Psychology Factsheets

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The Role of Emotion in Forgetting

In this Factsheet you will find information on the theories of forgetting both in our short-term memory (STM) and long term memory (LTM). Specifically, this Factsheet will explore the role of emotions in forgetting.

The examiner will expect you to be able to:

- Demonstrate the role of emotion in forgetting in short term memory such as state dependent memory, trace decay theory and the role of the **amygdala**.
- Demonstrate a sound knowledge of forgetting in long term memory such as repression and flash bulb memory.
- Critically evaluate theories outlining the role of emotion in forgetting.

Introduction

In order to understand forgetting, we must have an understanding of memory. According to the Oxford English Dictionary memory is *"the faculty by which the mind stores and remembers information."* Forgetting therefore is our inability to retrieve information from our memory. Some argue that when emotions impact on memory, then forgetting is an unwillingness to remember information rather than an inability to do so. The main consideration in exploring the impact of emotion on forgetting is whether we forget for a reason. Dr C.L Heffner stated that when we forget, the information is not lost forever; it is simply inaccessible to us for a number of reasons. One suggestion is that forgetting serves a purpose, to protect us emotionally.

It is largely believed that emotions can either enhance remembering or hinder remembering. Generally speaking, when happy or when it is a happy memory we remember more and in more detail. When sad, stressed or fearful and the memory evokes these feelings, we remember less. Cognitive psychologists have used existing theories of forgetting such as **rehearsal**, **interference** and **cue dependency** to explain the emotional effect of forgetting. Rehearsal refers to the fact that we forget due to a lack of rehearsal and so the memory decays. However, if the memory is a negative one, we are less likely to want to rehearse it than if the memory is a positive one. Interference states that forgetting occurs because memories interfere with and disrupt one and another, usually old memories disrupting new memories. Emotions can interfere with our remembering or not. For example, an eye witness may forget the details of a crime because they are triggered emotionally and remain stuck with that emotion which inhibits their memory. This can also happen in reverse, whereby eyewitnesses have been taken back to the scene of a crime and by being there their memory is triggered and they can remember more details of the crime that took place. This example can also be linked to the cue dependency theory in forgetting. If given a cue, perhaps one with emotional significance, an individual stands a greater chance of remembering.

Forgetting in Short-Term Memory

Short-term memory is the brain's capacity to hold on to small amounts of information (approximately 7-9 items) for a short period of time. According to Atkins and Shiffrin (1971) the duration is between 15 -30 seconds. Our emotional state at the time of processing a piece of information influences our focus and therefore impacts on our capacity to retain the information. This is known as the **mood congruence effect**. Lewis and Critchley (2003) support this theory by stating that our emotions affect the memory encoding process.

Forgetting in short term memory happens in two ways. Firstly, if the information has not been passed on to long-term memory, this is known as the **Trace Decay Theory**. This basically states that if the memory in short-term memory is not rehearsed, then it will not be passed on to long-term memory and therefore will be forgotten. So, in order to keep memory available, we must regularly revisit and rehearse it. It can be argued that Trace Decay Theory is emotionally biased. If a memory is painful to us, it is unlikely we will want to rehearse it, so it will not be passed on to long-term memory. Mackay et al (2004) state that emotionally charged situations can lead us to create longer lasting memories.

Atkins and Shiffrin (1997) conducted an experiment investigating the effect of emotions on short-term memory, specifically happiness and sadness. Groups of students were given either an A grade or a D grade, then given a list of 10 words to remember, followed by watching either a happy or sad video, depending on the group they were placed in. After the video, they were asked to recall the list of 10 words. The 'happy' students recalled 98% of the words whilst the 'sad' students recalled 48% of the words. The researchers concluded that our emotions can interfere with our short-term memory and cause us to forget.

State dependent memory refers to the fact that there is a stronger chance of remembering if an individual is in the same emotional state as they were when the memory was formed. For example, if you are angry, there is a stronger chance of you remembering angry memories than happy ones. Bower (1981) supports this theory by stating that the emotional state acts as a cue for memory retrieval. The general consensus being that the happier you are at the time of encoding and the happier the memory is, the better the recall. D'Argembeau et al. (2002) observed that positive memories tend to contain more sensorial and contextual detail that than neutral or negative memories. There has also been research into the role that certain substances play in state dependent memory. State-dependent memory effects have been found in regard to substances such as morphine, caffeine, and alcohol. There is such a thing as alcohol-related state-dependent memory in which heavy drinkers may forget what they did while

drunk, only to remember again the next time they drink. In a study comparing the state-dependent memory effects of alcohol on subjects with alcoholism and subjects without alcoholism, researchers found that the alcoholic subjects showed greater effects for state-dependent memory on tasks of recall. This is not because alcohol produces better associations, but because the person with alcoholism lives a larger portion of their life under the influence of alcohol.

It is believed that the hippocampus and amygdala in the brain play key roles in the impact of emotions on forgetting. Buchanan (2007) posited that the neural connections in the amygdala in conjunction with the hippocampus and prefrontal cortex play a role in the retrieval of emotional experiences. The interaction between the two may reinforce the link between memory and emotions. The amygdala is believed to be the part in the brain where the emotional significance of an event is calculated. It also appears to be responsible for the influence of emotion on perception, so for example being more aware of extreme experiences either an extremely positive one or an extremely negative one. There is the suggestion that stress hormones such as cortisol interact with the amygdala and impact on recall as this can interfere with the consolidation process that occurs principally in the hippocampus.

Forgetting in Long-Term Memory

Long-term memory is arguably more strongly linked to our emotions. For instance, if you were asked to recall your first school friend, it is very likely that there will be an emotion attached to the memory. Long-term memory refers to the brain's unlimited capacity to store information potentially for a lifetime. Long-term memory is split into explicit and implicit memory types. **Implicit memory** relates to skills such as how to ride a bike whilst **explicit memory** contains facts and knowledge, such as remembering that H20 is the chemical formula for water, and autobiographical information such as remembering your first day of school. It can be said that there is very little emotion attached to implicit memory but that emotion plays more of a role in the individual's personal experience of the skill learnt. For example, an individual might remember feeling nervous when they first learnt to ride a bike.

Autobiographical memory is an example of explicit memory; it contains facts about you, your life and personal experiences. Arguably an interaction exists between autobiographical memory and our emotions. As when we recall the events of our life, not all events are recalled equally. There is a tendency for the event filled with the most emotion attached to it to be recalled first and with the most detail.

Forgetting in long-term memory occurs in two main ways, lack of availability and lack of accessibility. Availability means that the memory is no longer there, whilst accessibility means it's there but we can't access it. A number of reasons could explain why a memory becomes permanently lost, such as **amnesia**. This predominantly occurs where physiological damage to the brain causes permanent forgetting. Emotional trauma can also cause amnesia although it is typically caused by a physiological trauma.

Memories that are difficult to access can be retrieved with help, or cues. It is important to think about cue dependent theory in relation to the role emotion plays in it. We often need a trigger/cue to illicit an emotional memory. There are three ways to trigger 'forgotten' memories: cue dependent retrieval, context dependent retrieval and state dependent retrieval.

- Cue dependent retrieval uses cues in the form of pictures, words or objects to aid recall. Most emotional memory is a result of cued recall, for example a smell can trigger a particular memory from your past. Smells can be potent triggers of both negative and positive memories.
- Context dependent retrieval explains that there is a greater chance of recall if the individual is in the same or similar context that they were when they learnt the information. This type of recall is often used in eyewitness testimony, whereby a crime scene might be recreated and played on TV in an effort to jog the public's memory.
- State dependent retrieval informs us that retrieval of information is more likely to happen when the person is in the same physical or psychological state as when they learnt the information.

Flash bulb memory is a vivid recollection of a significant historical event, typically a high profile one. We tend to remember these events in the context of our personal experiences. Two recent examples in 2017 are the Manchester arena bombing at an Ariana Grande concert and the Grenfell Tower fire. Most people will have an instant image in their head of these events that pops up like a flash bulb. The most significant factor of flash bulb memory is that the event/memory is emotionally arousing. They might have a personal memory or emotion attached to the recollection of those events such as where they were when they heard the news and what they were doing. They might even remember a specific detail like a smell or the clothes they were wearing.

Flash bulb memory is not always 100% accurate. McCloskey et al. (1988) tested participants' memories immediately after the explosion of the space shuttle Challenger and then again nine months later. They found that the participants did forget details and there were some discrepancies between their recall earlier and their recall 9 months later. What seems to remain is the emotional impact. There also seems to be a stronger recall when the event is personal to the individual so for example if an individual lost someone in the Grenfell Tower fire or if lived in the community, their memory of the event is likely to be more accurate.

Exam Hint: *When thinking about emotions and forgetting, it would be useful to demonstrate a solid understanding of an inability to remember versus an unwillingness to remember.*

Repression

Repression simply put is when our memory in no longer available to us, it has been stored in our unconscious. Psychoanalyst Sigmund Freud (1856-1939) was one of the first to introduce the concept of repression. He suggested that forgetting in the form of repression serves an emotional purpose. It is a protective function that acts as a **defence mechanism.** Meaning that the things we forget would be emotionally painful for us to remember. We use defence mechanisms to protect ourselves from feelings of anxiety. This usually occurs when we feel threatened. They are not under our conscious control. Repression brings to mind the question, if we can force ourselves to forget, then why do we remember certain painful memories and

repress others? The answer seems to be evolutionary based, we forget the ones that pose a threat to us and remember the ones that we can learn from. It is also important to note that the memory we actively choose to forget is known as suppression whilst repression is believed to be an entirely unconscious process. Freud identified stages to repression. The first stage being primal repression, where our instincts (Id) are denied access to the conscious. The second stage known as repression proper, is more related to forgetting and the fact that the forgetting serves a protective purpose. The Ego seems to play a role in repression proper.

Repression demonstrates that forgetting is linked to our emotions and that we forget for good reasons, to protect ourselves. There are circumstances in which repression doesn't protect us from our more difficult memories. For instance **repetition compulsion**, which is when a person is significantly impacted by a traumatic event that they repeat/remember over and over again. This is a common symptom of Post-Traumatic Stress Disorder (PTSD). Individuals experiencing this often require some form of therapy to resolve this. Research into repression is somewhat limited as it involves individuals recalling traumatic events in their past and it would be unethical to make individuals go through this for the purpose of research. Therefore, a lot of the information we have on repression is based on an individual's account. It is also worth bearing in mind that with the research into repression, even if participants manage to recall a repressed memory, they might choose not to share it with the researcher.

Exam Hint: *When discussing the effects of emotion on memory such as repression and flash bulb memory. Be sure to explain how they relate to forgetting.*

Some final thoughts…

It would be fair to say that our emotions help us to retain and remember. Forgetting seems to be both an intentional and an unintentional act, depending on the memory and the emotion attached to the memory. Further research suggests that gender can influence emotional forgetting too. For example, it is suggested that women and men encode emotional experiences in different parts of the brain, and that women are more affected by emotional content and therefore more likely to remember more and for longer.

If our emotions are an important part of who we are as individuals then it is inevitable that our emotions would have a substantial influence on cognitive processes such as memory and forgetting. Emotions and forgetting are linked; the brain chemistry that is involved in remembering and forgetting is influenced by our emotions. For example, when we feel afraid, physiological changes take place in our brain and bodies to help us survive the perceived threat. So, whilst the brain plays a crucial role in forgetting, it is an interactive organ, based on our emotional chemistry. It would be inaccurate to simply assume that our ability or inability to remember is solely down to a brain function. Humans are far more complex than that.

Glossary

Amnesia: This is a memory deficit caused by brain damage, disease or psychological trauma.

Amygdala: A roughly almond-shaped mass of grey matter inside each cerebral hemisphere, involved with the experiencing of emotions.

Autobiographical memory: Memory for the events of one's life.

Capacity: The amount something can hold, in this context, the amount a memory can hold.

Cue dependency: The failure to recall without memory cues.

Defence Mechanisms: An unconscious mental process designed to protect us from painful memories/truths.

Emotional Memory: When there is an intense feeling/emotion attached to a memory.

Explicit Memory: The (conscious) recollection of factual information in long term memory.

Flash bulb memory: A distinct recollection a person has in relation to a dramatic event or circumstances.

Hippocampus: The elongated ridges on the floor of each lateral ventricle of the brain, thought to be the centre of emotion, memory, and the autonomic nervous system.

Interference: Where the learning of new information interacts with old learning/memories.

Implicit memory: A memory typically related to a skill that is acquired and used unconsciously. It allows you to do things by rote such as driving a car.

Mood congruence effect: A memory process that selectively retrieves memory that matches an individual's current mood.

PTSD: Post-Traumatic Stress Disorder is an anxiety disorder caused by significant/extreme stressful, frightening or distressful events.

Repression: The action or process in which an individual suppresses a thought or an experience so that it remains unconscious (becomes forgotten).

Rehearsal: A cognitive process in which information is repeated over and over again as a way of learning it.

Repetition compulsion: An unhealthy process in which an individual relieves/repeats a traumatic event over and over again.

State dependent memory: When memory recall is most efficient when an individual is in the same state of consciousness they were when the memory was created.

Trace decay theory: Memory fades due to the passage of time.

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Worksheet: The Role of Emotion in Forgetting

Name: _____

1. Critically discuss the role of emotion in short-term memory.

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2. Critically discuss the role of emotion in long term memory.

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3. What is the role of the amygdala and hippocampus in forgetting and how does this relate to our emotions?

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4. Define the term repression?

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5. Repression is important in protecting our emotional well-being. Discuss.

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