Research Notes:

What kinds of things impact our memories?

Karim Nader believes that every time we remember something, it can change our memories. In fact, it may be impossible for humans to think of a memory without changing it in some way.

Memories surrounding a major event that we play over and over—either in our minds or in conversations with others—because each repetition has the potential to alter them.

How are memories created in the brain?

When we create a memory, it involves an adjustment to the connections between neurons. The human brain has 100 billion neurons in all, Neurons send messages to other neurons through gaps called synapses. This is done by chemicals that are called neurotransmitters.

How can memories change?

Eric Kandel, a neuroscientist at Columbia University showed that short-term memories—those lasting a few minutes—involve relatively quick and simple chemical changes to the synapse that make it work more efficiently. Filing an older memory away, or turning it into a "long-term" memory after it had been recalled was very like creating it in the first place.

People tend to have correct ~~accurate~~ memories for the basic facts of a momentous event. For example, the number of planes involved in the 9/11 attacks—but they frequently ~~often~~ ~~misremember~~ remember incorrectly personal details such as where they were and what they were doing at the time. Researchers say ~~Hardt says~~ this could be because these are two different kinds~~types~~ of memories ~~that get reactivated in different situations~~. Television ~~and other media~~ coverage reinforces the central facts. But discussing~~recalling~~ the experience with ~~to~~ other people may allow ~~distortions~~ misrepresentations to happen ~~creep in~~. When you retell it, the memory becomes flexible ~~plastic~~, and whatever ~~is present~~ happens around

you in the environment can change ~~interfere with~~ the original contents of the memory. In the days following September 11th, for example, people likely repeatedly told ~~rehashed~~ their own personal stories—"where were you when you heard the news?"—in conversations with friends and family, perhaps allowing details of other people's stories to mix with their own.

Why are memories so unreliable?

It is believed that editing our memories and causing them to be "unreliable" may be another way to learn from our experiences. If recalling of difficult times weren't offset by the idea that things will work out in the end, we might not learn from hard situations. This keeps us from dwelling on the past, and move forwards. For example, if women could really remember the pain of giving birth, there might be very few families with more than one child.

http://www.smithsonianmag.com/science-nature/how-our-brains-make-memories-14466850/?cmd=ChdjYS1wdWItMjY0NDQyNTI0NTE5MDk0Nw&page=6

What kinds of things can impact our memories?
Research findings show that emotions can exert a powerful effect on a person's memory for places.
Someday we might be able to improve our memory functions by triggering the positive emotions, while avoiding the need for negative experiences.

http://neurosciencenews.com/neuropsychology-memory-parahippocampal-cortex-445/

Conditioned responses to strong memories from the past fade away as older memories are replaced with new experiences.
http://neurosciencenews.com/neurogenetics-memory-extinction-ptsd-413/

the brain never stops changing and adjusting
https://faculty.washington.edu/chudler/plast.html

What is memory? How does it work? How are memories created in the brain?

Your memory is not like a part of your body. It is a concept meaning the process of remembering. Experts think that memory is far more complex than most people realize. It is not even located in on single place in the brain, but is a “brain-wide” process. Our “memory” is made up of a collection of systems that each have differing roles to play. We must create, store and then recall memories. These systems work together to provide a single thought known as a memory. Researchers keep studying because they still don’t fully understand how recall in particular works. There are always ongoing studies to discover where memories are stored and then connected through recall.

http://science.howstuffworks.com/life/inside-the-mind/human-brain/human-memory.htm

Video:
Studying sea slugs was a way to learn if the chemicals released when slugs have a memory is the same each time they experience a similar experience. Memory seems to involve a structural, physical change in the brain between neurons through their synapses. The new pathways and the biological changes are considered the basis of memory. A single memory is made up of 10’s of thousands of neurons from the 100 billion in the human brain.
http://utah.pbslearningmedia.org/resource/nvmh-sci-memsform/wgbh-nova-memory-hackers-how-memories-form/