…"

3. **Consider the sequence of the questions**. It is often a good idea to start with a question that is easy to answer, but which is interesting to the participants. You might also try to build the questions so that the ideas flow logically.

4. **Consider the length of the survey.** Sometimes even 10 or fewer questions are enough to get at the central issues, especially for longer, open ended responses. Long, extensive surveys can be off-putting.

Pointers

If you need help in formulating your survey questions, you might consider using an online do-it-yourself service like SurveyMonkey.com, which helps you construct questions and provides tools for easily capturing and analyzing survey responses.
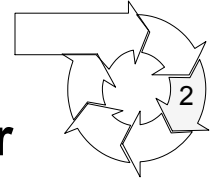
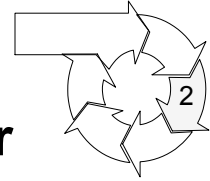# Example 1: Survey Protocol—Use and User Engagement

The survey questions below are part of a longer protocol developed for the OER project Teachers' Domain to understand how its teacher users were drawing on the site, and how to best engage them around its open educational resources.

1. During the past six months, how often have you visited Teachers' Domain?
   - ❑ Daily or almost daily
   - ❑ Once or twice per week
   - ❑ Once of twice per month
   - ❑ Approximately 2-3 times over the past six months
   - ❑ This is my first visit to Teachers' Domain

2. What are the primary reasons that you visit Teachers' Domain? Check all that apply.
   - ❑ To learn about a new topic
   - ❑ To stay current in a subject or topic area
   - ❑ To connect with other teachers or learners who have similar interests
   - ❑ To improve my teaching methods
   - ❑ To get ideas for new lessons
   - ❑ To supplement my existing lessons or coursework
   - ❑ Other, please specify_____

3. Which of the following activities describe what you do with Teachers' Domain resources? Check all that apply.
   - ❑ View them by clicking on the "view" button
   - ❑ Save them to "My Folders"
   - ❑ Download them to my computer or handheld device
   - ❑ Share them with others via email
   - ❑ Share them with others via "My Folders" or "My Groups"
   - ❑ Use them "as is" by, e.g., embedding them in a presentation
   - ❑ Remix them (or add parts of them to my own educational materials)
   - ❑ Edit them on my own computer after I have downloaded them
   - ❑ Other. Please specify._____
   - ❑ None of the above. Please explain._____

4. Have you used Teachers' Domain resources in a classroom setting? If so, please describe the teaching and learning situation, and how you used the resource to meet your needs.

5. What are the factors that you think would most support your ability to continue to work with resources such as those offered by Teachers' Domain? Please list these factors below.

Pointers

Consider putting an "other" category for your questions where appropriate, as in the second question to the left.

For open ended questions, it is a good idea to avoid prompting for single-word answers. Where possible, invite the participants to explain what they mean in detail with phrases like "please describe" or please explain".

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Example 2: Survey Protocol—Use and User Engagement

The survey questions below are part of a longer protocol developed for the OER project Curriki, which also sought to understand how its users were drawing on the site, and how to best engage them around its open educational resources. The questions listed are those specifically focused on whether and how users contribute resources to Curriki, and how they use Curriki resources in a classroom setting.

1. Have you added your own resources to Curriki by uploading existing files from your computer?
   - ❑ Yes
   - ❑ No

2. Have you created new resources through Curriki's Curriculum or form-based templates?
   - ❑ Yes
   - ❑ No

3. Please provide a specific example of your experience with uploading or adding materials to Curriki, and explain any particular challenge or success associated with that experience.

4. Do you have experience with other sites in terms of creating educational resources online?
   - ❑ Yes
   - ❑ No

   4a. If yes, how does that experience compare to the functionality on this site? Please explain.

5. Have you used Curriki resources in a classroom?
   - ❑ Yes
   - ❑ No

   5a. If yes, please provide a specific example by describing the teaching and learning situation, and how you used the resource to meet your needs.

6. To help inform future releases to Curriki in order to help users such as yourself, would you be willing to participate in a 30 minute follow-up interview about your experiences with Curriki and with open educational materials in general? If yes, please provide your email address.

   _____
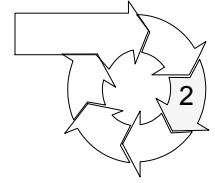
# Example 3: Survey Protocol—Volunteer Recruitment and Engagement

The OER project Free High School Science Texts (FHSST) experienced challenges in recruiting author volunteers and keeping them engaged in the project over time. In order to address this, FHSST project developed the survey protocol below, which consists of an introduction and 9 open-ended questions that attempt to encourage full answers based upon the participants' perceptions and knowledge.

Thank you in advance for your participation in this survey, which will help in our efforts to evaluate volunteer recruitment and volunteer support activities. The survey should take approximately 20 minutes. Please note that all responses are voluntary, and will remain anonymous in any write-ups of the data collected. Please return your completed survey to [name] at [email address] by [date].

1. What prompted you to participate in the project and what keeps you coming back?

2. Have you encouraged others to participate in the project? If so, please explain how you recruited and why.

3. What do you think would be the best way for the project to recruit more volunteers? Please explain.

4. What suggestions would you offer volunteers who are new to the project?

5. How would you describe your typical activities within the content authoring system?

6. What supports, tools or practices have been most helpful in facilitating your ability to complete assignments and contribute content? Please explain.

7. Please provide a specific example of a hurdle you faced in contributing content and how the project could have assisted you in addressing it.

8. If you could change one thing about the project, what would it be?

9. Please complete the following:

   a. When I need to communicate with the project admin team or with other volunteers, I _____

   b. I think it would be easier to communicate and interact with other volunteers and the admin team if _____

   c. I would like the monthly updates or other communications to include something about_____

Pointers

The introduction to the protocol provides an opportunity to describe the purpose of the survey, how the survey data will be used, an estimation of how much time the survey will take, anonymity issues, and how and where to return the survey.
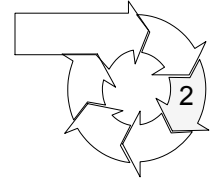
Example 4: Interview Protocol—Content Authoring

The interview protocol below was developed for a study of the OER project Connexions. Connexions' authoring platform provides a set of online tools where authors can work in groups or individually to create teaching and learning materials. The questions below were compiled as a way to understand author practices and perceptions around the use of Connexions' content authoring platform.

1. How did you first learn about Connexions and what prompted you to start using it?

2. How would you describe your typical activities within the Connexions system?

3. When you first began using Connexions, what expectations did you have if any? How have these expectations been met or not been met?

4. Do you find Connexions easy or difficult to use?

5. What features of the system have been most useful? Which have been most difficult?

6. Are there features that you wish that Connexions offered that it does not currently offer?

7. What have been your challenges, if any, to authoring content on the Connexions site? [E.g., communicating with other authors, technology hurdles, etc.]

8. Do you usually create content individually or in groups? Please explain.

9. [For those who create content in groups]:
   a) How did you become involved in your author group?
   b) Did you know the other authors previously?
   c) How are changes and decisions made within the group?
   d) How does communication occur within your author group?

10. Do you have any prior experience with authoring online materials or other content? If so, how does this experience differ from your Connexions experience?

Pointers

Try to imagine the possible range of answers that might arise, and where participants might get stumped. From that, create prompts that you can use for each of your questions in case you need to spur their thinking, and get them talking and reflecting on a particular point or issue.
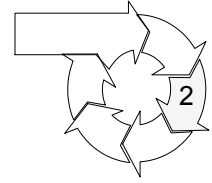
Example 5: Interview Protocol— The Concept of Open

The interview protocol below was developed for the Mission 2007 Training Commons project. The project sought to create open content (training modules) with the help of participating organizations who would later use the modules in their own training. The authors of the modules--who worked within the participating organizations--were interviewed to understand how they perceived "open content", and the impact that creating open content would have on their organizations.

1. To begin the interview, please tell me about how you became involved in the Training Commons project.

2. Have you been developing any open content before joining this project? If yes, please tell me about it.

3. How does/did the idea of making content open mesh with your own organization's goals?
   a. Have the goals changed over time? If so, what are reasons why they changed?
   b. What does 'open content' mean to you?
   c. How does the Training Commons project define "open"?

4. When the idea of making content open was communicated to you, how would you describe your organization's response?

4a. Do you think there are inputs or support mechanisms that should be in place to support future, similar efforts? If so, how would these be helpful?

5. How has the project and the work to make content open impacted your organization?

6. In retrospect, what have been the positive outcomes for the process of making content open, and for the modules you've created?

   a. Have there been any drawbacks?
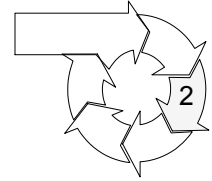   b. What would you or your organization do differently?

Pointers

During an interview, if you need more information from your participant or if the answers are not specific enough, you can ask follow-up questions.

Follow up questions (also called "probing" questions) often start with "what" or "how" and they aim to elicit more information and details.

A few examples of probing questions include:
- Can you give me an example of ...?
- Could you tell me more about ...?
- What exactly do you mean by ...?
- How do you feel about ...?

Example 6: Interview Protocol—
Content Use and Reuse

The interview protocol below was developed for the Mission 2007 Training Commons project. The project sought to create open and free training modules to be used in the training of managers of community technology centers across India. The users of the modules were the trainers, and they were interviewed to understand how they perceived the quality and accessibility of the modules, and how they reused, or modified them to meet their local training needs.

1. To begin the interview, please tell me about how you became involved in the Mission 2007 project, and your specific role in it.

2. What kind of training do you generally provide? Do you use any structured curricula for that? Please explain.

3. When you first tested the module(s), what was your impression of them and how you might apply them in your work? [Prompt for: Did you find any major difference between the modules and the training materials that you generally use?]

4. What, according to you, were the plus points of the modules?

5. Were there areas that needed development within the modules? Did you share it with the training team? Do you know if your feedback was incorporated into modules?

6. Were you engaged in developing and improving the modules on a regular basis? If so, what was your role? Please explain.

7. Please tell me about how you have used these modules in your work, to train others. [Prompt for pluses and minuses]

    a. What was your experience with using the modules?
    b. Were they easily adaptable to your local needs?
   c. How do you think the managers perceived the content?
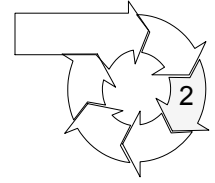
Example 7: Interview Protocol— Funding Model Sustainability

The following interview questions are a sample from an interview protocol developed for Stanford Encyclopedia of Philosophy, and OER project that sought to better understand why some libraries have chosen to become members in its project (and thus contribute to its financial sustainability) and others have not. This interview was conducted via telephone with representatives of member and non-member libraries.

1. When did you first learn about the project and its funding model? How were you approached?

2. What do you remember about the project's funding model?

3. What do you remember about the process your library undertook to decide whether or not to become a member?

4. Who were the stakeholders involved in the decision?

5. What factors were considered in determining whether or not to become a member? [PROBE: budget and structural constraints; other factors]

6. How did you view the added value or benefits of membership?

7. Is there anything that this project could be doing better to communicate or collaborate with libraries?

8. Is there anything else that would be helpful to know, that we've not already covered, that you wish to add?

Pointers

Consider starting your interview with general, easy-to-answer questions and concluding with a question that asks the interviewee to add other thoughts, experiences, or ideas that he/she wants to share.
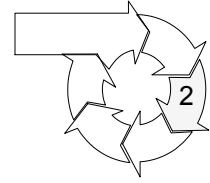
Example 8: Log File Analysis Template

Log files can be used to record and study user behaviors, including how users navigate through a site, what they click on, and what specific actions they take. In organizing their log file data collection efforts, projects can create a "template" as a way to understand the types of data they want to capture, how and whether each data point can be captured, and the priority level for each so that internal people and technology resources can be allocated. The example below is from a template for log file data for the OER site Curriki, which sought to collect data to inform how it could enhance user experiences and facilitate user engagement.

|	Data Type	How to Get	Rationale for data	Priority level
4				
5	*Content Collection Profile*			
6	Number of resources total, over time [Since March 2007]	File check tool	Indication of content growih	High
8	Number of resources by subject, grade level, and instructional type [over time]	Filtered Search	Provides basic profile of collection and can serve as starting point for examining aspects of Curriki use, user engagement	High
11	Which resources are visited, viewed most	Google Analytics	This would allow us to delve deeper into why certain resources are viewed more than others	Medium
12	*User Profile*			
14	Frequency of use	Google Analytics	Segmenting users by level of use can provide platform for exploring distinctions between these user groups, and how to convert low level users to active users	High
15	Number of new registere over time [since March 2007]	Google Analytics	Indication of user growth	High
16	Conversion rate from visitors to registered users over time	Can't get	Can serve as a success metric	Low
17	*User Behaviors*			
18	Browse [featured, by subject]	Google Analytics	Provides indication of type of browsing [featured or by subject] used most, and which subject areas are most browsed to gage user interest in those subject areas	Low
19	Download [by file type, instructional type, subject, etc.]	Curriki log files	Provides more insight into type of content on site than actual user behaviors	Low
	Number of materials created through Currikulum Builder by type [lesson plan, student activity, etc] vs. number of those uploaded from local pcs	Curriki data [write query]	Shows which types of resources are being created most or least, which can support targeted efforts to inspire	Low

Priorities - To Dos   ALL

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3. Collect Data to Answer Your Case Study Questions
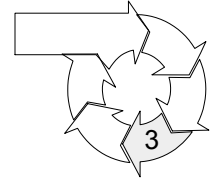
Considerations for Data Collection

As you develop your data collection instruments and tools, you will likely need to consider the necessary steps for the actual collection of the data. To ensure that this process goes smoothly, there are several considerations to think about. These include:

Determine how much data

The amount of data collected is partially dependent upon the method you've chosen. For example, if you decide to conduct interviews or focus groups that will yield text-based responses (qualitative data), you may need only 10 to 15 participants in order to identify common themes and draw conclusions from the data. If you decide to collect numeric (quantitative) data through a survey, you will probably need 50 or more participants to be able to see patterns in the data and arrive at reliable conclusions. Cast the widest net possible, working within your resource constraints—for example, if your project does not have the resources to analyze a large number of surveys, select a smaller, representative sample.

Solicit participants

If you are collecting data from people (as opposed to, for example, technology sources such as website log files), you will need to solicit and invite participants to take part in your case study. This would entail drafting a letter of invitation to your target participants. You may even want to offer incentives for people to participate in your survey (such as a chance to participate in a lottery or other reward).

Set deadlines

It is a good idea to set a definite stopping point for data collection activities. This is to ensure that the case study is completed within a reasonable amount of time, and to help set goals and expectations for those involved.

Anticipate hurdles

Be prepared for unexpected hurdles that might arise during data collection activities. For example, if you are conducting a survey, plan ahead about what to do in case you do not receive an adequate number of responses. You might consider sending out reminder notices, or extending the original deadline.
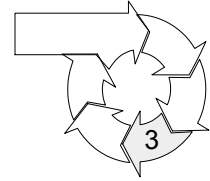
Considerations for Increasing Survey Response Rates

The higher your survey response rate, the greater the likelihood that your results will highlight the full spectrum of experience among your target population. Below, some tips for increasing response rates.

Accessibility

Individuals from your target population are more likely to respond to a survey when it is easily accessible. Administer your survey in a format that will be easy for them to access and complete. If your target population is tech-savvy, use an online survey. If not, consider other forms of gathering data, such as hard copies, telephone, or in-person interviews.

Soliciting responses

How you announce the survey is important. Be sure to state the purpose of the survey, who is sponsoring it, the length of time it will take to complete the survey, and a brief description of how the survey results will be used.

Timing

If you are soliciting responses via email, try to send the email first thing in the morning or by the early afternoon. Avoid sending an email about the survey in the late afternoon or evening.

Follow up

A follow up email, phone call, or postcard, sent within a week or two of your first contact with your target population may help to increase survey response rates. Following up serves as a reminder to respondents who intended to complete the survey but who have not yet done so. Strike a balance, though, as too many follow-ups can become an annoyance to respondents.
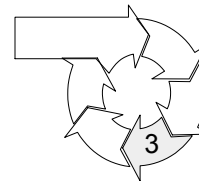
Example 1: Survey Distribution Approach

The OER project Free High School Science Texts (FHSST) wanted to understand how its author volunteers perceived the project's volunteer recruitment and peer production processes. As outlined below, FHSST used a 9-question survey sent through email to its volunteers.

FHSST's Survey Distribution Strategy

1. The survey consisted of a combination of 9 open-ended and fill-in-the-blank questions that addressed issues around volunteer recruitment, engagement and support.

2. Email was chosen as the primary method of distribution because of the volunteers' disperse geographic locations, and because they most often communicated through email.

3. The survey was emailed directly to the project's ten core volunteers.

4. The survey was also posted on the FHSST website as an additional channel for its wider volunteer community.

5. An announcement of the survey was posted on FHSST's discussion forum.

6. Six of the ten core volunteers responded to the survey, providing insight into the mechanisms that were successful in supporting volunteers, and which needed to be added or developed further. The website and forum postings did not result in additional survey participants.
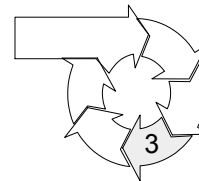
Example 2: Soliciting Survey Participants

The OER project Free High School Science Texts (FHSST) wrote the announcement below to solicit participants to its volunteer survey.

Calling All Volunteers:

As contributors to FHSST, we hope that you will be able to help us in completing a short survey (only 9 questions!) about being a volunteer on FHSST. The survey can be downloaded by clicking on the link on the homepage of FHSST (www.fhsst.org).

The aim of the survey is to maximise volunteer cooperation and productivity. The surveys will be kept anonymous (so please be honest!) and the data will be shared by FHSST.

We would really appreciate your help with this and would love to get your responses by _10 August_ so that the data can be analysed as soon as possible! You can fill out your survey and email it back to me at [email address] when you are done.

FHSST is currently the most advanced (in terms of production of resources) open content project in existence and it would be great if we could help other projects get going smoothly and productively as well!

Best regards,
[Name of OER project leader]

Pointers

In soliciting your participants through an announcement, you should explain the purpose of the data collection effort, the deadline for participation, how the data will be used, anonymity issues, and the logistics and practicalities of participation (such as how the survey should be returned and to whom).

As with example to the left, the announcement can set an inspirational tone and inspire people to participate by reminding them of the importance of the OER project and its successes or anticipated successes.
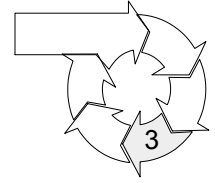
Example 3: Soliciting Survey Participants

The OER project Teachers' Domain wrote the announcement below to solicit participants to its user survey. The announcement was emailed to its registered users.

Teachers' Domain wants to hear from you!

Teachers' Domain, in conjunction with the Institute for the Study of Knowledge Management in Education (ISKME), is conducting a survey to understand how you are using Teachers' Domain resources, and what keeps you coming back to the site or hinders you from visiting more often. The survey should only take approximately 4-7 minutes, and will help us to continue to develop tools and processes to enhance your use experiences. Please help us make our resources better serve you by completing this brief survey! To start the survey, click here.[insert survey web link]
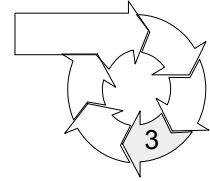
Practical Guide: Conduct and Assess Teacher/Learner Trials

The aim of teacher and learner trials to collect valuable feedback somewhat early on from the end users of open content, which can be used to inform the revision and further development of the content. The trials ideally take place in the actual teaching and learning environment, where future users can test or pilot recently developed teaching and learning materials to help determine, e.g., if the content meets students' educational levels and varied learning styles, and overall, whether it is relevant, usable and adaptable to local teaching and learning needs. This guide aims to help OER projects organize their own teacher and learner trials of open content.

1. Identify and solicit participating schools. Word of mouth and networking are good ways to identify people at locations who are willing to participate in your trials. For example, you could approach schools in which you know a teacher or principal, or schools that you or your project colleagues attended as a student. Be prepared to explain the purpose of the trial and your expectations for the participating teachers and learners, as well as potentially needing to request permission from the parents or other key stakeholders.

> **FHSST –Steps for Conducting a Teacher and Learner Trial**
>
> 1. Identification of 8 Durban, South Africa area schools to participate
> 2. Assessment of immediate content needs and writing targeted content
> 3. Pre-trial user questionnaire
> 4. Teacher/learner trials of the content in the 8 schools
> 5. Post-trial user questionnaire
> 6. Follow-up workshop with teachers/ learners
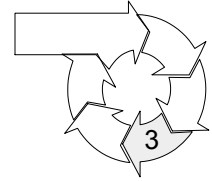> 7. Analysis of findings and incorporation into current practices

Also when choosing and soliciting schools, you may want to consider the advantages of selecting those that offer diversity in terms of demographics and aptitude within or across school populations—so as to ensure that your content is usable and adaptable for diverse sets of users. Of course, the more settings that participate the more feedback you will obtain; however, this must be weighed against the available resources for conducting the trials, the timeline, and the requirements and needs of the trial participants.

2. Match content offering to content needs. In order to ensure that your open content can be directly incorporated into the classroom setting for the trial period, it may be necessary to survey teaching needs before content is delivered. What content areas will teachers be focusing on during the trial period? What are their needs and wishes for content exercises and activities? By answering these questions, you can better tailor your existing content and potentially develop new content to match needs. Pre-trial questionnaires to assess teacher and learner needs accompanied by face-to-face meetings with teachers are ways to ensure that content is well matched.

3. Pilot the content. Depending on the context, provide the teachers with electronic or printed versions of the content. Some situations may call for training or guidance in using the content for the first time. The amount of time for each pilot often depends upon the amount of content the teacher is given, as well as upon the teacher's own schedule. Talk with the teachers to determine a suitable schedule that meets your project's needs as well as the needs of the teacher.

4. Develop instruments for post-trial feedback. In order to assess the feedback on the content, you will need to develop an instrument(s) to understand teacher and learner perceptions. Questionnaires, interviews, and focus groups are common methods of collecting this type of data. In a questionnaire, for example, students and teachers could be asked pointed questions that get at their perceptions about the level of difficulty, layout, or the language of the content. Teachers could also be asked questions to get at how well specific topics were covered in the texts, the layout and appearance of the texts, etc.

5. Asses post-trial data. After the pilot data have been collected, the analysis phase begins. Collected data needs to be organized, summarized and reported in some way. This can be a time consuming process, so you might consider soliciting either paid or volunteer help through from students, researchers, etc.

6. Conduct follow-up workshops. You can decide to have a follow up meeting with teachers (or other trial participants) delve deeper into the results of the questionnaires, and to ask clarifying questions. In these workshops, the trial participants could be invited to discuss and expand upon their post-trial questionnaire responses in person. The workshop can include a presentation of the main findings from the questionnaires, with questions throughout to invite feedback and further discussion. Such workshops offer a good way to validate findings, enable the trial participants to see the consequences of their participation, and to provide a means of building and strengthening relationships with the participants.

4. Work With Data to Develop Insights
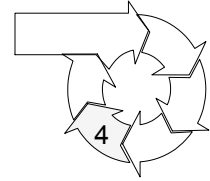
Practical Guide: Work with Your Data

The steps below will help you walk through the process of analyzing and synthesizing your date whether you collected numeric (quantitative) or text-based (qualitative) data in answering your research questions.

Get familiar. If you are working with text-based data, read and reread the data until it becomes familiar to you.

Compile and organize the data. If helpful, arrange and group the data in a familiar software program so that they are easy to scan and make sense of. If you are accustomed to using Excel, you could compile your data in a spreadsheet.

Perform a quality check. Especially for numeric data, perform a quality check. Look for data entry problems, unusual figures or texts, missing data, etc.

Run the numbers. If you're working with numeric data, you might want to run calculations, such as:
- Frequencies — Counts of responses, which are useful for indicating how often an event or response occurs.
- Percentages — Share of the total, which indicate how much a response or event occurs in relation to the total data set being examined.
- Averages— Show how typical something is, or…which are useful for….
- Depending on the nature of project and available resources, other, more complicated calculations could be made.

Identify and classify emergent themes. As you spend time with your data, you'll notice emerging themes and ideas that repeat themselves. Ask yourself: What do the responses have in common? What is surprising about the responses? Look for overlaps and redundancies, which will help you to identify common themes. For your qualitative data, try to create broad categories and smaller subcategories under them. For your quantitative data, look for patterns across the variables, among different groups that you surveyed.

Develop insights. Step back from your data and the themes you have developed. Think about how the ideas and concepts relate with each other. And look to see if an overarching story is revealed. Pick examples from your data that best illustrate the story.
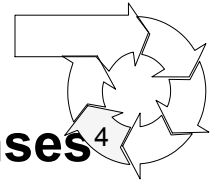
Example 1: Organization of Survey Responses[4]

Several options exist for organizing the survey or interview data you've collected. You might, for example, cut and paste your survey or interview responses into Excel, as illustrated by an example from Free High School Science Texts below. This provides an easy way to digest and scan the data.

Survey questions organized in columns

	A	B	C
1		Q1	Q2
2	Partic ipant	What prompted you to participate in FHSST and what keeps you coming back?	Have you encouraged others to parti FHSST project? If so, please explain recruited and why.
3	1	After hearing about the project from Mark, I read more about it on the website, which prompted me to join in. The fact that the project was created and organized by physics students (aka people like me) was a	As mentioned above, I started out w FHSST by getting together a group o friends (other SFSU students). I thou would make it easier for me to work, a would get more done in a short perio think both those turned out to be tru
4	2	Good opportunity to do something small to make better education available for all South African school kids	Just one other person. I met her while volunteer holiday teaching program. expressed an interest in getting more educational projects, so I discussed : her as an option she could do in any time. I don't know if she ever actually
5	3	I'm a nerd. I like science. I want to make a sustainable difference to the lives of South Africans.	I am a medic, coming from a life scien ground. I'm afraid that the technolog curve involved in contributing might somewhat difficult for my somewhat savy medic friends.

Survey participants assigned numbers to respect their anonymity

Participants' answers to each question listed in the cells

Pointers

Other approaches to organizing responses include collating the answers across surveys by cutting and pasting them into a Word document, or even by using 3 x 5 cards.

Consider soliciting low or no cost outside help in working with your data. For example, you might be able to engage local university students to collect and organize data.

33
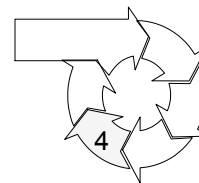
Example 2: Number Crunching

The examples below are from the OER project Teacher's Domain. The figures in the tables were compiled and calculated as a way to understand practices around the use of Teachers' Domain materials.

**Table 1. Frequency of respondents by job title**

Job Title	No of Survey Respondents
K-12 teacher	307
College instructor	33
Subject matter expert	17
K-12 student	9
Administrator	8
Other	32
Total	406

Table 2. Reasons for visiting Teachers' Domain

Type of reason for visiting Teachers' Domain	No of Survey Respondents (%)
To learn about a new topic	138 (31%)
To stay current in a subject or topic area	151 (34%)
To connect with teachers or learners who have similar interests	21 (5%)
To improve me teaching methods or enhance my professional development	160 (36%)
To get ideas for new lessons	291 (65.5%)
To supplement my existing lessons or coursework	293 (66%)
Other	40 (9%)
Total	444 (100%)

Pointers

Simple calculations of frequencies and percentages often serve as a first step into further, more in-depth calculations or research. For instance, in the examples above, further calculations could be conducted to determine the most common reasons for visiting Teachers' Domain per job category.
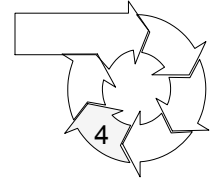
Example 3: Identification of Emergent Survey Themes

Identifying themes from your narrative survey responses is about looking for overlaps, redundancies, and even anomalies. The example below is from a Free High School Science Texts (FHSST) survey question. One theme that surfaces is that the volunteers seem to recruit their friends and colleagues, sometimes to work in face-to-face settings as a way to inspire their own work and stay motivated.

Survey Question: *Have you encouraged others to participate in the FHSST project? If so, please explain whom you recruited and why.*

Responses	Emergent themes
Volunteer 1: I started out working on FHSST by getting together a group of about 5 friends (other SFSU students). I thought this would make it easier for me to work, and that we would get more done in a short period of time. I think both those turned out to be true. I've also recruited some other Berkeley grad students and summer undergrad students by inviting them to Hackathons [i.e. face-to-face content creation meetings].	• Recruiting acquaintances/ students • Working together to provide motivation • Face-to-face content creation
Volunteer 2: Just one other person. I met her while doing a volunteer holiday teaching program. She expressed an interest in getting more involved in educational projects, so I discussed FHSST with her as an option she could do in any available time	• Recruiting acquaintances/ students
Volunteer 3: I am coming from a life sciences back ground. I'm afraid that the technological learning curve involved in contributing might be somewhat difficult for my somewhat less tech savvy friends.	• Technological hurdle to contributing content
Volunteer 4: I have recruited other graduate students because I enjoyed the project so much myself and thought others might enjoy it as well.	• Recruiting acquaintances/ students
Volunteer 5: I have recruited other graduate students at my school.	• Recruiting acquaintances/ students
Volunteer 6: Yes, I attracted 4 people to participate. They where fellow graduate students. They had a keen interest to help out. Unfortunately only 2 of the 4 actively participated – but it was certainly a big help. It helped me a great deal to be able to work with other people.	• Recruiting acquaintances/ students • Working together to provide motivation
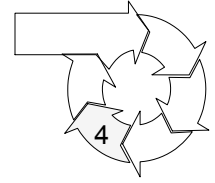
Example 4: Develop Insights from Survey Data

Below are direct quotes from a project leader of Free High School Science Texts (FHSST). The project leader explains central insights gleaned from the project's volunteer survey.

"It was interesting to get the range of volunteer feedback in the form of the small survey we did. It did highlight issues such as the picture drawing software being a problem and also how important hackathons [face to face meetings where volunteers create content] are as a motivator."

"The survey helped to highlight some areas where we could possibly make ourselves more efficient."

5. Integrate Case Study Insights into Practice
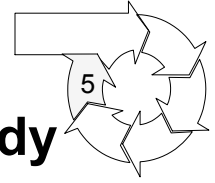
Example 1: Use Insights from the Case Study Process to Improve Practice

The OER project Free High School Science Texts' (FHSST) study of its processes and practices to support volunteer contributions led to concrete changes within the project and sparked new discussions and ideas. Below are quotes from an interview with a FHSST project leader upon completion of their case study.

As revealed through an interview with an FHSST project leader…

…FHSST's participation in this case study has:

"The [volunteer] survey […] pointed out some weaknesses – in that drawing software is very hard for volunteers to use. However, recently a new application has been developed which makes it a lot easier to make diagrams and so we are promoting the use of that to our volunteers."

• **Led to changes** in its content authoring software. Specifically, FHSST began using a new drawing application so that volunteers could more easily create and input illustrations into the textbooks

"[The case study] forced me to think about the project in broad terms and recognize successes and failures that we've experienced along the way. It also promoted discussion with some of the core team members which is a positive thing."

• **Promoted discussion** around broader successes and failures

"The study helped to solidify our feelings on various issues with real data.[…] It basically backed up our expectations with real facts."

• **Provided "real data"** to support decision making
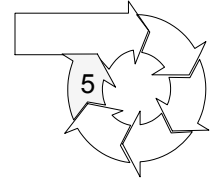
Example 2: Content Authoring Workflow

OER projects that involve collaborative peer production of content vary in the way they organize their content authoring workflow. Below is a description of how the OER project FHSST organizes its content authoring process.

In order to submit content to FHSST, volunteers who have signed up to the FHSST website log on and choose from a list of assignments based upon their expertise and interests. The sign-up and log-on processes do not require a screening for credentials.

To facilitate faster completion of portions of content, FHSST divides volunteer assignments into small chunks, including portions of chapters, as well as drawings, illustrations, activities, and examples to enrich the chapters.

FHSST content development and editing occurs in three rounds.

- **Stage 1**: Involves soliciting as much raw content as possible from volunteer authors.

- **Stage 2:** Involves an initial round of editing by a few selected editors, to check carefully for quality of materials, alignment with standards, omissions, ease of use, and other criteria. During this stage, unfinished sections can be submitted back into the pool for author volunteers to make new contributions.

- **Stage 3:** Involves a final round of editing prior to completion by identified editors to ensure consistency in style, layout, and quality. All explanatory sections also became worked on only by the editors.

Pointers

For many OER projects, the online content authoring process is often facilitated through a division of work structure, wherein author peers are assigned roles such as content writers, editors and coordinators.

In this way, group members working on OER content can divide the work, and there is a structure that ensures that pieces of the work are completed in a timely manner and are of high quality.

Flexibility can also potentially be built into the peer production process, so that group members are inspired to cross boundaries and take on new roles.
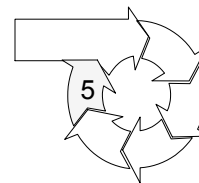
Practical Guide: OER Hackathon How To

OER hackathons are used to bring together peers create or develop content together, in a face-to-face setting. Hackathons can take many forms, depending on the dynamics of the individuals involved and the immediate needs of the given OER project. The idea is to provide a real-world venue where author peers can have face-to-face engagement around their content, and draw on one another for motivation and support. The tips below, which were developed based upon actual hackathons within the Free High School Science Texts project, are meant as a way to help other OER projects organize their own, tailored hackathons that consider the needs, practices and resources that are unique to them.
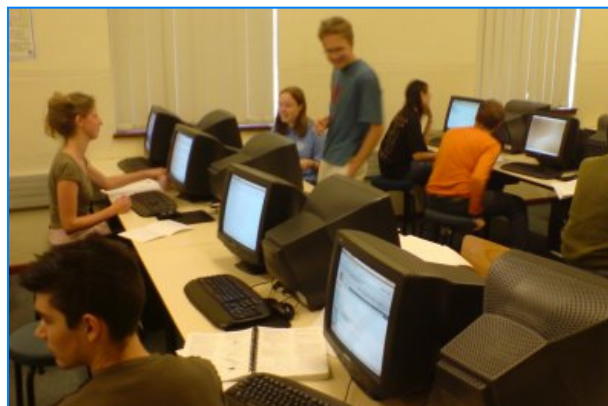
1. Assess the need and outcomes

Is your OER project centered around the creation of content through online authoring platforms or tools? Do you seek to increase author engagement and motivation around your project? Is your project desperately in need of content in a specific subject area or format? Hackathons provide a way for authors to interact and motivate one another as they create content, and to get questions answered about their content, the authoring process or use of the content authoring platform and technology. Each hackathon will likely vary depending upon the given stage or the immediate needs of your OER project.

FHSST hackathon, hosted at the University of Cape Town in May 2007

2. Determine venue and timing

Hackathons can be held in any location, from campus computer labs to local coffee shops. Draw upon the resources you have access to as well as what will be most appealing to the hackathon participants when deciding where to host. Remember that you may need WiFi capabilities, and that some participants may not have laptops. When it comes to timing, it is likewise important to consider the needs of the participants. For example, some may prefer weekday time slots, while others are more available on weekends. A good rule of thumb is to allot at least two hours for your hackathon, so that participants have time to get settled and get early questions answered before they dig in to the brunt of the work.

3. Spread the word through multiple channels

A good way to announce the hackathon to your OER community and authors is by taking advantage of all of your existing channels of communication. Do you communicate with your community via email? Through your website? Through a newsletter? Also, consider how you might advertise the hackathon to the external community by, e.g., distributing fliers and inviting people through social networking sites such as Facebook. Finally, you might invite existing authors to bring along friends to the hackathon. It is a good idea to ask interested participants to formally sign up

for the hackathon, so you can plan and structure it accordingly.

4. Provide structure and flexibility

You might decide upon initial, yet flexible structure for the first hackathon. For example, the hackathon can begin with an icebreaker session for people to interact and get acquainted. The participants can then divide up new content assignments, based upon their interests. The facilitator can also guide participants (especially newcomers) through an overview of the content authoring process and associated technology if necessary. If the hackathon is large, it could be a good idea to have a number of experienced authors to help in answering questions and troubleshooting. Participants can then begin to work on their content individually, asking questions along the way.

If, however, participants are hesitant toward using the technology, the facilitators might appoint one or two individuals to input any new content into the system, so that participants can focus on the creation of content in a software program they are comfortable with. Other ways to structure your hackathon might be to use the time as a way for people to exchange feedback and do revisions on content already written.
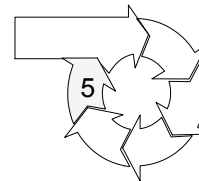
OER Hackathon How To (cont.)

5. Offer refreshments and keep it fun

It is a good idea to give the hackathon participants something to look forward to. Pizza, coffee, sweets—whatever it takes to create a fun, enticing environment.

6. Share the success of your hackathon

Did the hackathon lead to a bulk of new content? Did it inspire participants to get more deeply involved in your project? Did it result in new authors who are anxious to write more content? Did the participants vow to return to the next hackathon just to get more free pizza? Consider sharing these successes with your wider project community. Doing so serves as an indication to others that the project is progressing, and as a reminder that they, too, should keep working and contributing content.

7. Cultivate hackathon evangelists

You may want to identify existing authors who are enthusiastic about your project and talk with them about initiating informal hackathons in their local communities. And as with the case of FHSST, you might find that authors begin to self organize on their own, without your prompting. In such cases, you can potentially inspire more of this self organization through a viral process by making online announcements about locally-initiated hackathons, which might plant the seed for others to do the same.

Excerpt from FHSST Monthly Update

This month we were very happy to host a highly successful hackathon at the University of Cape Town. The UCT Science Students Council helped us advertise and organise the hackathon which took place in the Shuttleworth linux computer lab on 12 May. About 20 volunteers attended and worked on adding new worked examples for the physics, math and chemistry books and on writing content for the life sciences book. One of the perks of attending the hackathon was also definitely the free pizza! In one day we managed to produce more than 30 new worked examples which are badly needed for the books. Go volunteers! We plan to hold more hackathons at UCT in the next semester. To see some photos from the event, take a look at: http://www.fhsst.org/?q=node/7550.

Example of how FHSST shares the success of its hackathons

OER Glossary

OER Glossary

The definitions below offer simple explanations to common OER terms. The definitions are based primarily upon first-hand research and practical experience with OER projects, as well as on perusal of existing definitions offered by Wikipedia.

Hackathon – OER hackathons are used to bring together peers create or develop content together, in a face-to-face setting. Hackathons can take many forms, depending on the dynamics of the individuals involved and the immediate needs of the given OER project. The idea is to provide a real-world venue where author peers can have face-to-face engagement around their content, and draw on one another for motivation and support.

Licensing – The process of choosing and assigning a license to an open educational resource by the original creator of that resource. OER creators can choose from several licenses offered by organizations/initiatives such as Creative Commons and GNU—with the license typically stipulating the conditions under which that resource can be used, shared, adapted or distributed by other users.

Localization – The process through which educational resources are adapted to meet local teaching and learning needs. Resource localization might entail, e.g., translating a lesson plan into another language, removing parts of a lab exercise that are too complex for a given set of students, or adding more culturally relevant examples to a course module.

Log files – Website use files that can be used to study user behaviors, including how users navigate through a site, what they click on, and what specific actions they take.

Metadata – Basic descriptive data about an educational resource, which help users more easily find and use the resource. It is "data about data," or attributes that describe the data, and includes descriptors such as title, language, author, and grade level, creation date, etc.

Open Educational Resources (OER) – Teaching and learning materials that are freely available for instructors, students, self-learners and others to use. Examples include lesson plans, modules, syllabi, lectures, homework assignments, quizzes, lab and classroom activities, pedagogical materials, games, simulations, and many more resources contained in digital media collections from around the world. OER can exist as smaller, stand-alone resources that can be mixed and combined to form larger pieces of content, or as larger course modules or full courses.

Open source – Initially, a movement, its activities and concepts associated with the collaborative creation of software source code which is freely available to download and use by everyone. Linux is one example of open source software. Today, open source extends beyond the collaborative creation of free-to-use software to include the activities, processes and resources that are associated with creating all open content.

Peer production – The process of online, collaborative content creation by peers, most often facilitated through an authoring platform or wiki. One example of the peer production process is the Free High School Science Texts project, which draws on online volunteers and a collaborative authoring platform to create free-to-use textbooks for South African schools.

OER Glossary (cont.)

Reuse – The use, adaptation, remixing or modification of existing resources for new and/or local purposes.

Social networking tools – Tools that allow users to collaborate and communicate around their interests, often generating new user content or making new meaning from existing content. Social networking tools include, e.g., tags, blogs, discussion forums, wikis, and user portfolios.

Tags – Tags are a bottom up, user-generated classification system (i.e., folksonomy) for educational resources, and frequently serve as an alternative or addition to a top down, expert-created classification system (taxonomy). Tags are words assigned to resources by the users of those resources. For example, one user of a lesson plan about the Spanish influenza of 1918 might assign a tag such as flu, while another might assign a tag such as pandemic. Once assigned by users, tags are tied to the given resource, and become a searchable way to find that resource as well as other resources that are tagged or associated with the same labels.

Tag cloud – A set of tags associated with a resource or a set of resources, which are displayed in a cluster next to the resource(es). The size of the fonts that represent the tags in the cloud provides an indication of how common each tag is: Common tags that occur frequently across a set of resources are typically displayed in large, bold font, while less common tags are displayed in a smaller font.

Web 2.0 – The second generation of the Web, which moves beyond the static, one way flow and siloed creation and use of Web content, and encompasses social networking tools that inspire new user behaviors. Web 2.0 facilitates communication and collaboration between Web users, a two-way flow of data between sites and users, and the creation of user-generated Web content.

Wiki – A Web-based tool that allows users to create and edit Web content collaboratively. Wikipedia lists the central features of wikis as follows: they provide the ability to edit content at anytime by anyone; their content can be modified and created through a web browser, old versions of a given piece of content is viewable by users; and the most current version of a piece of content can be monitored by users. Examples of wikis include Wikipedia and Unesco's community of interest wiki on OER.