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Optimizing Lifelong Learning
Possibilities and Benefits of Lifelong Learning

- Continued learning late in life is clearly possible
  - The brain continues to be plastic
- Continued learning late in life is clearly beneficial
  - Education is associated with reduced cognitive decline with age and reduced risk for Alzheimer’s disease
  - Education may provide “cognitive reserve”
But...learning is often more difficult. Why?

- Information processing slows down a bit
- Mental energy may decline
- Distractibility increases
- We become less practiced at learning
- Working memory and executive control decline
What is working memory?

- Ability to hold a few things in mind and think about them or reorganize them in some way
- Used for planning, decision-making, multi-tasking, and strategic processing
- Requires executive control, which coordinates the organizing activities and keeps your attention focused on what is relevant, blocking out what is irrelevant
- Working memory and executive control are important for learning
Things that improve or increase with age

- Knowledge
- Experience
- Sense of self

In order to optimize learning:
  - We need to take advantage of our strengths to compensate for our weaknesses
Learning Strategies

- Many learning strategies take advantage of these strengths, but you have to use the strategies.
- Young people seem often to initiate strategies spontaneously but older people often do not.
Learning Strategies

- In general, learning and retaining new information is easier if:
  - You relate it to things you already know
  - It fits readily into your knowledge system
  - You think about it in terms of your personal experience, in terms of your “self”
Three learning strategies that work

- Three strategies
  - Levels of processing
  - Self-reference and self-imagination
  - Retrieval practice
Levels of Processing

Based on Craik & Tulving, 1975
Levels of Processing

- Older people benefit from deep processing just as much as young
- However, if you just tell people to remember the words, older adults do more poorly than younger adults
- Why? Young adults tend to use strategies spontaneously, and older adults often do not
Think about how something is relevant to you personally.

For example, does the word “honest” describe you?

Glisky & Marquine, 2009
- Use visual imagery together with self-reference, what we call self-imagination
- Imagine things that you want to remember from a personal perspective

Grilli & Glisky, 2010
The Testing Effect
An example of Retrieval Practice

- Study Prose Passages
- Following by further study or by testing
- Test at 5 mins, 2 days, or 1 week

Roediger & Karpicke, 2006
Lifelong learning will help maintain cognitive function with age and is associated with a reduced risk of AD.

Compared to young learners, older adults have greater knowledge, greater experience, and a more elaborated and stable sense of self.

Taking advantage of these characteristics will enhance learning.
Summary and Conclusion

- To optimize learning, become an active learner:
  - **Attend** carefully at time of initial learning
  - **Elaborate** new information in terms of prior knowledge and experience; ask questions
  - **Relate** new information to your “self”
  - **Imagine** yourself interacting in some way with the new information
  - **Test** yourself on your new knowledge
Seniors’ Learning Project

- Ongoing since 1994
- Since that time, 640 individuals age 65 and over have participated in one or more of our studies
- If you would like more information, or would like to volunteer, you may contact Cindy at 621-5721.
- Free parking with easy access to our building