Psychology transition work task 1

Why does the human brain create false memories?

By Melissa Hogenboom Science reporter, BBC News

A doctored photo made many people believe they had been on a real hot air balloon ride

Human memory constantly adapts and moulds itself to fit the world. Now an art project hopes to highlight just how fallible our recollections are. All of us generate false memories and artist AR Hopwood has been "collecting" them. For the past year he has asked the public to submit anecdotes of fake recollections which he turns into artistic representations. They have ranged from the belief of eating a live mouse to a memory of being able to fly as a child. One man who wrote in wrongly believed his girlfriend had a sister who died while at the dentist. So strong was his conviction that he kept all his dentist visits secret. He wrote: "Over dinner one day she said she was going to the dentist the next week. It all went quiet at the table and my mum said it must be hard for her to visit the dentist after what had happened."

The false memory archive

A selection of anonymous false memories:

I remember biting into a mouse when I was four [and living] in Indonesia in order to make my brother be quiet... A mouse ran by and I bit into it. Blood filled my mouth and ran down my face.

I remembered that I saw a green comet on the sky through the window.

Watching the first Moon landing. I clearly remember it, from inside a playpen. But... I was three, and asleep in another room.

I can remember being able to fly as a small child. For years, in my teens I really struggled to accept that this wasn't a real memory.

This is hardly a rare case. Neuroscientists say that many of our daily memories are falsely reconstructed because our view of the world is constantly changing.

Imagination trick

Subtle cues can easily steer our memories in the wrong direction. A famous experiment carried out by Elizabeth Loftus in 1994 revealed that she was able to convince a quarter of her participants they were once lost in a shopping centre as a child. Another similar experiment in 2002 found that half of the participants were tricked into believing they had taken a hot air balloon ride as a child, simply by showing them doctored photographic "evidence".

Participants readily believed they had once been lost in a shopping centre when presented with "evidence"

This work was carried out by Kimberley Wade at the University of Warwick, UK. For the current project she was asked by Mr Hopwood to take part in a real hot air balloon ride, video and images of which are now exhibited in his show. She says she was very excited to take part.

"I've been studying memory for more than a decade, and I still find it incredible that our imagination can trick us into thinking we've done something we've never really done and lead us to create such compelling, illusory memories," she says. The reason our memories are so malleable, Kimberley Wade explains, is because there is simply too much information to take in. "Our perceptual systems aren't built to notice absolutely everything in our environment. We take in information through all our senses but there are gaps," she adds." So when we remember an event, what our memory ultimately does is fills in those gaps by thinking about what we know about the world."

Lost keys

For the most part false memories are about everyday situations with no real consequences except the occasional disagreement with a friend or partner about trivial things like who lost the keys, again. But sometimes, false memories can have more serious ramifications. For example, if an eyewitness testimony in court contributes to a false conviction.

A simple test

- Say the following words to a friend: *bed, rest, awake, tired, dream, wake, snooze, blanket, doze, slumber, snore, nap, peace, yawn and drowsy*
- Later, ask your friend to recall the words they heard
- How many incorrectly listed *sleep* as one of the initially given words?

A study found that participants recall the word sleep with about the same probability that they remember other words from the list.

Forensic technology has now led to many such convictions being overturned. **The Innocence Project** in the US campaigns to overturn eyewitness misidentification and lists all the people who have subsequently been acquitted. The project reports that there have been 311 post-conviction DNA exonerations in the US, which includes 18 people who were sentenced to death before DNA evidence was able to prove their innocence.

Christopher French of Goldsmiths University in London says there is still a lack of awareness of how unreliable human memory is, especially in the legal system. "Although this is common knowledge within psychology and widely accepted by anybody who has studied the literature, it's not widely known about in society more generally," he says." There are still people who believe memory works like a video camera as well as people who accept the Freudian notion of repression - that when something terrible happens the memory is shoved down into the subconscious." But the evidence of repressed memories, he adds, is "very thin on the ground".

A psychologist's memory of her hot air balloon ride features in the exhibition

Prof French was also involved in the memory project. He hopes it will create more awareness of the malleability of human memory. So too does AR Hopwood. He says he was fascinated to learn that people could strongly believe in an entirely imagined event.

"What's interesting is that the submissions become mini-portraits of the person (albeit anonymously) yet the only thing you are finding out about this person is something that didn't actually happen. So there's a lovely paradox there which I'm very drawn to as an artist," he says.

Saving us from the tiger

According to another researcher, the errors the human brain makes can sometimes serve a useful purpose. Sergio Della Sala, a cognitive neuroscientist at the University of Edinburgh, UK, says it can be thought of in the following way. Imagine you are in the jungle and you see some grass moving. Humans are likely to panic and run away, with the belief that there could be a tiger lurking. A computer, however, might deduce that 99% of the time, it is simply the wind. If we behaved like the computer, we would be eaten the one time a tiger was present. "The brain is prepared to make 99 errors to save us from the tiger. That's because the brain is not a computer. It works with irrational assumptions. It's prone to errors and it needs shortcuts," says Prof Della Sala. False memories are the sign of a healthy brain, he adds. "They are a by-product of a memory system that works well. You can make inferences very fast."

Complete the following tasks:

1) Use the article to explain how false memories are created (2 marks). *Additional information can be found at - http://psychology.about.com/od/findex/g/false-memory-definition.htm*

2) a – Define what an eye-witness testimony is (1 mark)

b - What is the importance of a person creating a false memory of an event when the information generated could be used to convict another person of a crime? (2 marks)

3) Research **one example** of an innocent person being convicted of a crime based on inaccurate information provided by an eye-witness. Provide a brief summary of what happened here (e.g. what crime was the person convicted of, how long a sentence did the convicted serve before they were acquitted etc.) (4 marks)
Helpful information can be found at http://triblive.com/state/pennsylvania/6239810-74/eyewitness-testimony-brown

4) Elizabeth Loftus is a well-known Psychologist who specialises in the field of researching how people create false memories and how reliable people are at giving eye-witness statements.
Research **one piece** of research by Loftus into **either** the creation of false memories or the reliability of eye-witness testimony. Briefly summarise what Loftus did and what she discovered. (5 marks)

Examples of research can be found here (alternatively you can research others) –
http://www.simplypsychology.org/loftus-palmer.html
http://www.youtube.com/watch?v=PQr_IJvYzbA

TOTAL - /15

Stretch & Challenge…..

You could choose to take your understanding of this important area in Psychology further by completing these two extension questions!

5) Using the article, explain why making false memories are unavoidable. Are there any evolutionary benefits of creating such false memories? (2 + 2 marks)

6) One way of improving the reliability of the statements witnesses give is through the use of a police interviewing technique called the Cognitive Interview. Psychologists in the 1980's worked with different police forces to devise this interviewing technique.

Use the links provided to give a brief summary of what the Cognitive Interview is, and how it is used to improve the reliability of eye-witness testimonies. (3+3 marks)

http://www.psychteacher.co.uk/memory/cognitive-interview.html
http://www.simplypsychology.org/cognitive-interview.html

EXTRA MARKS AVAILABLE - /10

Psychology transition work task 2

Topic – Attachment

AQA Specification Link: Stages of attachment identified by Schaffer. Multiple attachments and the role of the father. (AQA is the exam board, & this section on your worksheets gives you info about what you need to learn)

Grade	Learning Aim	R A G	
		Check 1	Check 2
A-C	To evaluate the study.		
A-C	To effectively summarise information		
All (A-E)	To gain knowledge of a 'star study' (important piece of research) that you will be studying on the course.		

These columns will be completed in class

Your task: read the information below and answer the questions on separate paper

Schaffer and Emerson (1964):

Study on the Development of Attachments in Babies

Schaffer and Emerson are the surnames of the psychologists who conducted this study. The correct way to refer to studies is by the surname and then the year of the study. However, as you don't need to learn the years for the exam, I don't give this information on your worksheets very often.

Schaffer and Emerson (1964) conducted a classic study of attachment and they wanted to see the gradual development of attachment. They studied 60 Scottish babies from a mainly working-class area of Glasgow. It was a longitudinal study visiting the babies monthly for the first year of their lives and then visiting them again when they were 18 months old. During these visits, the babies were observed in their own homes and interviews were conducted with their mothers. Schaffer and Emerson used two measures to determine the strength of attachment:

- **Separation anxiety**: this was the distress shown by the infant when separated from their main caregiver. This is regarded as a sign of attachment because infants only show such distress when separated from certain people. Schaffer and Emerson asked the mothers about situations where separation protest was shown.
  They asked the mothers to consider everyday situations and rate them on a 4-point scale (from 0 = 'no protest shown' to 3 = 'cries loudly every time'). These situations included being left alone in a room, left with other people, left in their pram outside the shops, left in their cot at night etc.

- **Stranger distress**: Very young infants show no anxiety when they are left with a stranger, but at a certain age, this stranger anxiety starts. Schaffer and Emerson regarded this as another sign of the onset of attachment. Schaffer and Emerson measured stranger anxiety by approaching the infant at the start of every visit and noting what point the infant started to whimper, therefore display anxiety.

Schaffer and Emerson's findings were as follows:

- **Age of first attachment**: Half of the children showed their first specific attachment (i.e. they displayed separation anxiety with respect to one primary caregiver) between 6 and 8 months. Fear of strangers occurred about a month later in all the children.
- **Attachment figures**: After their first attachment was formed, most babies went on to form multiple attachments with a variety of people they saw regularly, such as grandparents, siblings etc. By 18 months, very few (13%) just had the one attachment, and one third of infants had five or more attachments.
  For most babies (65%) the first attachment was to the mother. Fathers were unlikely to be the first attachment figure (3%). Just over a quarter of babies (27%) formed 'joint attachments' (i.e. to both mother and father) at the same time.

- **Who do children bond with:** Attachments seemed to be formed with individuals who were prepared to play, be responsive and interact socially with the child, rather simply with those who were most often present.

The three main conclusions are these:

- Specific attachments appear to be formed first around the age of 7 months
- Multiple attachments develop soon afterwards
- Attachments are likely to be formed with those people who are most sensitive to the baby's needs; they do not necessarily attach to those people who spend most time with them.

Two strengths of the study:

- This study has provided valuable information about the process by which attachments are formed.
- Schaffer and Emerson used a variety of methods of data collection – observation and interview – and these methods provide data that is very rich in detail.

Task –answer the following questions on separate paper. **Total = 12 marks**

1. What does longitudinal mean? (1 mark)

2. Name the two measures of attachment used by Schaffer and Emerson. (1 mark)

3. At what age did children tend to develop their first specific attachment? (1 mark)

4. Why do you need to be cautious about generalising these findings to other children? (Hint - this information isn't given explicitly…you need to think about the sample of children and mothers used.) (2 marks)
   Study tip – you are moving up to studying at sixth form, and Qu 5&6 gets you thinking about the information. Don't expect all the answers to be easy, or to be given to you – sixth form study is more difficult than GCSE and you need to approach all your work with a willingness to think deeply and actively work out answers.

5. Schaffer and Emerson used interviews as a technique to gather data on the children they were studying. Why might this method give biased data? (Hint – who did they interview, and why might those people give biased answers?) (2 marks)

6. Summarise the findings of this study in a format of your choice. (3 marks)
   Study tip – learning the key facts and figures for psychological research is very important. Just reading them on this sheet will not have created a permanent memory of them. To learn and recall information you need to 'actively process' it – this means do something with it. So, that's the purpose of this question. You could put the percentages in a table, do a bar chart, spider diagram, colourful visual summary etc etc.

7. Summarise this research study in 551 (5 sentences, then 5 words then just 1 word). (2 marks)
   Study tip – another question that is designed to help you actively process information. Be warned – this task sounds easier than it is!