Developing a Strategy for Effective Health Information Literacy Instruction Using a Neurocognitive Model for Dual-Processing

Ivonne Saidé Ramirez
The University of Tennessee
School of Information Sciences
College of Communication & Information
ivonne@utk.edu
Main Points

1. Why Information Literacy Instruction?
2. Learning and Memory
3. Neurocognitive Approach in Context
4. Dual Processing Learning Model
5. So What?
Operationalizing Health ILI

Access & retrieval of high quality health information for decision-making

This impacts:
- Quality of patient care
- Avoidance of adverse effects
- Informed decision-making

(Marshall, et al, 2013)
Information Literacy Instruction

Why ILI?

- Digital revolution
- Growing demand for information
- Exponential growth of publishers
- Information overload (Data Smog)

(A Progress Report on Information Literacy, 2013)
Learning and Memory
Learning Contexts

- Social
- Interpersonal
- Individual
Roles in Health ILI

INSTRUCTOR

- Medical librarian
- Health care professional
- Public health outreach worker
- Professional Development Trainer
- Parent
- Child

LEARNER

- Health care professional
- Patient
- Family member
- Health care administrator
- Public health outreach worker
- Community member
- Children
- Parent
The challenge: ILI is engulfed by

- Complex roles
- Complex interactions
- Complex contexts

(being human)
Life is simple.
Possible Approach

Adopt a Neurocognitive Strategy

Consider the following:

- human memory systems
  Are activated during input, rehearsal, and retrieval of information
Neurocognitive Basis for Learning

- **Declarative memory**
  - Conscious recall
  - Facts and events

- **Procedural memory**
  - Learning by doing
  - Riding a bicycle, using a spoon
  - *Does not require conscious learning

(Willingham et al., 2002; Glisky, 2007; Wulf, 2007)
Neurocognitive Basis for Learning

- **Declarative memory**
  - Input: aural, visual
  - Output: oral, text-based recall, facts recall

- **Procedural memory**
  - Input: mimic, follow a process, act in a sequence
  - Output: follow a process, act in a sequence

(Willingham et al., 2002; Glisky, 2007; Wulf, 2007)
Neurocognitive Basis for Learning

So what?
Take advantage of both memory processes &
Get more bang for your buck!

Aural input
Visual input
Procedural input

More effective learning
Instructional Strategies

Dual-Processing Based Instruction

Declarative Memory Based Instruction
- Audio-visual presentation on medical online searching

Procedural Memory Based Instruction
- ScreenShare Screen Shots and PowerPoint
- Students follow along on individual computers
Evaluation of Health ILI

Dual-Processing Based Evaluation

- Authentic assessment
  - Multimedia projects
  - Research papers

- PBL – Problem-based learning
  - Case Studies
  - Collaborative Problem-Solving

But wait, there’s more!
It’s not just for health information

The dual processing memory model can be applied to any learning context that involves

- A Process
- Self-regulation and metacognition
- A Human
Thank you for your attention.

Tell me and I'll forget.
Show me, and I may not remember. Involve me, and I'll understand.

Ivonne Ramirez
ivonne@utk.edu