Designing for the searching user: Are you still designing manuals nobody finds any answers in?

Jonatan Lundin, information architect @ Excosoft, Sweden
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Today, I’m going to talk about:

- The findability problem
- Product and information-seeking behavior among users
- How to predict user questions and make answers findable using SeSAM (Search Situation Architecture and Method)
Jonatan bio

Jonatan Lundin, who is from Sweden:

- Has worked nearly 20 years as an information architect within the technical communication field.
- Is currently a senior information architect at Excosoft.
- Has 15 years of experience from SGML/XML topic based content management.
- Is a frequent speaker at both domestic and international conferences.
- Is co-chair of OASIS DITA machine industry sub-committee (together with Jang Graat).
- Is a part time PhD student at Mälardalen University, focusing on information seeking behaviors among user of technical products (findability).
- Has developed the SeSAM design methodology.
“Technical communicators, we have a problem”

- It seems that users are avoiding user manuals, simply because it requires to much effort to find something in them.
Solution: re-think the search user interface

- Many users are used to finding things on commercial sites, such as a travel, a book etc, using rich search user interfaces built on for example a faceted browsing approach.
The user primary goal is to solve the need(s) as effectively, securely, reliably and easily as possible. A certain product is used since the user believes that it can be used to solve the needs.

- Protect sensitive equipment from exposure of toxic CO2
- Protect humans from exposure of toxic CO2
- Record CO2 levels in IEC123 format
- View actual CO2 levels

A product is used to solve the primary goal(s)
General knowledge about products

- Users possess general knowledge about products stored as a schema.
- Users know that a product is used to solve a need (primary goal), that it must be interacted with to solve the need (secondary goals), that it can be customized to suit different environments etc.

Secondary goals:
- Evaluate and select a solution to solve the need
- Implement the selected solution
- Use the selected solution
- Maintain the selected solution

Primary goal:
- Protect humans from exposure of toxic CO2

Meaningful result:
- Acoustic alarm when actual CO2 level is above a set toxic level
User perception about products

- Users construct a mental model about the product when interacting with it.
- The mental model is often constructed by assimilating prior knowledge which means that the mental model can correspond to the product design or not.
Users are active and goal oriented

- Users act depending on the constructed mental model – following the principle of least effort.
- If mental model is inaccurate or users perceive it to be vague, or users are uncertain, they end up in a search situation looking for information.

User tries to use the product and gets stuck using it. User wants to know how to do task 2.

User wants to know how to do task 5 before acting.
Where do user go to find the answer?

- A user has many options to choose from to get answers.
- A manufacturer can take on a reactive or predictive approach to answering questions.
Is it possible to predict user questions?

- User questions are possible to predict if we assume that:
  - Users are active and goal oriented, focused on solving a primary goal by reaching for a number of secondary goals.
  - Users are asking questions, either of procedural or conceptual nature, due to lack of required knowledge needed to reach these goals.
  - A third goal is to find and read the answer to a question in a search situation, and nothing but the answer. Thus users go to a manual to find out how to reach a secondary goals task situation.

- Thus, technical communicators must focus on:
  - Predicting user questions as we work in a pre-release mode.
  - Providing rich search user interfaces to allow users to find the answer quickly.

- How do we predict user questions and build search user interfaces?
- The traditional “identifying-target-audiences-and-make-a-user-manual-per-audience” principle is not the solution.
The SeSAM design methodology

- The SeSAM design methodology has 4 main steps.

1. Determine the knowledge users are required to possess to use the product effectively.
2. Survey the user community to find out the actual knowledge level and set an assumed level.
3. Transform the required knowledge, assumed to not be possessed by user community, into predicted questions.
4. Classify answers, plan how answers are best made available to end users, and design search user interface (SUI).

Technical writing can start.
Identify the needs a product can solve

- A product has possibilities, called meaningful result statement (MRS), that helps the user solve a problem, need or requirement (primary goal) in specific operating environment(s).

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Meaningful result statement

The CO2 gas detector is used to:

- Acoustic alarm when actual CO2 level is above a set toxic level
- Display actual measured CO2 values on front display
- Record CO2 data levels during a set time period

Primary goal for a certain customer in a certain operating environment

“My need is to:”

- Protect humans from exposure of toxic CO2 to avoid injuries
- Get actual CO2 values each hour to ensure that everything is normal
- Get CO2 statistics to be able to do fault analysis to find the source of emission
```

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Identify secondary goal task situations

- To make the product deliver a result to solve a primary goal, a number of secondary goals must be reached for.
- SeSAM provides a method to identify the secondary goal task situations for each secondary goal.

**Secondary goals**

- Evaluate
- Implement
- Use, activate, create
- Stop, halt
- View, ensure
- Troubleshoot
- Customize

**Secondary goal task situations (or sub goals)**

Record CO2 data levels during a set time period

Maintenance, upgrade/migrate and administrative secondary goals are not shown in this image
Build the MRS matrix

- The MRS matrix is used to capture and manage the task situations.

<table>
<thead>
<tr>
<th>Secondary goal</th>
<th>Evaluate</th>
<th>Implement</th>
<th>Use, ...</th>
<th>Stop, ...</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meaningful result 1</td>
<td>Task 1 → Task 2</td>
<td>Task 3 → Task 4</td>
<td>Task 5</td>
<td>Task 6</td>
</tr>
<tr>
<td>Meaningful result 2</td>
<td>Task 1</td>
<td>Task 2 → Task 3</td>
<td>Task 4</td>
<td>Task 5</td>
</tr>
<tr>
<td>Meaningful result 3</td>
<td>Task 1 → Task 2</td>
<td>Task 3 → Task 4</td>
<td></td>
<td>Task 5</td>
</tr>
<tr>
<td>Meaningful result 4</td>
<td>Task 1 → Task 2</td>
<td>Task 3</td>
<td></td>
<td>Task 4</td>
</tr>
</tbody>
</table>
Analyze required knowledge

- Model each task situation as the manufacturer would recommend the user to do the task using a task analysis approach.

Task 4 for MRS 4: Activate a CO2 recording

1. Log in to main unit
2. Navigate to dialog XYZ
3. Configure the recording session
4. Activate the recording session
5. Log out from main unit

Product response: User must be able to interpret the welcome screen as correct product behavior.

- Enter a value for the sample rate of the recording session
- Enter the time period for the recording session
- Calculate the required sample rate
- Click on the text field
- Enter the sample rate value using the keyboard
- Click OK

...
Analyze user community

- Analyze the user community and identify the actual knowledge levels to define one or several assumed knowledge levels.

Do a user survey for each task situation, in representative customer companies, to find out:

- Who would do the task?
- In which usage environment is the task carried out?
- In what form do the user prefer information?
- What knowledge, skills and education do the user have?
- Then ask the user to do the task in a naturalistic context and observe the behavior.

Product user community

- Power plant
- Hospital
- Industrial manufacturing facility

Majority of users that are responsible for doing the task:

- Has a role called X, Y or Z.
- Performs the task in environment Y.
- Does not want to read long text.
- Has XX knowledge
- Cannot figure out how to do task 1, 5 and 7.

Input to:
- Predict the probability that a question is asked.
- Writing the answers and design search user interface.

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Identify the actual knowledge

- Observe users while doing the task to find out what problems they have.

**Task 4 for MRS 4:** Activate a CO2 recording

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- Enter the sample rate value using the keyboard
- Click OK

Product response: The CO2 gas detector starts to beep

...
Predict user questions

- Transform the required knowledge that users do not possess into user questions.

Task 4 for MRS 4: Activate a CO2 recording

Q: How do I start a recording?

Activate the recording session

Product response: The CO2 gas detector starts to beep

Q: Why is product beeping? What does it mean? How do I make it stop beeping?

Calculate the required sample rate

Q: How do I calculate the sample rate for my operating environment?

Q: Within which ranges can I set the sample rate?

Q: How do I activate a recording session?
Manage the required knowledge

- Update the MRS matrix to manage the required knowledge.

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Required knowledge item
Manage the assumed knowledge

- Remove the knowledge items that the user is assumed to know.

| Secondary goal | Evaluate | Implement | Use | Stop | ...
|----------------|----------|-----------|-----|------|-----
| **Meaningful result 1** | Task 1 | Task 2 | Task 3 | Task 4 | Task 5 | Task 6 |
| **Meaningful result 2** | Task 1 | | Task 2 | Task 3 | Task 4 | Task 5 |
| **Meaningful result 3** | Task 1 | Task 2 | | Task 3 | Task 4 | Task 5 |
| **Meaningful result 4** | Task 1 | Task 2 | | Task 3 | | Task 4 |

○ Users are assumed to know, or be able to figure it out by themselves

● Users are assumed to not know
Manage the predicted user questions

- Use the MRS matrix to manage the predicted user questions.

Secondary goal

Meaningful result 1

Evaluate

Task 1

Task 2

Implement

Task 3

Task 4

Use

Task 5

Stop

Task 6

Meaningful result 2

Task 1

Task 2

Task 3

Task 4

Meaningful result 3

Task 1

Task 2

Task 3

Task 4

Meaningful result 4

Task 1

Task 2

Task 3

Task 4

Predicted question
Designing the search user interface

- Different taxonomies, for classifying the primary, secondary and thirdly goals, are used to build the search user interface.
Example of a search user interface

http://orange.sims.berkeley.edu/cgi-bin/flamenco.cgi/nobel/Flamenco
Example of a search user interface

http://www.sesam-info.net/SUI_DishWasherABC_pres.ppsx
Questions?

- Interested in knowing more about SeSAM to design technical documentation for findability? Excosoft (www.excosoft.com) are happy to arrange a workshop or lecture.
  - SeSAM home page: www.sesam-info.net
  - SeSAM presentations on YouTube: http://www.youtube.com/user/jonatanlundin
  - SeSAM interest group on LinkedIn: http://www.linkedin.com/groups?mostPopular=&gid=3699556
  - Jonatan blog on dita.xml.org: http://dita.xml.org/blog/jonalund
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  - Mail: jonatan.lundin@excosoft.se
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Search Situation based Architecture and Method