

## Unit 4: Mental Models

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### Criteria for Evaluation

Criteria	Points
Selected a viable device or system, explained its function and presented a diagram of its parts and how they are related.	3
Identified and described the likely mental model the students bring to the lesson.	2
Developed test items or an assessment process to measure deep learning and reasoning.	5
Identified a viable strategy and designed a lesson plan that implements the strategy.	5
Total:	15

Interestingly, you asked a question in the presentation about mental models: “Did you ever have a class where your comprehension was sometimes at this level – the hopple-snopple level? That is, you could get the answers correct but didn’t feel like you really understood it?” Strangely, I feel just the opposite about this course. I feel as though I really do understand the readings and different concepts. I just don’t seem to be able to adequately prove it. I am currently working on IDE 632 and 712; (1) I think the course numbers are actually reversed and development should be taught before design and (2) I often refer back to various concepts from the design course, so I believe I understood the content of the course. I was also taking Tiffany’s Learning Principles course at the time, and a mental model reminds me of the Concept Maps; using existing knowledge and making a map of how characteristics relate to each other.

Comprehension is essentially a process of generating a model that corresponds to the situation described in the text or the discourse of the speaker. (Klein, 2003, Introduction to Mental Model, PowerPoint presentation 4.1)

- Determine how a system works
- Describing functions and components

Norbert Seel notes that “... models may aid the *simulation* of a system’s processes.” (2003)

## **A Lesson Plan Using the Concept of a Mental Model**

### ***Context***

As with my Unit 3 lesson plan, I will use the example of teaching the concept of email: How does email work? Successfully understanding how email works involves an understanding of a computer, the Internet, communication, and the *existing mental model of something traveling from one point to another*.

### ***Objective***

College freshman, introduction to information technologies student, will be able to describe the process of how email works following a lecture about email and lab exercise using email, when asked a series of questions.

### ***Strategy***

Guided discovery learning. Student will learn about email and demonstrate the ability to send an email message with an attachment and receive an email message with an attachment. There is an assumption that students have a familiarity with the history of the pony express and/or modern day delivery of mail. Some may also have experience sending and receiving email. All students have received a campus email address and it is assumed for the purposes of this lesson that they have been instructed how their email works by the issuing office. This lesson is not meant to instruct how the campus system works, but to offer a general explanation of the email process.

## ***Lesson Plan***

<b>Instructional Plan - Event</b>	<b>Activity to Implement the Event</b> <i>Describe the specific things you would do and say and the specific things the students would do.</i>
<i>Provide an introduction and context.</i>	These are freshman level college students. They have varying levels of computer literacy. Lecture will consist of an introduction to email. Students will then demonstrate an understanding of email by sending and receiving email between themselves and the instructor.
<i>Examples</i>	Students will be asked to recall any knowledge of the pony express for the transport of mail from one location to another. See Figure 1.  An individual uses an email client to send and receive email through a mail server. There are 2 separate <i>ports</i> through which a email client processes incoming and outgoing mail. See Figure 2.  SMTP stands for Simple Mail Transfer Protocol. This is the port used to process outgoing email from one user to another. The SMTP determines where the mail is addressed and forwards the file(s) to that location. At the other end, the POP3 receives the email and makes it available to the receiver. POP3 stands for Post Office Protocol 3, which is the most recent version, used to process incoming email on a email server. The SMTP and

	<p>the POP3 communicate with each other using a series of commands to exchange information. See Figure 3.</p>
<i>Exercises</i>	<p>Students will be referred to the How Stuff works website for a full explanation of how the SMTP and the POP3 communicate (the programming language and common commands). They will see the graphic representation of one email client sending a file to another email client through the use of the SMTP and POP3 mail server.</p> <p>Students will all receive an email from the instructor with an attachment containing a series of questions about email. Students will save the attachment to their own disk, open the file, answer the questions and resave the file. Students will be required to properly address an email, write an appropriate message, attach the file containing the answered questions, and send the email to the instructor.</p>
<i>Feedback on exercise</i>	<p>Students will receive a second email from the instructor indicating whether or not the email with attachment was successfully received. The instructor will then examine each file attachment for answers to the questions. Students will receive a grade based upon successful completion of the exercise: 5 points for questions answered correctly and submitted properly through email, 4 points for questions answered mostly correct and submitted properly through email, 3 points for questions answered mostly incorrect and/or not submitted properly through email, 0 points for questions not answered correctly or no</p>

<i>Assessment</i>	<p>email received.</p> <p>In the exercise, the instructor will provide a series of questions about email. Each student will need to answer the questions correctly and return the file using email properly.</p> <ol style="list-style-type: none"><li>1. What is email?</li><li>2. What are the different parts of an email address?</li><li>3. What is needed to send an email?</li><li>4. How do you read an attachment?</li><li>5. How do you attach a file to send?</li><li>6. How is email different from chatting or posting to a discussion board?</li><li>7. Define SMTP?</li><li>8. Define POP3?</li><li>9. Explain the process of how email is delivered from one person to another.</li></ol>
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**Figure 1**

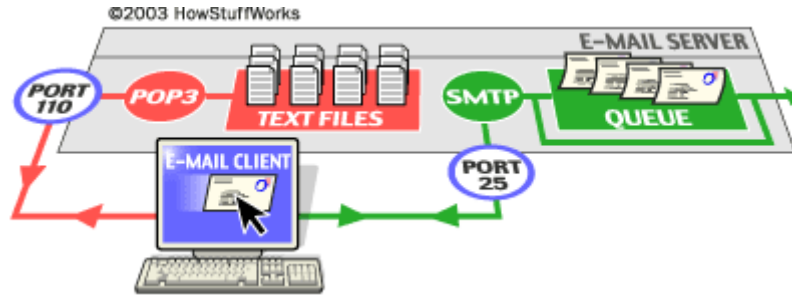


Figure 2

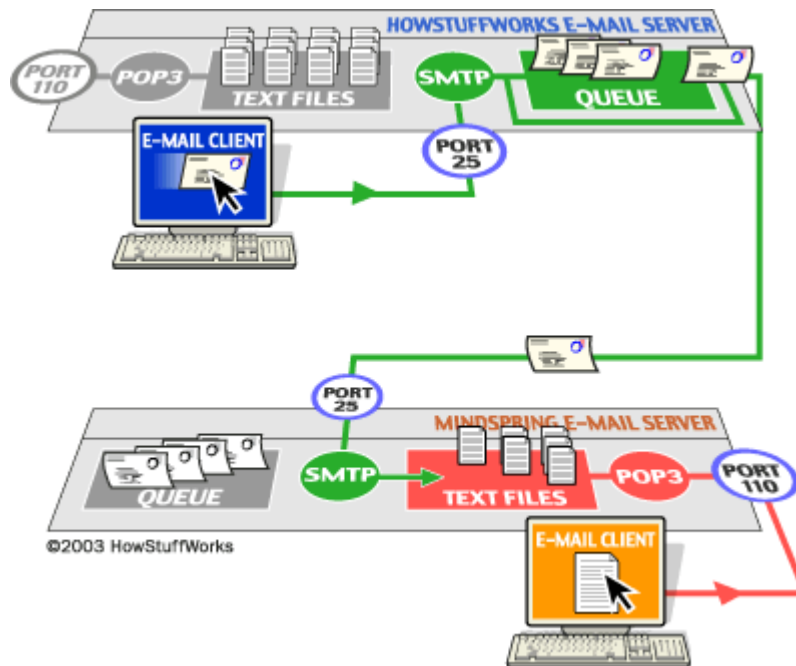


Figure 3

## Resources

How Stuff Works . (Information retrieved and graphics copied from the website on April 1, 2004). <http://computer.howstuffworks.com/email.htm>

Pony Express Information. (Graphics copied from website on April 1, 2004).

<http://www.americanwest.com/trails/pages/ponyexp1.htm>