Human Factors for Technical Communicators

By

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(Continued….)

Lecture 7
Learning Styles

1. **Doing** – Relies on experiments and plans, enjoys new experiences, takes risks, adapts to circumstances, uses trial and error for problem solving, and is impatient.

2. **Imagining** – Relies on imagination, views experiences from multiple perspectives, brainstorms before acting, internalizes circumstances, relies on insight for problem solving, is people-oriented, likes to counsel people.

3. **Reasoning** – Relies on deductive reasoning, prefers hypothetical experiences, acts in narrow and prescribed manner, does not adapt well to changes in circumstances, uses hypotheses in problem solving, is not ease with people and has narrow technical interests, excels in engineering.

4. **Theorizing** – Relies on theoretical models and inductive reasoning, tries to integrate disparate experiences, thinks of risk at an abstract level, raises circumstances to theoretical level, relies on syllogistic reasoning for problem solving, is at ease with people on a theoretical level, more concerned with sound logic than facts, excels in research and development.
Three Stages of Memory

The flowchart for this theory of memory indicates that all incoming information first passes through Sensory Memory (SM) before it enters Short Term Memory (STM). There it can be maintained by rehearsal and either successfully encoded for storage in Long Term Memory (LTM) or forgotten. In retrieval, the information passes from LTM back to STM, where it enters our consciousness. A summary of the characteristics of each stage of memory is below.
## Memory Issues

<table>
<thead>
<tr>
<th></th>
<th>SM</th>
<th>STM</th>
<th>LTM</th>
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</thead>
<tbody>
<tr>
<td><strong>Capacity</strong></td>
<td>Very large</td>
<td>7 (+/-2) Chunks</td>
<td>Unlimited</td>
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<tr>
<td><strong>Maximum Duration</strong></td>
<td>1 Second</td>
<td>30 Seconds</td>
<td>Permanent</td>
</tr>
<tr>
<td><strong>Method of maintaining information</strong></td>
<td>Not possible</td>
<td>Maintenance rehearsal</td>
<td>Elaborative rehearsal and organization</td>
</tr>
<tr>
<td><strong>Method of retrieving information</strong></td>
<td>Perception</td>
<td>Serial, exhaustive search</td>
<td>Search with retrieval cues</td>
</tr>
<tr>
<td><strong>Chief cause of forgetting</strong></td>
<td>Decay</td>
<td>Interference and decay</td>
<td>Interference</td>
</tr>
<tr>
<td><strong>Major information code</strong></td>
<td>Sensory</td>
<td>Acoustic</td>
<td>Semantic</td>
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Procedural Memory

Definition- memory for how to do things; E.g. Ride a bike, drive a car, or play a video game

Characteristics
* Can be referred to as implicit memory.
* The contents of procedural long term memory cannot verbally be explained. (Can you explain how you ride a bike?)
* Performance of activities or skills is the only method to convey procedural long term memory.
* This performance of skills is task specific.
* Alterations in neural processing structures are most likely the cause of procedural skills.

Procedural memory can be related to the knowledge of rules of action and procedures, which can become quite automatic with repetition. Practicing a certain task a lot or a little is procedural knowledge. Often a person will learn how to perform a task but will have no awareness of how it was learned. This occurs when the individual is using their procedural memory.
Inductive Reasoning

Induction is often described as ‘going from the specific to the general’. We might observe thirty different children in our clinic and note that all that girls initiate more conversations than the boys. We tentatively speculate that ‘girls are more confident communicators in healthcare settings than boys’. That is to say by considering a range of specific cases we make a general statement that tries to sum up all those specific statements. Not only does this occur in research environments we also make inductions all the time in everyday life - for example, when we give our opinion about the music of a particular band, or about sandwiches from a particular delicatessen. We have listened to a number of specific cases of concerts by the band and come to the general conclusion that ‘they are quite a good band’ or having sampled a range of sandwiches conclude ‘it’s a dreadful delicatessen’. Induction can be presented in the form of a syllogism, or formal argument as follows:

Premise 1: Patient no 1 was observed in place x at time y … and she was confident

Premise 2: Patient no 2 was observed in place p at time q … and she was confident

Premise 3: Patient no 3 was observed in place b at time c … and he was shy

Conclusion: Girls are more confident than boys in healthcare settings
Deductive Reasoning

While induction is essentially about drawing general inferences from specific cases, deduction is the business of drawing inferences about a specific case on the basis of a general principle. Let’s begin with simple examples of deduction.

Example 1

Premise: All dogs are animals [general principle]

Premise: Fido is a dog [specific case]

Therefore

Fido is an animal [deduction]

Example 2

Premise: All children like ice-cream [general principle]

Premise: Tommy is a child [specific case]

Therefore

Tommy will like ice-cream [deduction]

The basic idea in deduction is that the conclusion follows from the premises as matter of logical necessity and the conclusion will be valid so long as the premises are true.
Selecting a Problem-Solving Strategy

1. Identifying the Problem
2. Choosing a Problem Solving Strategy
3. Executing the Strategy
4. Evaluating whether the Strategy Worked
FIND OUT

Look at the problem.
Have you seen a similar problem before?
If so, how is this problem similar? How is it different?
What facts do you have?
What do you know that is not stated in the problem?

CHOOSE A STRATEGY

How have you solved similar problems in the past?
What strategies do you know?
Try a strategy that seems as if it will work.
If it doesn’t, it may lead you to one that will.

SOLVE IT

Use the strategy you selected and work the problem.

LOOK BACK

Reread the question.
Did you answer the question asked?
Is your answer in the correct units?
Does your answer seem reasonable?
Reading Strategies

**Type:** Reading to learn facts (declarative), reading to perform actions (procedural)

**Access:** Two ways to access text.

**Sequentially** – Accessing text sequentially is finding information based on what precedes and follows it.

**Randomly:** Finding information regardless of what precedes or follows it. Random access text is modular and stand-alone.

**There are 5 Reading Goals:**
1. Skimming – Reading for the general gist.
2. Scanning – Reading to find specific information quickly.
3. Searching – Scanning with attention to the meaning of specific information.
4. Receptive – Reading for thorough comprehension.
5. Critical – Reading for evaluation.
Practice Workshop # 3

1. What is your personal learning style? Why do you think it works for you?

2. Take the example of the website (of your choice) from the last class. How would you try and design particular pages such that it accommodates different reading strategies?
   
   • I am asking you to point out 2 specific pages in the website where one reading strategy works better than another.
   
   • I am asking you to re-design one of those existing page so that it works well with a specific reading strategy (different from what you think to be the best reading strategy currently for that page).

3. In trying to complete the assignment above, how have you used the problem solving strategies discussed in this lecture?