

SAQ Questions on Cognitive Perspective

Question 1

Outline *one* key concept from the cognitive perspective and show how it can be used to explain behaviour (8 marks)

One of the key concepts from the cognitive perspective is schema which is used to explain memory processes. Schema is defined as an integrated mental network of knowledge, beliefs and expectations concerning a particular topic or aspect of the world. The concept of schema was first used by Bartlett (1932) in his schema theory which has largely contributed to our understanding of everyday memory. His schema theory suggests that all new information interacts with old information represented in the schema, that is what we remember is influenced by our existing knowledge and experience. Thus schemas have an influence on our behaviour. Schemas are assumed to operate in a 'top-down' way to help us interpret the 'bottom-up' flood of information reaching our senses from the outside world. This was highlighted in Bartlett's study 'The War of the Ghosts' where a native-American story was told to participants of another culture. Bartlett wanted to find out what people remembered and how. He used the methodology of serial production and Bartlett found characteristic changes in the reproduction of the story such as the story became noticeably shorter and more coherent after six or seven reproductions. In addition, the story became more conventional and clichéd, that is like a traditional story. He also found that the story of 'The War of the Ghosts' was difficult for Western people to reproduce exactly because of its cultural content which was unfamiliar to them so in fact they encoded the meaning of the story adapted to their existing cultural schemas. As a result Bartlett concluded that interpretation plays a large role in remembering events or stories. We reconstruct the past and try to make it fit into our schemata, the more difficult this is to do, the more likely it is that elements are forgotten or distorted so that it fits and remembering is integrally related to the social and cultural context in which it is practiced. The concept of schema has demonstrated explanatory strengths in explaining shows how schemas may influence remembering.

Question 2

A: Identify *one* research method used by psychologists working within the cognitive perspective and describe how this method has been applied in *one* empirical study (4 marks)

B: Give one strength and one limitation of the method described in part A. (4 marks)

A: One research method used by psychologists working within the cognitive perspective is the laboratory experiments that involve the manipulation of an independent variable to see what effect it has on the dependent variable, while attempting to control the influence of all other extraneous variables. This is considered to be a reductionist approach if it is investigating one variable in isolation but it is often preferred because this makes it possible to establish a cause-effect relationship, thus abiding to the assumptions of determinism. One study in which the laboratory experiment is applied was done by Ebbinghaus (1885). His experiment intended to show that pure memory could be studied scientifically under carefully controlled conditions. The aim of the study was to study forgetting, i.e. how quickly a person forgets what has been learned 100%. He used himself in most of the studies, i.e. the design was N=1 and he tested his memory using nonsense syllables. He manipulated the independent variable of 'time delay before recall' to find the effect on the dependent variable of 'the amount of information retained' thus being able eventually to draw the famous 'forgetting curve'.

B: One of the strengths of the laboratory experiment in general – and here in relation to the cognitive perspective, done by Ebbinghaus (1885) is that the laboratory increases control of variables and accurate measurements of variables which assures more more objectivity. This is considered to be the most scientific approach by many researchers within the cognitive perspective and Ebbinghaus' study has been a model for rigorous control and a well designed experiment in cognitive psychology. However, the strength is also one of the limitations of Ebbinghaus's laboratory experiment in that rigorous control often creates artificiality. The reductionist approach dealing with studying memory processes in isolation and using stimuli that does not make sense in real life fails to address the complexity of how memory works, i.e. it lacks ecological validity. Ebbinghaus' study thereby is like many studies in the cognitive perspective because the deliberate choice of a reductionist approach with focus on pure cognitive processes cannot account for the many different ways people remember – or forget.

Question 3

Examine controversies related to research within the cognitive perspective (8 marks)

The controversies related to research within the cognitive perspective are mainly concerning the heavy focus on laboratory memory research. Ebbinghaus started the tradition of laboratory experiments on memory where the focus was on variable control and the cognitive process alone. This has raised criticism among psychologists for being artificial. In 1978 Ulric Neisser drew the attention to the problem of 'artificiality' in memory research and the fact that results did not say much about everyday memory issues due to the lack of ecological validity in laboratory research. Eye witnessing is one area to which memory research has been applied with some success. Loftus carried out a number of experiments which showed the unreliability of eyewitness testimony but her research has been criticised for flaws in methodology, her focus on memory's fallibility and to some extent lack of ecological validity because of the artificial lab setting.

Another example of controversy- here concerning ethics- could be the case study by Curtiss (1977) on the effects of isolation in young children in terms of cognitive development, e.g. language. The case study of Genie found when she was 13 years old showed that she had no language and that her intellectual development was far behind children her age. Her history was one of isolation, severe neglect and physical restraint; she was kept strapped to a child's potty in an attic and was punished by her father for making any sound. She was described by Curtiss as 'unsocialised, primitive and hardly human' and she made almost no sounds and was hardly able to walk. Genie was used for a long period as 'participant' in several scientific studies where interventions to develop her language did never really succeed and this was taken as evidence in support of a critical period in language learning. It could be argued how ethical it was to use Genie in scientific research, esp. since she was later more or less abandoned in a home as the funding dried out.

Question 4

Identify important factors that gave rise to the cognitive perspective (8 marks)

Cognitive psychology began to really develop in the mid-1950s because there was a growing dissatisfaction with the behaviourist approach since it became more and more clear that the doctrine of behaviourism was an obstacle to understanding cognitive abilities. Other important factors that gave rise to the cognitive perspective were the computer revolution which meant that the computer analogy provided a more realistic basis of understanding human cognition since computers share some of the complexities of the human brain and psychologists developed increasingly ingenious experimental tasks, which permitted much more accurate assessment of cognitive processes being used by a participant in e.g. memory. Another factor which was responsible for the rise of cognitive

psychology was a military interest in cognition during the WW2 because they needed to have a better understanding of how such cognitive processes as attention worked, since there was a military necessity to know, for instance, how long a person could sit in front of a radar without making mistakes. One important step in the development of cognitive psychology and a challenge to behaviourism was the work of J.S Bruner who worked before the computers and he showed how human factors like e.g. expectations and language exerted their influence of what people perceived, social cognition. Research in cognitive processes had been continued from Ebbinghaus' famous study but there was no real interest of this area because of behaviourism. Koehler's study of insight learning and Tolman's on cognitive maps were also cognitive in essence but they did not make a real impact on research at the time before the so-called cognitive revolution. Bartlett (1932) also led research on cognitive grounds interpreting remembering in terms of schemas, a concept that was to become very important in memory research eventually. Early research within the cognitive perspective was Festinger et al. (1957) on cognitive dissonance showing the influence of cognitions on behaviour.

Question 5

Outline *one* basic assumption on which the cognitive perspective is based and choose one study that demonstrates how that assumption supports a cognitive explanation of human behaviour. (8 marks)

One of the basic assumptions on which the cognitive perspective is based is that all humans- like computers – can be seen as information processors and that these processes can be modelled and tested scientifically. Computers operate in terms of information-streams, which flow between different components of the system. This is conceptually similar to how we assume symbolic information flows through human information channels. The modern conception of computer as a 'thinking machine, with built-in intelligence that is able to operate flexibly on internal instructions, came from the vision of a brilliant young American mathematician, John von Neumann in 1945 where he said that the electronic circuits of the newly invented digital computer could be compared to the brain's neurons. He also realised that the computer's lines of program code were much like memories stored in the brain. This inspired Herbert Simon and Allen Newell to develop the first computer program that could stimulate human problem solving, (AI). They were also among the first to use 'verbal protocols', i.e. they asked people to think aloud while they were performing a task in order to record how humans went about solving problems. This offered an opportunity to 'see into the human mind' while it was working instead of having it reported afterwards. A working memory model suggested by Baddeley and Hitch (1974) supports the basic assumption above. Working memory is an active store to hold and manipulate information that is currently being consciously thought about. It consists of three components: The central executive-an attentional control system, the articulatory loop/the phonological loop-the rehearsal system (spoken/inner voice representations of information) and the visuospatial sketchpad-holds visual and spatial information. In a study by Baddeley and Hitch (1974) it was found that participants comprehension of prose while they were concurrently remembering sequences of zero, three or six unrelated digits was significantly impaired by the six-digit load but not the three-digit load. This study showed that reasoning time increased clearly and systematically with concurrent memory load. The effect of the concurrent task was not catastrophic on the functioning of STM which indicates that STM is not a single unitary store. Interpreted in terms of the computer analogy, this study can support the idea that human information processing follows certain rules just like the computer. It is important, however, to realise that humans are *not* computers in that we also tend to interpret the incoming information, e.g. on the basis of our existing schemas.

Question 6

Describe *one* theory or model within the cognitive perspective related to information processing and use an empirical study to illustrate the strength of the explanation (8 marks).

One models of information processing that helps in the understanding of one aspect of human behaviour is the Multi-store model of memory by Atkinson and Shiffrin (1968). In this three box model of memory, the memory process is described in terms of three interacting memory systems. Sensory memory retains incoming sensory information for second or two, until it can be processed further into short-term memory, if attention is paid. STM (short term memory) retains information only temporarily-for up to about 30 seconds. This information either transfers into long-term memory LTM) if rehearsed which is involved in long-term storage of information or decays and is lost forever. The information stored in LTM is retrieved in the STM for temporary use. This model compares the human mind (as an information processor) to a computer, liberally borrowing computer programming terms such as input, output, accessing and information retrieval. The three-box model has dominated research on memory since the late 1960s. However, some psychologists argue that just one system exists, with different mental processes called on for different tasks. Critics of the three-box model note that human brain performs many operations simultaneously, in parallel while the three-box has emphasised sequential operations like a computer. An empirical study by Murdock (1962) on 'The Serial Position effect', related to Long-term memory (LTM) provided evidence for the Multi-store model of memory. In his study, he presented the participants with a list of words at a rate of about one per second. They were required to free-recall as many of these as they could. Murdock found that the probability of recalling any word depended on its position in the list (its serial position). Participants typically recalled those items from the end of the list first, (the recency effect). Items from the beginning of the list were recalled quite well relative to those in the middle (the primacy effect), but not as well as those at the end. Poorest recall was for items in the middle (the asymptote). The primacy effect occurs because the items at the beginning of the list have (presumably) been rehearsed and transferred to LTM, from where they're recalled. The recency effect occurs because items currently in STM are recalled from there. Because STM's capacity is limited and can hold items for only a brief period of time, words in the middle are either lost from the system completely or are otherwise unavailable for recall. The strength of the three-box model of memory has been demonstrated several times and it has also been useful in studies dealing with e.g. amnesia.

Question 7

A: Evaluate the extent to which cognitive psychology is reductionist. (4 marks)

B: Use *one* empirical study to illustrate your point. (4 marks)

A: Reductionism is very common in science and it consists of reducing a phenomena to one level of explanation so that it is possible to study processes in isolation. Cognitive psychology is often said to be reductionist as it to a large extent focuses on pure cognitive processes, a fact that has raised criticism among psychologists for being artificial (lack of ecological validity). In addition, cognitive psychology is said to ignore the emotional life of humans, their conscious experience and possible use of free will. Furthermore, it ignores the huge complexity of human functioning compared to computer functioning and neglects the biological influences and grounding of mental processes. Despite of this, cognitive psychology investigates many areas of interest in psychology that has been neglected by behaviourism and bases its explanations firmly at a functional psychological level to explain human behaviour thereby introducing new ways of studying

cognitive processes that are including e.g. social and cultural contexts as well as the role of emotions in e.g. remembering.. Hence cognitive psychology is reductionist only to some extent.

B: One typical reductionist study could be a memory study by Hermann Ebbinghaus (1885). He intended to show that pure memory could be studied scientifically under carefully controlled conditions. He carried out an experiment on himself, N=1 and tested his memory by learning lists of 13 nonsense syllables. After the intervals ranging from 20 minutes to 31 days he retested himself and found that a large proportion of information in LTM was lost comparatively quickly (within the first hour) and thereafter stabilised to a much slower rate ('the forgetting curve'). Since this experiment was done under controlled lab conditions, it can be argued that it lacked ecological validity (the problem of artificiality), and since what the items to remember were nonsense, it is probable that the results did not say much about everyday memory issues such as e.g. why people seem to remember different things when they experience the same event. Ebbinghaus's focus on variable control and the cognitive process (pure memory process) alone showed cognitive memory research as reductionist. Later studies within more modern cognitive research, e.g. on 'flash-bulb memories' has demonstrated that it may be problematic to adopt a reductionist approach to memory when you want to say something about real life memory processes.

Question 8

Identify one theoretical explanation of behavioural change from the cognitive perspective related to one topic of your own choice and evaluate the strength of that explanation (8 marks)

One theoretical explanation of behavioural change from the cognitive perspective is cognitive dissonance theory, which deals with attitudes and how attitudes may affect behaviour. Attitude can be defined as a relatively enduring organisation of beliefs, feelings and behavioural tendencies towards socially significant objects, groups, events or symbols. Within the cognitive perspective, the concept of attitude is seen as a construct that precedes behaviour and guides our choices and decisions for actions. Attitudes are seen as enduring predispositions that are learned, and this means that they are susceptible to change. A consequence of this is that it should be possible to produce long lasting changes in behaviour by changing people's underlying attitudes. The cognitive dissonance theory suggested by Festinger (1975) has proved the most successful theory of cognitive consistency for making explicit predictions about selective exposure to attitude-relevant information. In general, dissonance theory predicts that people are motivated to expose themselves to attitude-consonant information and to avoid attitude-dissonant information in order to stabilise a decision, and in such a manner to maintain cognitive consonance or avoid cognitive dissonance. This cognitive dissonance theory has also been applied in the area of smoking, for example if someone really likes smoking cigarettes, she would be expected to avoid information that stressed the negative consequences of smoking, such as health problems. On the other hand, she would probably enjoy hearing about very famous people who also like smoking. Hence smoking cigarettes and knowing that smoking causes cancer can be dissonant cognitions. Therefore in order not to create tension or dissonance, attitude dissonant cognitions are avoided and consonant cognitions are selectively sought out. The theory of cognitive dissonance sees people as rationalising, trying to appear rational to both oneself and to others. Criticism has arisen from many parts, e.g. from impression management theory (Tedeschi and Rosenfield, 1981) who argue that much attitude change is seen as an attempt to avoid social anxiety and embarrassment or to protect the positive view of one's own identity. But in spite of this and other challenges, cognitive dissonance theory

remains one of the most widely accepted explanations of attitude change and many other social behaviour.

Question 9

Explain how findings from research within the cognitive perspective have been applied in real life situations.

Findings from research within the cognitive perspective have been applied in real life situations, e.g. in dealing with problems in eyewitness testimony. Elizabeth Loftus has taken Bartlett's idea of 'reconstructive memory' and investigated it mainly in relation to eyewitness testimony (EWT). Loftus argues that the evidence given by witness in court cases may be highly unreliable, and this is explained largely by the kind of misleading questions that witnesses are asked. In a research by Loftus and Palmer (1974), they demonstrated how leading questions affected people's memory. In their experiment, they showed people short films depicting car collisions. The researchers asked some of the viewers about how fast were the cars going when they hit each other. The word hit was replaced by 'collided' or 'smashed' in the other experimental conditions and there was a clear effect of the use of the different words in that the more violent words e.g. smashed produced higher average speed estimates. In fact, the participants had been misled by the wording of the interrogator. This was interpreted in terms of how leading questions of police detectives and lawyers might influence witness's recall and this have important implications for justice. Loftus's studies also show that witnesses may be subject to source misattribution. Loftus's research has been criticised for flaws in methodology, her focus on memory's fallibility and to some extent lack of ecological validity because of the artificial lab setting but this cannot eliminate the importance of her findings in terms of how you can apparently manipulate memory processes and the impact of her research is seen in the development of the cognitive interview where some of the factors that she points at has been corrected in order to ensure more correct witnessing.

Question 10

Describe *one* theory within the cognitive perspective related to information processing and use an empirical study to illustrate the strength of the explanation (8 marks).

One theory within the cognitive perspective related to remembering is schema theory. Schema theory is based on the concept of schema, a concept first used by Bartlett (1932) as part of his theory of reconstructive memory where he also introduced culture as an important factor in relation to schema processing. According to Bartlett, people search for meaning when they remember and he found that 'schema' could explain this. Schema is defined as an integrated mental network of knowledge, beliefs and expectations concerning a particular topic or aspect of the world. Bartlett's schema theory suggests that all new information interacts with the old information represented in the schema that is what we remember is influenced by our existing knowledge and experience. This was highlighted in Bartlett's (1932) study 'The War of the Ghosts' where the methodology of serial production was used. Bartlett found characteristic changes in the story including that the story became noticeably shorter, coherent, more clichéd and conventional. As a result Bartlett concluded that interpretation plays a large role in remembering events or stories. We reconstruct the past and try to make it fit into our schemata, the more difficult this is to do, the more likely it is that elements are forgotten or distorted so that it fits. The story of 'The War of the Ghosts' was difficult for Western people to reproduce because of its cultural content which was unfamiliar to them so in fact

they encoded the meaning of the story adapted to their existing cultural schemas. It seems from this study that schema is a powerful concept in terms of explaining what people remember and equally why distortions sometimes take place.

Remembering also seem to integrally related to the social and cultural context in which it is practiced as well as to schooling. A Cross-cultural study by Cole and Scribner (1974) on free-recall studied the development of memory among tribal people in rural Liberia. In their experiment, they used a list of objects that Liberian people had to freely recall. They found that unschooled children had a poor recall for the objects, whereas Liberian school children learnt the list rapidly and used categorical structures of the list to aid them recall. But when the same objects on the list were represented in a 'meaningful' way as a part of a story their unschooled Liberian children recalled them easily. This study thus strongly supports Bartlett's schema theory in that meaning as well as culture seem to play an important role in remembering.