9.11: Attention and Problem Solving

Changes in Attention in Late Adulthood: Changes in sensory functioning and speed of processing information in late adulthood often translates into changes in attention (Jefferies et al., 2015). Research has shown that older adults are less able to selectively focus on information while ignoring distractors (Jefferies et al., 2015; Wascher, Schneider, Hoffman, Beste, & Sänger, 2012), although Jefferies and her colleagues found that when given double time, older adults could perform at young adult levels. Other studies have also found that older adults have greater difficulty shifting their attention between objects or locations (Tales, Muir, Bayer, & Snowden, 2002). Consider the implication of these attentional changes for older adults.

How do changes or maintenance of cognitive ability affect older adults’ everyday lives? Researchers have studied cognition in the context of several different everyday activities. One example is driving. Although older adults often have more years of driving experience, cognitive declines related to reaction time or attentional processes may pose limitations under certain circumstances (Park & Gutchess, 2000). In contrast, research on interpersonal problem solving suggested that older adults use more effective strategies than younger adults to navigate through social and emotional problems (Blanchard-Fields, 2007). In the context of work, researchers rarely find that older individuals perform poorer on the job (Park & Gutchess, 2000). Similar to everyday problem solving, older workers may develop more efficient strategies and rely on expertise to compensate for cognitive decline.

Problem Solving: Problem solving tasks that require processing non-meaningful information quickly (a kind of task that might be part of a laboratory experiment on mental processes) declines with age. However, many real-life challenges facing older adults do not rely on speed of processing or making choices on one’s own. Older adults resolve everyday problems by relying on input from others, such as family and friends. They are also less likely than younger adults to delay making decisions on important matters, such as medical care (Strough, Hicks, Swenson, Cheng & Barnes, 2003; Meegan & Berg, 2002).
What might explain these deficits as we age? The processing speed theory, proposed by Salthouse (1996, 2004), suggests that as the nervous system slows with advanced age our ability to process information declines. This slowing of processing speed may explain age differences on many different cognitive tasks. For instance, as we age, working memory becomes less efficient (Craik & Bialystok, 2006). Older adults also need longer time to complete mental tasks or make decisions. Yet, when given sufficient time older adults perform as competently as do young adults (Salthouse, 1996). Thus, when speed is not imperative to the task healthy older adults do not show cognitive declines.

In contrast, inhibition theory argues that older adults have difficulty with inhibitory functioning, or the ability to focus on certain information while suppressing attention to less pertinent information tasks (Hasher & Zacks, 1988). Evidence comes from directed forgetting research. In directed forgetting people are asked to forget or ignore some information, but not other information. For example, you might be asked to memorize a list of words, but are then told that the researcher made a mistake and gave you the wrong list, and asks you to “forget” this list. You are then given a second list to memorize. While most people do well at forgetting the first list, older adults are more likely to recall more words from the “forget-to-recall” list than are younger adults (Andrés, Van der Linden, & Parmentier, 2004).

Cognitive losses exaggerated: While there are information processing losses in late adulthood, overall loss has been exaggerated (Garrett, 2015). One explanation is that the type of tasks that people are tested on tend to be meaningless. For example, older individuals are not motivated to remember a random list of words in a study, but they are motivated for more meaningful material related to their life, and consequently perform better on those tests. Another reason is that the research is often cross-sectional. When age comparisons occur longitudinally, however, the amount of loss diminishes (Schaie, 1994). A third reason is that the loss may be due to a lack of opportunity in using various skills. When older adults practiced skills, they performed as well as they had previously. Although diminished performance speed is especially noteworthy in the elderly, Schaie (1994) found that statistically removing the effects of speed diminished the individual’s performance declines significantly. In fact, Salthouse and Babcock (1991) demonstrated that processing speed accounted for all but 1% of age-related differences in working memory when testing individuals from 18 to 82. Finally, it is well established that our hearing and vision decline as we age. Longitudinal research has proposed that deficits in sensory functioning explain age differences in a variety of cognitive abilities (Baltes & Lindenberger, 1997).