PSYCHOLINGUISTICS

LECTURE 12

MEMORY

MEMORY (AN INTRODUCTION)

- Human memory has been a subject of science and philosophy for thousands of years and has become one of the major topics of interest within cognitive psychology. Human memory involves the ability to both preserve and recover information we have learned or experienced.
- It refers to an abstract entity in human mind that stores and preserves what has been learned, observed or experienced. It is often regarded as the store-house of minh which varies from person to person.

DEFINITION

- Cognitive psychologist Margaret W. Matlin has described memory as the "process of retaining information over time." It is our ability to encode, store, retain and subsequently recall information and past experiences in the human brain.
- According to Dictionary of Linguistics memory is the mental capacity to store information, either for short or long periods.
- It can be thought of in general terms as the use of past experience to affect or influence current behavior. Hence, memory may be defined as ***"a past that becomes a part of me"***.

HENCE,

- Memory is the sum total of what we remember and gives us the capability to learn and adapt from previous experiences as well as to build relationships. It is the ability to remember past experiences, and the power or process of recalling to mind previously learned facts, experiences, impressions, skills and habits. It is the store of things learned and retained from our activity or experience, as evidenced by modification of structure or behavior, or by recall and recognition.

TYPES OF MEMORY

- **Sensory Memory**
- **Sensory memory** is the earliest stage of memory. During this stage, sensory information from the environment is stored for a very brief period of time, generally for no longer than a half-second for visual information and 3 or 4 seconds for auditory information. We attend to only certain aspects of this sensory memory, allowing some of this information to pass into the next stage - short-term memory.

SHORT-TERM MEMORY

- *A* **Short-term memory** refers to that part of the memory where information which is received is stored for short periods of time while it is being analyzed and interpreted. **Working memory** is a more contemporary term for short-term memory which conceptualizes memory not as a passive system for temporary storage but an active system for temporarily storing and manipulating information needed in the execution of complex cognitive tasks (e.g. learning, reasoning, and comprehension).

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- In the influential model of Baddeley, working memory consists of two storage systems, the **articulatory loop** for the storage of verbal information and the **visuospatial sketchpad** for the storage of visual information, plus a **central executive**, a very active system responsible for the selection, initiation, and termination of processing routines (e.g. encoding, storing, and retrieving).

LONG-TERM MEMORY

- **Long-term memory** is that part of the memory system where information is stored more permanently. Information in long-term memory may not be stored in the same form in which it is received. For example, a listener may hear sentence, and be able to repeat it accurately immediately after hearing it. The listener uses short-term memory to do this. On trying to remember the sentence a few days later the listener may produce sentence using information in long-term memory which is in a different form from the original message.

EXAMPLE

- *The car the doctor parked by the side of the road was struck by a passing bus.*
- *After few minutes the listener will repeat as*
- *The car the doctor parked by the side of the road was struck by a passing bus.*
- *After a week time the listener will repeat as*
- *The doctor's car was hit by a bus.*

CONT…

- the ability to bring an event, idea, word, etc. that is stored in memory into conscious awareness is called recall. In certain memory tests, subjects are asked to recall (remember) items that were previously encountered, for example in a training session.
- **Cued recall** is when subjects are given hints, for example, *Can you remember words on the list that were related to language?*
- **Stimulated recall** is a technique in which learners are asked to recall their thought processes while viewing or hearing a stimulus such as a video of a language lesson to prompt their memory.

ASSOCIATIVE MEMORY

- **Associative memory** is a memory system that stores mappings of specific representations to inputs, outputs, and other representations.
- In connectionism, a memory system that learns to reproduce input patterns as output patterns is called auto-associative.

EPISODIC MEMORY

- **Episodic memory** is that part of the memory which is organized in terms of personal experiences and episodes.
- For example, if a subject was asked the question:
- "What were you doing on Friday night at 7 pm?"
- He or she may think of all the things that happened from 5 pm up to 7 pm. The person builds up a sequence of events or episodes to help find the wanted information. Episodic memory may be contrasted with **semantic memory**.

SEMANTIC MEMORY

- Semantic memory is that part of the memory in which words are organized according to semantic groups or classes.
- Words are believed to be stored in long term memory according to their semantic properties.
- Thus *canary is* linked in memory to *bird*, and *rose* is linked to *flower*. These links are a part of semantic memory.

IMPLICIT MEMORY

- **Implicit memory** (also called **unintentional or unconscious memory,** is a type of memory that is revealed when previous experiences facilitate performance even when not accompanied by conscious recollection.
- For example, both first and second language readers process recently encountered words faster than words that they have not encountered recently, but this speeded processing does not depend on readers remembering that they have seen the word before.

WORKING MEMORY

- **Working memory** is a more contemporary term for short-term memory. It refers to the temporary storage of information that is being processed in any range of cognitive tasks (Baddeley, 1986).
- Working memory is thought of as an active system for both storing and manipulating information during the execution of cognitive tasks such as comprehension and learning.

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- In the influential model of Baddeley, working memory consists of two storage components and a central executive function. The two storage components are the articulatory loop, which holds traces of acoustic or speech-based material for a few seconds (longer if the material is rehearsed, and the visuospatial sketchpad for the storage of verbal and visual information. The central executive is a limited capacity, supervisory attentional system used for such purposes as planning and trouble shooting.

LOSING MEMORY

- Forgetting is a surprisingly common event. Just consider how often you forget someone's name or overlooked an important appointment. Why do we forget information we have learned in the past?
- There are four basic explanations for why forgetting occurs:
- Retrieval failure
- Interference
- Failure to store
- Motivated forgetting

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- Research has shown that one of the critical factors that influence memory failure is time. Information is often quickly forgotten, particularly if people do not actively review and rehearse the information.
- Sometimes information is simply lost from memory and, in other cases, it was never stored correctly in the first place. Sometimes memories compete with one another, making it difficult to remember certain information. In other instances, people actively try to forget things that they simply don't want to remember.

BOOSTING MEMORY

- No matter how great your memory is, there are probably a few things you can do to make it even better. Fortunately, cognitive psychologists have discovered a number of techniques that can help improve memory. They suggest the following steps to boost memory:
- **Jot it down:**
- The act of writing with a pen and paper helps implant the memory into your brain—and can also serve as a reminder or reference later on.[1]

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- **Attach meaning to it:**
- You can remember something more easily if you attach meaning to it.
- For instance, if you associate a person you just meet with someone you already know, you'll be able to remember their name easier.
- **Repeat it:**
- Repetition helps the memory become encoded beyond your short-term memory.

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- **Group it:**
- Information that is categorized becomes easier to remember and recall. For example, consider the following group of words: Desk, apple, bookshelf, red, plum, table, green, pineapple, purple, chair, peach, yellow." Spend a few seconds reading them, then look away and try to recall and list these words. How did you group the words when you listed them? Most people will list using three different categories: color, furniture, and fruit.

CONT…

- In addition to these techniques, keeping your brain healthy by exercising regularly, maintaining social connections, managing stress, and performing challenging activities (like doing crossword puzzles or playing an instrument) have been proven to help boost memory.