**Flashbulb memories:** Brown & Kulik (1977) defined flashbulb memory as a highly detailed, exceptionally vivid "snapshot" of the moment when a surprising and emotionally arousing event happened. They argued for the existence of a special biological memory mechanism that, when triggered by an event exceeding critical levels of surprise, creates a permanent record of the details and circumstances surrounding the experience. This implies that flashbulb memories have different characteristics than "ordinary memories." They also argued that the memories are resistant to forgetting.

The original theory by Brown & Kulik was rather vague about the "biological mechanism" that plays a role. Modern research suggests the role of the amygdala.

1. **Brown & Kulik's**

**Aim:** Brown & Kulik proposed that some events can be remembered as though our mind had photographed them - what they called flashbulb memories. They argued that these memories were caused when the event not only was surprising, but was of personal relevance to the life of the individual. They also argued that there must be a biological mechanism that led to the creation of these memories, but the following study did not investigate a biological component.

The aim of their classic 1977 study was to investigate whether surprising and personally significant events can cause flashbulb memories.

**Procedure:** The researchers asked 40 black and 40 white American male participants to fill out a questionnaire regarding the death of public figures - such as President John F Kennedy and civil rights leader Martin Luther King Jr - as well as of someone they personally knew. They were asked a series of questions about the event including:

•Where were you when you heard about the event?

•Who was with you when you head about the event?

•What were you doing when you heard about the event?

•How did you find out about the event?

•How did you feel when you heard about the event? (to indicate level of emotion)

•How important was this event in your life? (to indicate personal relevance)

•How often have you talked about this event? (to indicate rehearsal)

The study was carried out in 1977. President Kennedy was assassinated on November 22, 1963 and Martin Luther King was assassinated on April 4, 1968.

**Results:** The researchers found that 90% of the participants recalled a significant amount of detail about the day when these events occurred. Most participants had very detailed memories of the death of a loved one. However, there was a difference in their memories of teh assassination of public officials, based on the personal relevance of the event to the participant. 75% of black participants had flashbulb memories of the murder of Martin Luther King, compared to 33% of white participants

**Evaluation:** The study was one of the first to attempt to empirically test the existence of flashbulb memories. It has led to a large amount of further research. The procedure could be replicated, allowing us to determine if the results are reliable. The questionnaire was retrospective in nature - that is, it was self-reported data that relied on the memory of the individual and could not be verified for accuracy by the researchers. It is not possible to actually measure the role of rehearsal in the creation of the memories. Social desirability may have played a role in the responses given by the participants. The study shows sampling bias; it is difficult to generalize the findings as only American males were studied. The study had both gender and cultural bias. More recent findings show that collectivistic societies may have lower rates of FBM

**2. Neisser & Harsch** challenged the prevailing belief in flashbulb memory and argued that they were also prone to significant distortion. In order to do this, he had students recall their reactions to the Challenger disaster – an accident on January 28, 1986 in which a space shuttle exploded in space, live on television. The event was being watched around the world. One of the most celebrated members of the crew was a school-teacher named Christa McAuliffe.

**Procedure:** On the morning after the Challenger disaster – less than 24 hours after the event - 106 Emory University students in an introductory psychology course were given a questionnaire at the end of the class. They were asked to write a description of how they heard the news. On the back of the questionnaire was a set of questions based on Brown & Kulik’s (1977) “canonical categories” of flashbulb memory. The questions were:

•What time was it?

•How did you hear about it?

•Where were you?

•What were you doing?

•Who told you?

•Who else was there?

•How did you feel about it?\*

•How did the person who told you seem to feel about it?\*

•What did you do afterward?

2 ½ years later they were given the questionnaire again. 44 of the original students - 30 women and 14 men - were now seniors at the university. They were not told the purpose of the study until they arrived. They were given the original questionnaire to fill in again. This time they were also asked for each response to rate how confident they were of the accuracy of their memory on a scale from 1 (just guessing) to 5 (absolutely certain).

They were also asked if they had filled out a questionnaire on this subject before. Incredibly, only 11 participants or 25% said yes!

Seeing that there were discrepancies, semi-structured interviews were carried out a few months later in order to determine if the participants would repeat what they had written a few months earlier or revert to the original memory. The interviews were taped and transcribed. The interviewer presented a prepared retrieval cue with the hope of prompting the original memories. Participants whose 1988 recall had been far off the mark were given a cue based on their original records; for example, the interviewer might ask “Is it possible that you already knew about the explosion before seeing it on television?”

At the end of the interview the participants were shown their original 1986 reports in their own handwriting.

Results: The researchers were surprised to see the extent of the discrepancies between the original questionnaire and the follow-up 2 ½ years later.

In order to come up with a “score,” the researchers looked at the seven “content” questions – that is, not the two that are about emotion (see asterisks above) – and gave a point if they matched the original response. The maximum total response was then 7.

The mean score was 2.95/7.0. Eleven participants scored 0. Twenty-two of them scored 2 or less. Only three participants scored the maximum score of 7. What is interesting is that in spite of the lack of accuracy, the participants demonstrated a high level of confidence. The average level of confidence for the questions was 4.17.

For the most part, participants told the same story in the spring as in the fall, when they were interviewed. Additional cues had little effect on accuracy. When presented with the original questionnaire, participants were surprised and could not account for the discrepancies.

**Discussion :** This study has the advantage that it has high ecological validity. The participants were not manipulated in any way, but were simply asked to respond to an event which they had personally experienced in some way. This was a naturalistic study and does not suffer from the artificiality of many memory studies which are done in laboratories.

This study appears to support the theory that memory is reconstructive in nature. The participants remembered the event, but the event was not the occasion on which s/he first heard of the explosion. For example, a participant first heard the news in class. Two years later she had forgotten this, but remembered watching television in her room. Because this is all that she could remember, she believed that it was when she first heard the news. Because her memory was so vivid, she gave it a high confidence rating.

Though the level of accuracy is pretty well established, the levels of confidence are potentially problematic. It is possible that confidence levels were higher than they should have been as a result of demand characteristics – that is, since the participants were asked to verify their level of confidence, they could have increased their ratings to please the researcher or to avoid social disapproval for claiming not to remember an important day in their country’s history.

The nature of the study makes it difficult to replicate, since it would require that the same event would be looked at in the same manner. This, of course, is not possible. There are, as mentioned in the background section above, several studies of different events – like September 11th – which appear to yield the same results. This is demonstrates the transferability of the findings of this study to other situations.

1. **Kulkofsky et al (2011)** carried out a study of the role of culture in flashbulb memory.

**Procedure:** The researchers studied five countries - China, Germany, Turkey, the UK and the USA - to see if there was any difference in the rate of flashbulb memories in collectivistic and individualistic cultures. The sample was made up of 274 adults from five different countries. All participants were identified as "middle class."

First, the participants were given five minutes to recall as many memories as they could of public events occurring in their lifetime. The events had to have occurred at least one year ago. The researchers then used this list of events to create a "memory questionnaire." They were asked five questions about how they learned about the event that mirrored the original questionnaire used by Brown & Kulik (1977). The questions were:

Where were you when you first learned of the event? What time of day was it? How did you learn about it? What were you doing at the time that you learned about it?

Whom were you with?

They were then asked to answer questions about the importance of the event to them personally. The questions included:

How nationally or internationally important was the event? How personally important was the event? How surprising was the event? How many times have you talked about the event since it happened?

The survey and instructions were constructed in English and then translated and back-translated into Mandarin Chinese, German, and Turkish by bilingual research assistants. For example, that means that after they were translated into Mandarin Chinese by one of the research assistants, a different native speaker would be given the questions and ask them to translate them back into English. In this way, we can guarantee that the translation was not a confounding variable.

**Results:** The researchers found that in a collectivistic culture like China, personal importance and intensity of emotion played less of a role in predicting FBM, compared with more individualistic cultures that place greater emphasis on an individual's personal involvement and emotional experiences. Because focusing on the individual's own experiences is often de-emphasized in the Chinese context, there would be less rehearsal of the triggering event compared with participants from other cultures - and thus a lower chance of developing a FBM. However, it was found that national importance was equally linked to FBM formation across cultures.

**Evaluation:** A representative of the culture administered the test and the questionnaires were given in the native languages of the participants. This avoids interviewer effects. It also meant that since they were responding in their native language - and the language in which these memories were mostly created - the participants were more likely to recall these memories.

The study used back-translation to make sure that the translation of the questionnaires was not a confounding variable. This increases the credibility of the study.

There is the danger of the ecological fallacy - just because the participants come from the culture being studied, this does not mean that they necessarily share the traits of the culture's predominant dimensions - that is, just because I am American does not mean that I process flashbulb memories like other Americans.

It is an etic approach to researching cultural difference. It is possible that cultural factors affected how information was self-reported. It cannot be verified in this study whether those personal memories actually exist but were not reported.

**Evaluation of the theory:**

There is biological support for the theory, although the research is correlational in nature and does not demonstrate cause and effect.

The biological mechanism is not well explained.

Neisser argues that it is one's level of confidence, not accuracy, which defines FBM.

There are cultural differences that demonstrate that rehearsal may play the most important role in the development of FBM. We will see this in our next lesson.

Brown and Kulik's research is problematic because it is impossible to verify the accuracy of the participants' memories. This is why Neisser and Harsch's study is so important.