Rapid Prototyping

ITIS 4350/5350

User Study Feedback

User Study Prompt

- Pre-prepared
- 2-3 Sentences
- Describes what the user should have as a goal for interacting with the system
- Different prompt for each task, specific to that task

For example, if you have set up to allow adoption of lizards, then your task prompt might be:
"You are interested in adopting a Gecko. Starting from the main page, find available geckos to adopt and look at the detailed information on at least one."

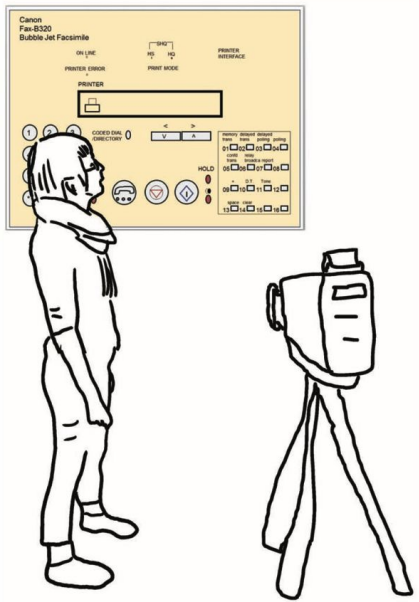
Mental Model

User Study Setup - Introduce Study to Participant

UNCOVERING THE MENTAL MODEL

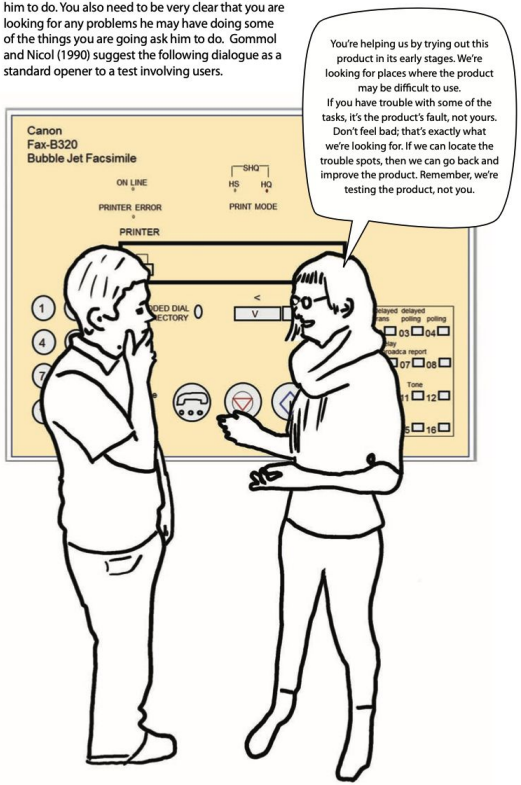
1 **Preparing for Data Collecting**

You need to set up the room and your materials so you can record what happens. Ideally, you should set up a video camera pointing at the person and the sketch so you can record the session for later review. Alternately, you could have another person present whose job is just to observe and take notes. You could try to take notes about what you see, but there is usually just too much going on (and at too fast a pace) for you to both give instructions and record activities in real time.



2 **Introducing the Method**

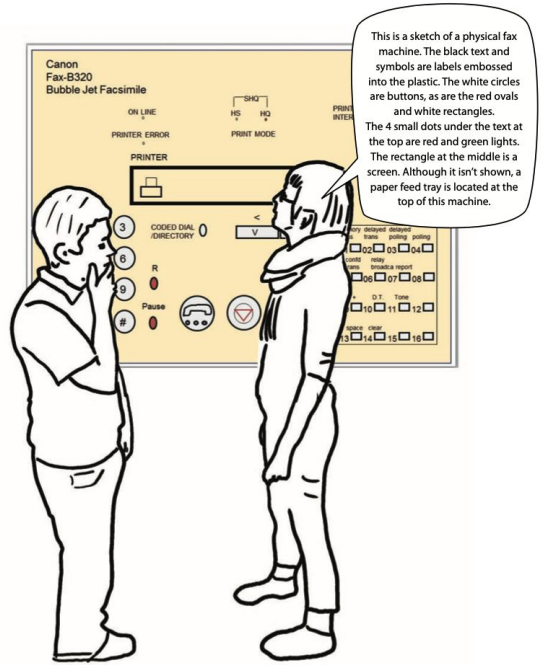
You need to tell the person what you are going to ask him to do. You also need to be very clear that you are looking for any problems he may have doing some of the things you are going ask him to do. Gommol and Nicol (1990) suggest the following dialogue as a standard opener to a test involving users.



3 **Introducing the System**

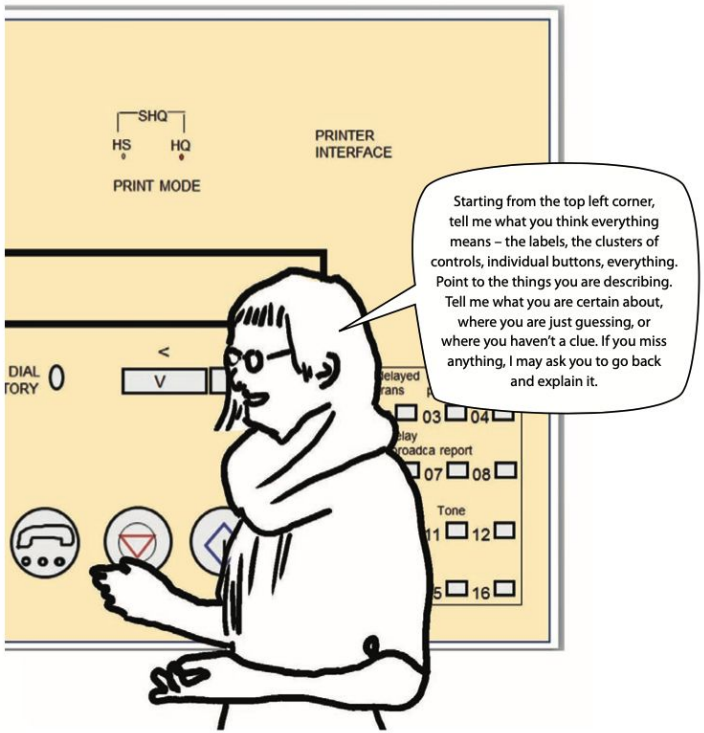
You need to introduce the system to set the context. That is, give your participant just enough information to help him get into the right frame of mind. You may want to add information about the interface that is not apparent in the sketch, but would be apparent in the final system. Avoid disclosing information or hints about the actual system operation, as this would unduly influence how the person forms his initial mental model.

For example:

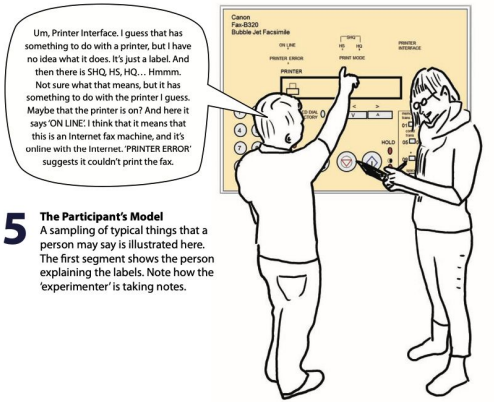


Participant Instructions - Prompts for What to Do

4 **Marching Orders**
Now tell your participant what you want him to do and how to do it.

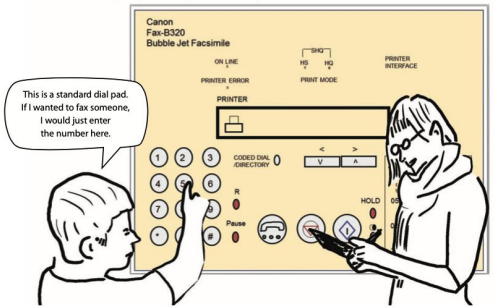


Collect Feedback - Observe Participant Interactions & Document

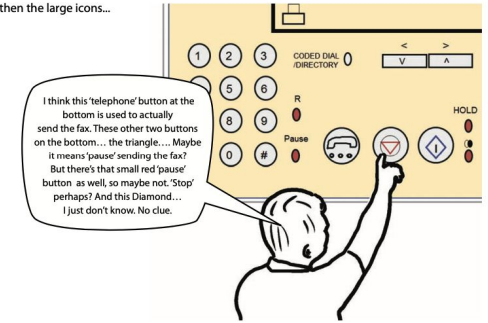


5 **The Participant's Model**
A sampling of typical things that a person may say is illustrated here. The first segment shows the person explaining the labels. Note how the 'experimenter' is taking notes.

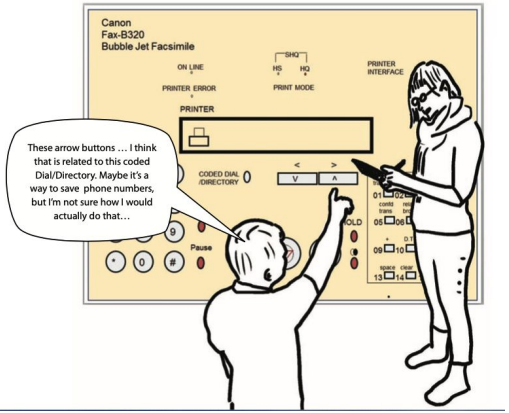
Somewhat later, the person explains the dial pad...



…and then the large icons...



…and then the central buttons.



Analyze Feedback - Look for Common Issues - Iterate Design

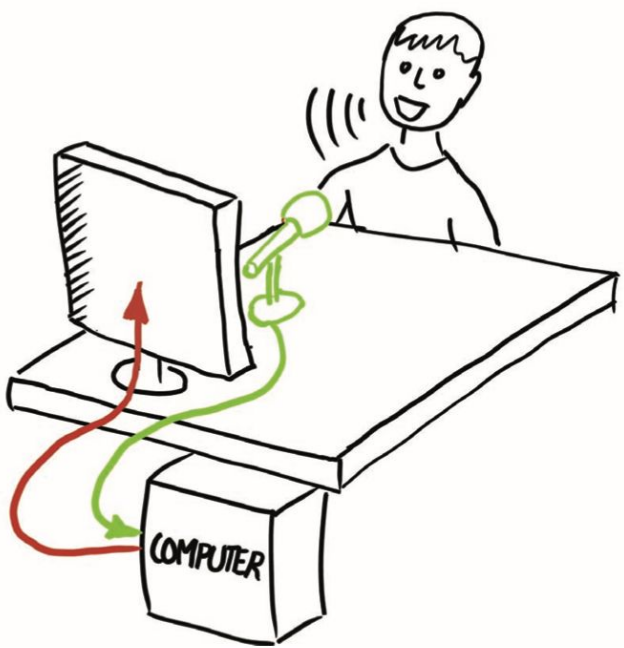
6 **Identifying Problems Through the Mental Model**

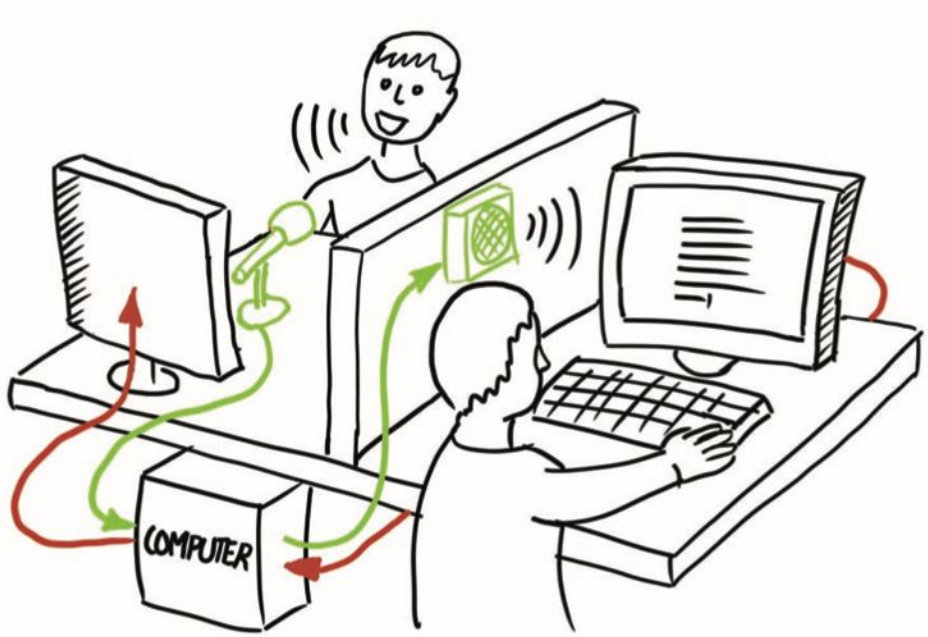
Even the brief fragment above tells us a lot. While we saw that people quickly recognized the dial pad as a way to enter phone numbers, that is about it for the good news. Considerable problems are revealed with this sketch design, where people were unable to form an accurate mental model of it. For example, the meaning of the labels are cryptic, in part because people did not know the meaning of the abbreviations (e.g., 'HQ' actually stands for 'High Quality'), and because it is not in their own language (e.g., what does 'PRINTER INTERFACE' really mean?). They were unsure about the primary buttons at the bottom that triggered dialing the number and sending (or cancelling) the fax. The central buttons are similarly cryptic. Even if people guessed at the correct function of some controls (such as the arrow buttons to save numbers), they could not say how they would actually go about using them (e.g., the actual sequence of operations necessary to save a number). And some controls are just plain mysterious, such as the cluster at the right.

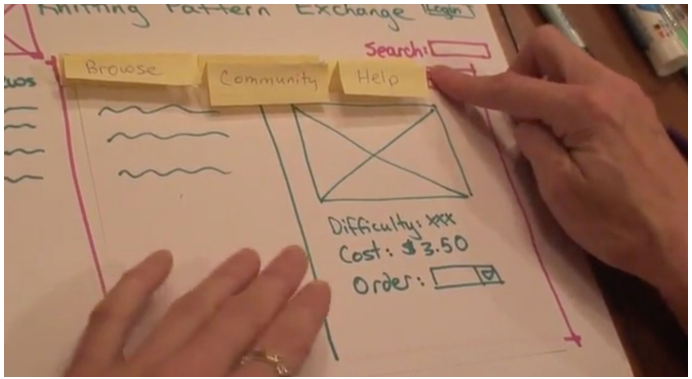
7 **Iterating the Design to Solve These Problems**

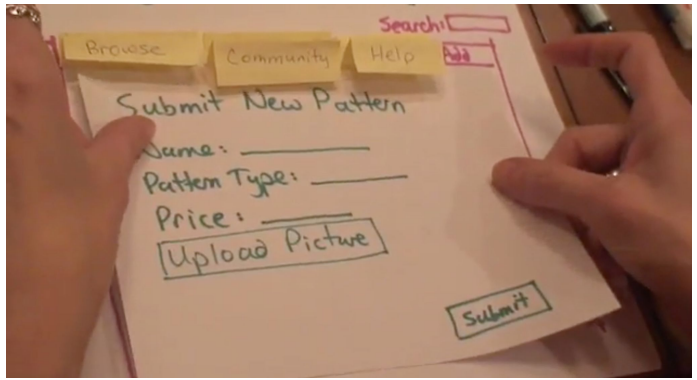
Our next step is to redo the sketch to 'fix' some of these problems. Consider our solution on the next page. We redid the labeling: we removed all abbreviations, we rewrote them in the user's language, and we added labels to the large button icons. We spatially and visually grouped related controls together (the phone directory, the printing boxes, the dial/send buttons and the pause/cancel buttons). We put a plastic cover over the cryptic panel on the right, which visually tells the person that these controls are not needed for basic tasks but are available for advanced uses. Finally, we moved a few things unnecessary to the basic operation into this advanced control panel, e.g., the 'hold' buttons. The total cost of this improvement is minimal (the plastic cover adds costs, but removing some of the buttons saves costs). This is not to say that this design is perfect – it isn't. However, it's probably better than the previous version. And we can test it again – remember, our previous test only took about 10 minutes to do!

Wizard of Oz


COMPUTER


COMPUTER


Browse
Community
Help
Search:
Difficulty: xxx
Cost: $3.50
Order:


Search:
Browse
Community
Help
Submit New Pattern
Name:
Pattern Type:
Price:
Upload Picture
Submit

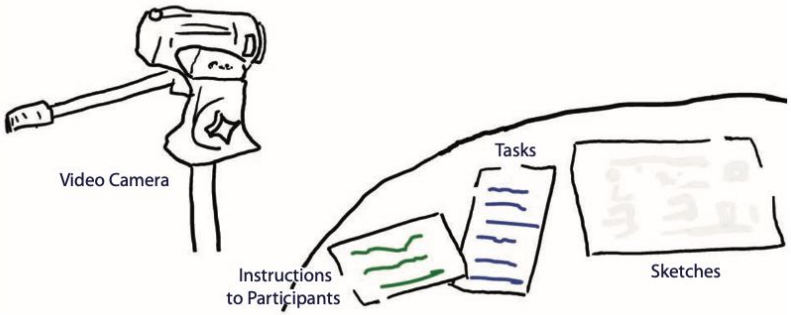
1 Preparation

a. **Set an objective.** Take time to figure out what you're testing and what you're not. In other words, determine an objective that focuses on a specific aspect of the product. By limiting the scope of the test, you're more likely to get information that helps you solve a specific problem.

b. **Design the tasks.** You should give your participant one or more specific tasks to do. These tasks should be real tasks that you expect most users will do when they use your product. After you determine which tasks to use, write them out as short, simple instructions.

c. **Prepare your sketch so that people can interact with it.** If you want to explore how people do particular tasks, make sure that the expected interaction sequences are available (e.g., as in a scripted slide show, described in Chapter 4.1). When a person does an action, you can then manually switch the sketch to the next scene. Alternately, use a branching storyboard (Chapter 4.3) to have the system give the illusion that it is actually responding to them. Or you can reveal system responses via Wizard of Oz (Chapter 6.2). Your sketch doesn't need to cover everything; your on-going instructions can limit the scope of what your test user should be trying to do.

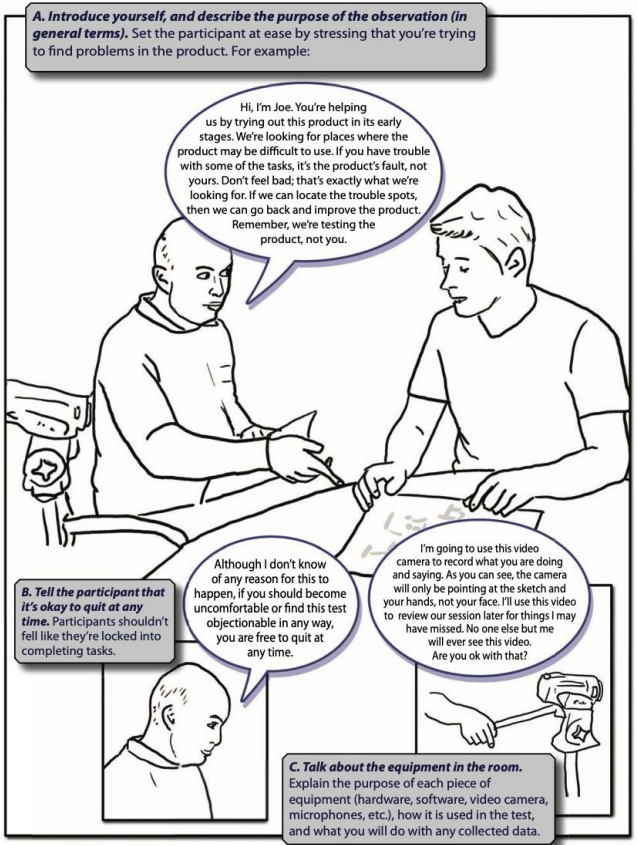
d. **Prepare equipment.** If you are audio or video-recording the session, make sure it's set up ahead of time and working well.



User Study Setup - Introduce Study to Participant

2 The Test

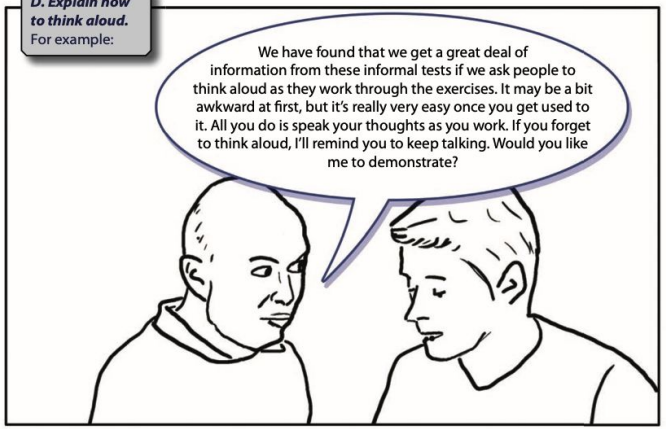
A. Introduce yourself, and describe the purpose of the observation (in general terms). Set the participant at ease by stressing that you're trying to find problems in the product. For example:



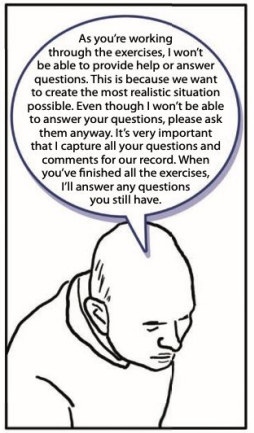
B. Tell the participant that it's okay to quit at any time. Participants shouldn't fell like they're locked into completing tasks.

C. Talk about the equipment in the room. Explain the purpose of each piece of equipment (hardware, software, video camera, microphones, etc.), how it is used in the test, and what you will do with any collected data.

D. Explain how to think aloud. For example:



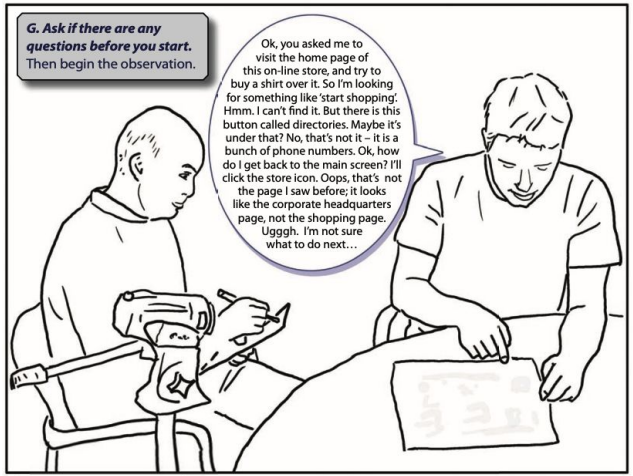
E. Explain that you cannot provide help. Participants should work with your product without any interference or extra help, as it will reveal how they would really interact with the product. The exception is when you see a problem that may stop them from going on, or that leads to excessive frustration. In that case (and perhaps after a bit of time has passed) you can step in and give them a hint. This will let them continue, where you can uncover problems later in the task sequence.



Participant Instructions - Prompts for What to Do

F. Describe the tasks and introduce the product. Explain what the participant should do and in what order. Explain that because he is working over a sketch, that you may be able to simulate only a few of the system's responses.

Collect Feedback - Observe Participant Interactions & Document



Analyze Feedback - Look for Common Issues - Iterate Design

l. *Conclude the observation.* When the test is over, explain what you were trying to find out during the test, answer any remaining questions the participant may have, discuss any interesting behaviors you would like the participant to explain. This could include the participant's own thoughts about where things went wrong and possible design suggestions.

USE THE RESULTS

As you observe, you see users doing things you never expect them to do. If you see a participant struggling or making mistakes, you should attribute the difficulties to faulty product design, not to the participant. To get the most out of your test results, review all your data carefully and thoroughly (as captured in your notes and the video). Look for places where participants had trouble, and see if you can determine how your design could be changed to alleviate the problems. Look for patterns in the participants' behavior that might tell you whether the product was understood correctly.

User Study Expectations

1. Prepare your prototype so that user can interact / complete specific tasks
2. Write up what you will say to each participant - scripts for:
    a. Introducing the Study
    b. Participant instructions - how to Think Aloud
    c. Prompts - what is to be done for each task
    d. General questions to be asked at the end of the study
3. Take notes during the user study
4. Analyze results after the study to identify common issues / differences between participants
5. Summarize outcomes from user study highlighting points to address

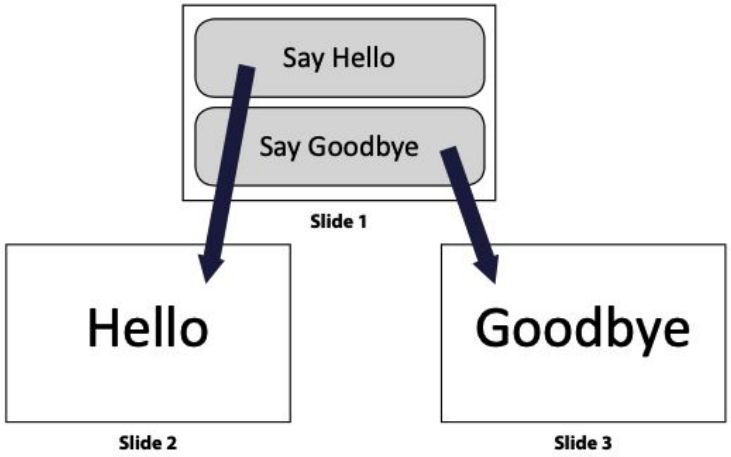
Introducing Slideware
Hello / Goodbye

SELECTING ALTERNATIVE INTERACTION PATHS THROUGH HYPERLINKS

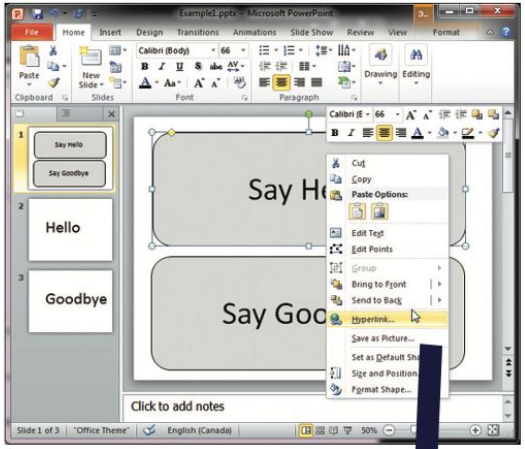
Many slide presentation systems allow you to embed a **hyperlink** into or atop of particular graphics or regions of a slide. While the hyperlink can point to many things, for our purposes we will use a hyperlink that references another slide in the current slide deck.

The best way to illustrate this is to try it yourself. Our first example, illustrated below, will be a trivial sketch across three slides, with each slide representing a different system state. Slide 1 contains two 'buttons'. Depending on which button you click, different text will then be displayed. As suggested by the arrows below, clicking 'Say Hello' will display slide 2, while clicking 'Say Goodbye' will display slide 3.

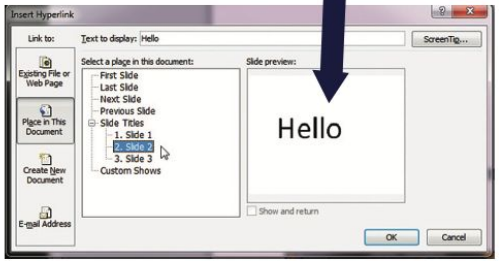
1 Create the three slides below (I used PowerPoint). The first slide is just two rectangles with some text in them, while the other two just contain the given text.



2 Add a hyperlink to the 'Say Hello' rectangle, which links to slide 2. In my version of PowerPoint, you do this by right-clicking over the 'Say Hello' rectangle to raise the context menu, and then select the 'Hyperlink' option.



3 This raises the dialog box below showing the kinds of things you can link to (see left side). Select the 'Place in this Document' button, and then select slide 2 containing the text 'Hello'.



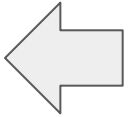
4 Similarly, add a hyperlink to the 'Say Goodbye' rectangle, except this time make the hyperlink point to slide 3.

5 Play your slide show; clicking each button should jump to the appropriate slide.

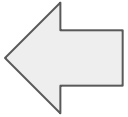
Hello / Goodbye example in SUE 5.3, p.193-194

Say Hello

Say Goodbye



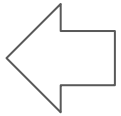
Hello



Goodbye

Say Hello

Say Goodbye



Hello!!

Goodbye.

Select your pet

Select your pet
-Cat
-Dog
-Penguin
-Marmoset