**Chapter 6: Memory Distortions**

**Learning Objectives**

* Understand the nature of reconstructive retrieval and the memory errors of leveling, assimila­tion, and sharpening associated with it.
* Compare and contrast the encoding distortions of selection, interpretation, and integration.
* Explain how source monitoring problems contribute to the phenomenon of verbal false memory.
* Describe the reasons why eyewitness testimony may reflect distorted recollections.
* Explain the difference between confabulation, misinformation, and implantation as causes for a false memory of a traumatic experience.

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**Brief Summary**

Retrieval of autobiographical events is guided by schemas that serve to reconstruct the original events using processes that alter the original events such as interpretation and embellishment. Schemas can also operate during encoding through selective processing of information that fits with prior knowledge, interpreting the meaning of events as they occur, and integrating the events experienced into a unified memory representation that conveys the gist rather than details of the event. Memory distortion occurs when inaccuracies occur in source monitoring or the processes that are used to discriminate internal from external sources of memory.

The study of memory distortions has important implications for understanding the nature of memory inaccuracies in eyewitness testimony. Memory distortion can be introduced into eyewitness testimony through selective encoding by eyewitnesses as well as the use of slanted and misleading questioning by interrogators. Interrogators can also implant false memories in particularly vulnerable populations such as young children and those who are in a confused, tired, and fearful state. Memories of traumatic events are sometimes consciously recollected a long time after the initial event occurred. Such memories may have been subject to an inhibitory process that suppresses conscious knowledge of the event due to its traumatic nature. Alternatively, such memories may have become dissociated from the individual due to their traumatic nature. The recovery of repressed memories, while sometimes reflecting an accurate account of the original event, is also susceptible to memory distortion and can result in the retrieval of inaccurate information.

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**Detailed Summary**

1. Schemas shape how events are retrieved from long-term memory. A schema is a set of organized concepts that provides expectations about the world. Just as schemas guide human pattern recognition from the top down, conceptually driven processes also guide the reconstruction of events from memory. As a result, details of an event may be dropped from recollection, a process called leveling. Details may also be assimilated or normalized in order to fit the expectations provided by the schema. Finally, a schema-based reconstruction of an event may also sharpen details, elaborating a point by using general knowledge about the world rather than information actually encoded and stored.

2. Schemas also influence what is encoded and stored in episodic memory in the first place, causing memory distortions. They establish expectations that result in selection of the features of events at the time of encoding. Schemas also constructively guide the encoding of events through a process of interpretation. Inferences are drawn at the time of encoding as well as during reconstructive retrieval. Finally, schemas influence encoding through integration, which means that features of different events are combined into a unified memory representation. As a result of integration, we remember the main idea or gist of events rather than the details of their occurrence.

3. Source monitoring refers to evaluative processes that attribute mental experiences to different sources. External sources are perceived events in the environment, whereas internal sources are thoughts, fantasies, and dreams. A laboratory demonstration of a memory illusion shows that after a list of words closely associated with a target word is viewed, the target itself is falsely remembered as being on the list. In the illusion, the target word is activated internally but is incorrectly attributed to an external source. Normally, source monitoring processes enable us to differentiate easily between a fantasy and a real memory. These processes break down in Korsakoff’s syndrome, which is associated with chronic alcoholism. The patient makes up false memories out of thin air. Confabulations appear as spontaneous outpourings of recollections that the patient cannot control and cannot monitor as false.

4. The constructive and reconstructive properties of human memory have important implications for our legal system. The reliability of eyewitness testimony has been studied extensively. Selective encoding, misleading questions used by interrogators, and the implantation of memories through hypnosis and therapy have been shown to distort recall in laboratory settings. The ecological validity of this research has been challenged. In particular, there is still considerable controversy over the question whether traumatic events, such as sexual abuse, can produce amnesia for an event that is later recovered. The suggestibility and credibility of young children as witnesses, and of adults who have recovered supposedly repressed memories of sexual abuse, are at the center of this debate.

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**Topical Outline**

Reconstructive Retrieval

* Schema-guided construction of episodic memories that interpret, embellish, integrate, and alter encoded memory representations.

Reconstructing Laboratory Events

* + Classic work by Bartlett (1932) on the role played by schemas in story reconstruction provided a model for later researchers to study memory reconstruction in the lab.

Reconstructing Autobiographical Events

* + Recollections of events personally experienced are integrated with schemas into narratives that give life meaning, but can also contain distorted features.

Encoding Distortions

* Schemas can also operate to distort recollection during encoding.

Selection

* + The selective encoding of information that fits with prior knowledge.

Interpretation

* + Prior knowledge provides the basis for interpreting the meaning of events, and these interpretations become part of memory.

Integration

* + Combining the features of different events into a unified memory representation that conveys the main idea or gist of an event rather than details of its occurrence.

Source Monitoring

* Evaluative processes that attribute mental experiences to either external sources (i.e., perceived events) or internal sources (i.e., thoughts, fantasies, and dreams).

Memory Illusions

* + Memory distortions can take the form of remembering an experience that never occurred due to difficulties discriminating external from internal sources of memories.

Confabulation

* + Generating a false autobiographical account due to a breakdown in the ability to attribution fantasies to an internal imagined source.

Eyewitness Testimony

* Understanding how constructive processes in memory affects the accuracy of eyewitness testimony is an important topic of research due to the important role that eyewitness accounts play in criminal trials.

Reconstructive Retrieval

* + Eyewitness testimony can become distorted through selective encoding by the witness, slanted questioning meant to mislead the witness, and implanted memories.

Selective Encoding

* + Errors in eyewitness testimony can occur due to factors that weaken encoding processes such as emotional duress experienced during witnessing a crime, the difficulty of attending to the rapid occurrence of events in a crime, and issues with the composition of a police lineup.
  + Emotional arousal experienced during witnessing of a crime can also enhance the consolidation process.

The Misinformation Effect

* The introduction of distortions in memory created by misleading information introduced through the questions used by an interrogator of a witness.

Implanted Memories

* Memory implantation refers to an individual creating a false memory in the mind of another person by means of suggestions and questions about the imagined event.
* Individuals who are particularly susceptible to memory implantation are the young and individuals in a confused, tired, and fearful state.

Recovered Memories

* Retrieval of memories reflecting either a repressed event or an inaccurately reconstructed false memory.

Repression

* + An inhibitory process of excluding events of a traumatic nature from retrieval.

Trauma-Induced Amnesia

* + A dissociated consciousness in which the victim experiences the trauma as if it were happening to someone else or psychologically avoids the trauma by mentally travelling to a different place and time.

Conclusion

* + Processing a traumatic event may take several possible pathways involving either reconstruction of the event, repression and recovery of the event, dissociation and amnesia for the event, or false belief leading to the reconstruction of a false memory for the event.

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**Key Terms**

reconstructive retrieval

leveling

assimilation

sharpening

selection

interpretation

integration

source monitoring

false verbal memory

confabulation

misinformation effect

delusional false memory

repression

ecological validity

trauma-induced amnesia

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**Discussion Questions**

Discussion Question #1

Describe your schema for a child’s birthday party. How does this schema compare to the memory of children’s birthday parties you have attended? Do you remember any elements that do not fit your schema?

Discussion Question #2

Define leveling, assimilation, and sharpening. Identify some techniques you could use to minimize the effects of these types of errors on retrieval.

Discussion Question #3

Retrieve a landmark event that occurred in your life and discuss how it can be viewed in the context of a lifetime period, a general event, and a specific event. Identify the elements of this event that are accurate recollections and those that are schemas.

Discussion Question #4

In modern life, visual recording technology, such as video and cell phone cameras, enables a more comprehensive record of our day-to-day lives than in the past. Identify the ways that the presence of this technology contributes to source monitoring errors as well as the ways it aids source monitoring.

Discussion Question #5

Clinical psychologists often discuss how a mental health diagnosis can serve to stigmatize an individual and negatively alter their self-concept. Based on the material in this chapter, explain the ways that stigmatization can be viewed as a memory-distorting factor.

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**Questions for Thought**

Try to recall as much as you can about a specific birthday party you had as a child. What age did you turn that day? Was there a cake, and if so, what kind? Who attended the party? Did they sing a song? Which aspects of your recollections possibly reflect leveling, assimilation, and sharpening? How does your schema for a birthday party guide your reconstructive retrieval?

Consider how encoding distortions can produce memory errors on exams for college courses. Provide one example each for selection, interpretation, and integration.

Verbal false memories are more common when people hear a list of semantically related words compared with reading the list (see Learning Activity 6.3). Explain why this is so, and then propose other ways that might successfully reduce the likelihood of this memory distortion.

Contrast the effects of repression versus dissociation on the recollection of an actually experienced traumatic event. Which of these would be hardest to distinguish from a false recollection of trauma resulting from memory implantation?

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**Web Resources**

[**Memory Demo Content**](http://www.mmlc.northwestern.edu/external/paller/memory-demo_content.html)

An interactive demonstration of false memory.

[**Eyewitness Identification Research Laboratory**](http://eyewitness.utep.edu/consult03b.html)

An interactive demonstration of false identification of suspects in police lineups.

[**False Recall and False Recognition**](http://courses.missouristate.edu/TimothyBender/mem/mydemos.html#recent)

Click on “Recent Demonstrations” and scroll down the page to “False Recall and False Recognition” for an interactive demonstration of false memory based on Roediger and McDermott’s (1995) study.

[**What Jennifer Saw**](http://www.pbs.org/wgbh/pages/frontline/shows/dna/photos/)

Frontline expose of the Ronald Cotton eyewitness misidentification case.

[**Was Frank Fuster a “Monster”?**](http://www.pbs.org/wgbh/pages/frontline/shows/fuster/frank/)

Frontline expose on the repressed memory syndrome and its role in the sexual abuse case against Frank Fuster.

[**Elizabeth Loftus: The Fiction of Memory**](https://www.youtube.com/watch?v=PB2OegI6wvI)

Elizabeth Loftus’ Ted Talk on false memories.

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**SAGE Journal Articles**

Braun-LaTour, K.A., Grinley, M.J., & Loftus, E.F. (2006). [Tourist memory distortion](http://jtr.sagepub.com/cgi/reprint/44/4/360?ijkey=MNZmUuB.asbAs&keytype=ref&siteid=spjtr). Journal of Travel Research, 44, 360-367.

1. In their article, the authors discuss a number of factors known to cause memory distortions. What factors do they mention? Can you think of any additional factors?
2. For many years the tourist industry has relied on the impact of marketing to attract tourists to various destinations. Although much of this marketing has targeted consumers prior to their experience, setting up expectations regarding the destination, the present research suggests that the tourist industry needs to develop an approach to manage consumers’ post-experience impressions. Based on the research findings on memory distortion, what suggestions would you make for post-experience management?
3. How might memory distortion play a role in other real life areas such as how a boss evaluates an employee’s job performance?

Maurer, M. & Reinemann, C. (2006). [Learning versus knowing: Effects of misinformation in televised debates](http://crx.sagepub.com/cgi/reprint/33/6/489?ijkey=pY.Ep2/wU/9WY&keytype=ref&siteid=spcrx). Communication Research, 33, 489-506.

1. The authors suggest that the information people receive from the mass media is usually quickly forgotten because most people are not motivated to actively process it. Based on the authors’ findings, what can we conclude about the informational value of watching a political debate?
2. According to the authors, a political debate may engender learning, as evidenced by an increase in the viewer’s knowledge. However, the knowledge gained may not be factual. Based on this account, contrast the dissemination of misinformation during a political debate with the procedure for the misinformation effect.
3. Discuss the similarity between the way misinformation is generated by political debates and the procedure for implanting memories.

Flouri, E. (2005). Post-traumatic stress disorder (PTSD): [What we have learned and what we have still not found out](http://jiv.sagepub.com/cgi/reprint/20/4/373?ijkey=FEdVJwFuMs6vk&keytype=ref&siteid=spjiv). Journal of Interpersonal Violence, 20, 373-379.

1. According to the authors, what are some of the pre-disposing factors that contribute to the likelihood that an individual will develop PTSD?
2. The authors discuss a biomedical model of PTSD which assumes that individuals with an underlying predisposition to PTSD will develop the symptoms after exposure to a stressor. What do the authors identify as some of the limitations with the biomedical model?
3. The authors devote a portion of their article to discussing what is known about the development of PTSD in children. What do the authors identify as possible protective factors that would enhance the ability of a child to cope with a traumatic experience? How would you think these factors would mediate the dissociation of consciousness found in trauma-induced amnesia?

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**Recommended Readings**

Garry, M., & Gerrie, M. P. (2005). When photographs create false memories. *Current Directions in Psychological Science, 14,* 321–325.

Loftus, E. F., & Ketcham, K. (1994). *The myth of repressed memory*. New York: St. Martin’s Press.

Loftus, G. R.(2010). What can a perception-memory expert tell a jury? *Psychonomic Bulletin & Review, 17,* 143–148.

Schacter, D. L., Norman, K. A., & Koutstaal, W. (1998). The cognitive neuroscience of constructive memory. *Annual Review of Psychology*, 49, 289-318.

Wells, G. L., & Olson, E. A. (2003). Eyewitness testimony. *Annual Review of Psychology*, 54, 277-295.

Wixted, J. T. (2004). The psychology and neuroscience of forgetting. *Annual Review of Psychology*, 55, 235-269.