

Candidate Style Answers January 2009

GCE Psychology

OCR Advanced GCE in Psychology H168

Unit G542: Core Studies

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SECTION A

1(a) Identify the independent variable (IV) in the first experiment conducted by Loftus and Palmer on eyewitness testimony.

- The IV in the first experiment was the verb used in the critical question relating to speed – smashed/collided/hit/bumped/contacted. [2]
- *The IV in the first experiment was the way the question was asked in the critical question* [1]

1(b) Outline how the independent variable (IV) was manipulated in this experiment.

- Each participant had to respond to a question estimating how fast two cars were going when they were involved in an accident. The question was “About how fast were the cars going when they _____ each other?” Participants had one of the following verbs in their question: smashed/collided/hit/bumped/contacted. [2]
- *Participants were asked to estimate how fast two cars were going when an incident occurred.* [1]

2 The study by Baron-Cohen, Jolliffe, Mortimore and Robertson on autism involved three groups of participants. Describe two of these groups.

Any 2 from the following:

- One group comprised of 16 participants (13 males, 3 females) with high functioning autism (4) or Asperger’s Syndrome (12). All were of normal intelligence. [2]
- *One group was made up of autistic people.* [1]
- Another group comprised 50 ‘normal’ adults (25 males, 25 females) who were matched by age with the 16 autistics. [2]
- *Another group was made up of ‘normal’ people.* [1]
- Another group comprised 10 adults (8 males, 2 females) with Tourette’s Syndrome who were matched by age with the 16 autistics. [2]
- *Another group was made up of people with Tourette’s Syndrome.* [1]

NB: At least 2 characteristics of a group needed to be identified to gain 2 marks.

3 From the study by Savage-Rumbaugh identify two pieces of evidence that suggest pygmy chimpanzees have a greater aptitude for symbol acquisition than common chimpanzees.

- Kanzi and Mulika’s understanding was not content dependent whereas Austin and Sherman’s was. [2]
- *Kanzi and Mulika’s understanding was not content dependent.* [1]
- Kanzi and Mulika used words correctly from the start whereas Austin and Sherman didn’t. [2]
- *Kanzi and Mulika used words correctly from the start.* [1]

4 Refers to a table of results by mean number of errors for the samuel and bryant study on conservation

4(a) Outline one conclusion that can be drawn from this table.

- Results show less errors were made by children aged 8 in all three conditions than children aged 5 so one may conclude that the ability to conserve increases with age. [2]
- *Less errors were made by children aged 8 in all three conditions than children aged 5.* [1]
- Results showed the fixed array condition produced the highest number of errors in all age groups so one may conclude that children of all ages have difficulty conserving number, mass and volume if they do not witness a transformation. [2]
- *The fixed array condition produced the highest number of errors in all age groups.* [1]

NB: A conclusion must be supported by results from the chart/ results from the chart must be linked to a conclusion to gain 2 marks.

4(b) Explain the purpose of the ‘one-question’ group.

- The purpose of the ‘one-question’ group was to show that children who fail the traditional (‘two-question’) conservation task do not necessarily do so because they cannot conserve – they may fail because repetition of the question (by a legitimate authority figure) makes them think they should give a different answer the second time. [2]
- *The purpose of the ‘one-question’ group was because the standard ‘two-question’ condition confused the children and made them change their answer.* [1]

5 In the study by Bandura, Ross and Ross, all the participants were taken individually into a second room and subjected to mild aggression arousal.

5(a) Describe how the children's aggression was aroused in this room.

- The children were taken into a second room and allowed to play with attractive toys e.g. fire engine, baby crib. After two minutes the experimenter said the toys had to be saved for other children, so took them away. [2]
- *The children were taken into a second room where toys were taken away from them.* [1]

5(b) Explain why the researchers felt this was necessary.

- This was necessary because the researchers wanted to provide a common basis of arousal for all the children regardless of whether they had witnessed an aggressive model or a non-aggressive model, or had not witnessed a model at all. [2]
- *This was necessary because researchers wanted to introduce a control for aggression.* [1]

6 In the study by Freud, Little Hans is referred to as a 'little Oedipus'.

6(a) Identify two features of the Oedipus Complex.

- A boy subconsciously wants to sexually possess his mother. [1]
- A boy subconsciously recognises he is in competition with his father. [1]
- A boy subconsciously wants his father out of the way because he fears that if his father finds out about his desire for his mother, he will be castrated. [1]

NB: No partial answers are acceptable here as only 1 mark can be gained for each identified feature.

6(b) Outline one piece of evidence from the study which supports the suggestion that Hans was a 'little Oedipus'.

- Hans had a phobia of horses which was seen to represent his fear of his father because horses with the blinkers in front of their eyes and the black around their mouths were symbolic of his father's glasses and moustache. [2]
- *Hans had a fear of horses which were seen to represent his father.* [1]
- Hans had a fear of being bitten by a horse which was seen as symbolising his fear of castration. [2]
- *Hans had a fear of being bitten by a horse.* [1]

7 The Maguire et al study on taxi drivers used MRI scans (Magnetic Resonance Imaging).

7(a) Explain what an MRI scan measured in this study.

- The MRI scan measured the volume of grey matter in the hippocampi of (London) taxi and non-taxi drivers. [2]
- *The MRI scan measured the volume of grey matter in the hippocampus.* [1]

7(b) Outline one piece of evidence that suggest the brains of taxi drivers are different from the brains of non-taxi drivers.

Either:

- Results showed the volume of grey matter in the posterior hippocampi of taxi drivers was greater than the volume of grey matter in the posterior hippocampi of non-taxi drivers. [2]

Or:

- Results showed the volume of grey matter in the anterior hippocampi of non-taxi drivers was greater than the volume of grey matter in the hippocampi of taxi drivers. [2]
- *The volume of grey matter in the brains of taxi drivers and non-taxi drivers was different.* [1]

8 Outline two ways in which Dement and Kleitman's laboratory experiment into sleep and dreaming can be said to be low in ecological validity.

- Participants were not allowed alcohol or caffeine on the day of the experiment which may not represent the way they normally behaved – they may have drunk alcohol and or ingested caffeine as part of their normal lifestyle. [2]
- *Participants were not allowed alcohol or caffeine on the day of the experiment.* [1]
- Participants had to sleep with electrodes attached near their eyes and on their scalp which does not reflect the way one normally sleeps. [2]
- *Participants had to sleep with electrodes attached near their eyes and on the scalp.* [1]

9 The study by Sperry investigated the psychological effects of hemisphere disconnection in split brain patients.

9(a) Describe how split brain patients responded to visual material presented to their right visual field (RVF).

- Patients were able to describe the materials in speech and writing. [2]
- *Patients were able to describe the material.* [1]

9(b) Outline one conclusion from this study.

- As participants were able to describe in speech and writing images flashed to their RVF which is linked to the left hemisphere, one can conclude that language skills are based in the left hemisphere of the brain. [2]
- *Language skills are based in the left hemisphere.* [1]
- As participants were able to describe in speech images flashed to their RVF which is linked to the left hemisphere one can conclude that the left hemisphere of the brain controls words and the ability to speak. [2]
- *The left hemisphere of the brain controls words and the ability to speak.* [1]

NB: A conclusion must be supported by results / results must be linked to a conclusion to gain 2 marks.

10 From Milgram's study of obedience:

10(a) Describe the sample used.

- Milgram's sample comprised 40 middle class, mainly white males, aged between 20-50 years, from a variety of jobs and educational backgrounds, who were drawn from the New Haven area of America. [2]
- *Milgram's samples comprised of 40 males.* [1]

10(b) Outline one limitation of this sample.

- As the sample was small (40) one cannot guarantee they were truly representative of the target population and so one should be wary of generalising the findings to the rest of the population. [2]
- *The sample was small (40).* [1]

11 Describe how the sample was recruited in Reicher and Haslam's (BBC) prison study.

- Male participants were recruited through advertising in the national press and through leaflets. Those who responded (332) then went through a 3-phase clinical, medical and background screening process to ensure they were neither psychologically vulnerable nor liable to put others at risk. This reduced the initial pool to 27 and the final 15 were the chosen by the psychologists to reflect a diversity of age, social class and ethnic background. [4]
- *Male participants were recruited through advertising in the national press and through leaflets. They were then screened to make sure they were suitable.* [3]
- *Male participants were recruited through advertising in the national press and through Study, Participants were recruited through advertising.* [1]

12 Outline two ethical issues raised by Piliavin, Rodin and Piliavin's subway Samaritan study.

- Issue 1= deception. Participants were deceived because they thought the student who collapsed on the train was either genuinely drunk or lame; they had no reason to believe he was acting. [2]
- Issue 2 = stress. Many participants may have experienced extreme stress when they witnessed the student collapsing near them, especially as they were in a confined train carriage and had no way of really escaping from the situation. [2]
- *Issue 1 = informed consent.* [1]
- *Issue 2 = no debriefing.* [1]

13 In Rosenhan's study. 'On being sane in Insane Places', health professionals in the first experiment made a Type 2 error (a false positive) in their diagnosis of the pseudopatients.

13(a) Describe the Type 2 error in this study.

- The Type 2 error was that health professionals classified the healthy pseudopatients as insane (schizophrenic) [2]
- *Health professionals made a wrong diagnosis.* [1]

13(b) Why does Rosenhan argue that it is worse to make a Type 2 error when diagnosing mental illness than physical illness?

- It is worse to make a Type 2 error when diagnosing mental illness than physical illness because psychiatric diagnoses carry personal, legal and social stigmas which are very difficult to get rid of e.g. once a person is diagnosed as 'schizophrenic' that label stays on their medical records for ever and even if they show no symptoms the best label they can be given is 'schizophrenic in remission'. [2]
- *It is worse to make a Type 2 error when diagnosing mental illness than physical illness because of the stickiness of psychiatric labels.* [1]

14 Thigpen and Cleckley investigated multiple personality disorder in one patient. Outline two limitations of the findings of this study.

- One limitation of the findings is that they may have been influenced by researcher bias. As the researchers were keen to find support for the existence of multiple personality disorder they may have misinterpreted Eve's behaviour to find support for the illness. This would therefore make the findings invalid. [2]
- *One limitation of the findings is that they may have been influenced by researcher bias.* [1]

- Another limitation of the findings is that as Thigpen and Cleckley only studied one person Eve White whom they found to have three personalities – Eve White, Eve Black and Jane; it is impossible to generalise these findings about multiple personality disorder. Other individuals who experience this disorder may display very different signs and symptoms. [2]
- *Another limitation is that as the researchers only studied one person the findings cannot be generalised.* [1]

15 The study by Griffiths investigated cognitive bias and skill in fruit machine gambling.

15(a) Identify two pieces of quantitative data gathered in this study.

- Total time (in minutes) each participant played on the fruit machine. [1]
- The amount of winnings made by each participant. [1]
- The total number of gambles made by each participant. [1]

NB: No partial answers are acceptable here as only 1 mark can be gained for each identified feature.

15(b) Outline one advantage of quantitative data as used in this study.

- The use of numbers allows statistics to be applied to results which then means comparisons between different groups of participants can be made. For example, in this study it was found that regular gamblers had a higher playing rate of 8 gambles per minute compared to non-regular gamblers who had a rate of 6 gambles per minute. [2]
- *The use of numbers allows statistics to be applied to results which means comparisons between different groups of participants can be made.* [1]



SECTION B

16 Choose one of the core studies below:

- **Samuel and Bryant: conservation**
 - **Milgram: obedience.**
 - **Baron-Cohen, Jolliffe, Mortimer and Robertson: advanced test of theory of mind: autism in adults**
- and answer the following questions:

16 (a) Briefly outline the previous research or event which was the stimulus for your chosen study.

Samuel and Bryant

* Piaget previously conducted a number of experiments which showed children's cognitive ability develops in stages. He found that children under the age of 7 were generally unable to conserve. However, as part of his experiment Piaget asked the same question twice which made other researchers such as Samuel and Bryant wonder if this question repetition confused the children and that, in reality children, younger than 7 can conserve if they are only asked a question once. [2]

Samuel and Bryant's study was a development of the experiments carried out by Piaget which showed that young children have difficulty conserving. [1]

Milgram

* The stimulus for Milgram's study was his concern over the Nazi atrocities of WW2. A common explanation for the Nazis' behaviour was that Germans were particularly obedient to authority figures. This suggestion prompted Milgram to test obedience to see if this suggestion could be true. [2]

The stimulus for Milgram's study was his concern over the Nazi atrocities of WW2. [1]

Baron-Cohen

* Baron-Cohen had previously carried out research on autistic children using the Sally-Ann test and found that the majority of autistic children did not display theory of mind skills. However he claimed the tests used with children were inappropriate for assessing the more advanced theory of mind skills found in adults. A new test (The Eyes Test) was therefore devised to test these skills in normal, autistic and Tourette's Syndrome adults. [2]

Baron-Cohen had previously carried out research on autistic children using the Sally-Ann test and found that the majority of autistic children did not display theory of mind skills. He now wanted to test adults. [1]

16(b) Describe how the sample in your chosen study was selected and suggest one advantage of using this sample.

Samuel and Bryant

* Samuel and Bryant used an opportunity sample of 252 boys and girls between 5 and 8½ years of age drawn from schools and playgroups in and around Crediton, Devon, England.

An advantage of using this sample is that because children of various ages were used, researchers were able to note how different conservation skills develop with age.

[3+3=6]

Samuel and Bryant used 252 boys and girls from schools in the Devon area of the UK.

An advantage of using this sample is that results can be generalised to children from the

Devon area.

[1+1=2]

Milgram

* Milgram selected his participants via newspaper advertisement and direct mail solicitation. From the original pool of 500 respondents he then selected 40 American males aged between 20 and 50 who represented a variety of occupations and educations.

An advantage of using this sample is that because the American male participants showed 'blind' obedience, Milgram was able to claim that German males were not actually any more obedient than other males in extreme/novel circumstances. [3+3=6]

Milgram used newspaper advertising and direct mail drops to gather his sample.

An advantage of this sample is that because all participants were males he could generalise his findings to all males. [1+1=2]

Baron-Cohen

* Baron-Cohen selected three groups of participants:

- 1) 16 high functioning adults with autism or Asperger's Syndrome were recruited from a variety of clinical sources and an advert in the National Autistic Society magazine 'Communication'.
- 2) 50 normal adults drawn from the general population of Cambridge selected randomly from a subject panel held by Cambridge University.
- 3) 10 adult patients with Tourette's Syndrome were recruited from a tertiary referral centre in London.

An advantage of using this sample is, because Baron-Cohen used both autistic adults and adults with Tourette's Syndrome, he was able to show that an impaired theory of mind was a specific deficit associated with the autistic spectrum and not other cognitive disorders[3+3=6]

Baron-Cohen used three groups of participants; adults with Asperger's Syndrome, normal adults and adults with Tourette's Syndrome, All participants were assumed to have intelligence in the normal range.

An advantage of using this sample is that Baron-Cohen was able to show that lacking theory of mind skills was not associated with intelligence.

[1+2=3]

16 (c) Explain why your chosen study can be considered a laboratory experiment.

Samuel and Bryant

* E.g. Samuel and Bryant's study can be considered at laboratory experiment because it took place in an artificial environment with specifically devised tasks to investigate conservation skills. Children were sat at a table and tested individually using counters (conservation of number), playdough (conservation of mass) and glasses of water (conservation of liquid), all of which were displayed in the same controlled and organised manner for every participant. The independent variables – age (mean age 5 years 3 months, mean age 6 years 3 months, mean age 7 years 3 months or mean age 8 years 3 months), experimental condition (the 'Standard' Piagetian group, the one-judgement group or the fixed array group) and the materials used (counters, playdough or water) were manipulated by the researchers so they could measure the dependent variable – the child's ability to conserve i.e. show cause and effect. A number of controls were enforced to make the tests fair such as systematically varying the order in which the children undertook the tasks to prevent order effects influencing the results and conducting four trials for each task to ensure the children understood what they had they had to do. The structured and systematic procedure meant

the study was easy to replicate, a characteristic of laboratory experiments.

[6]

Samuel and Bryant's study can be considered a laboratory experiment because it took place in an artificial environment and used tasks specially designed by the researchers. This meant the study lacked ecological validity, a characteristic of laboratory experiments. A number of controls were included to make the tests fair, including systematically varying the order in which the tasks were performed to prevent order effects influencing the results. Researchers manipulated the independent variables of age, experimental condition and materials so they could measure the dependent variable – the child's ability to conserve. The structured procedure meant the study could easily be replicated, another characteristic of laboratory experiments.

[4]

Milgram

*Although Milgram's study is actually a controlled observation it can be considered a laboratory experiment because it took place in an artificial environment (two rooms in Yale University) with specifically devised equipment (an electric shock generator) and tasks (the reading and learning of word pairs) to investigate obedience. A number of controls were enforced to make it a fair test e.g. the same experimenter played the authority figure each time, the same tape recording of responses was played for each participant, according to which switch was depressed to ensure everyone experienced the same feedback from the learner. As the procedure was standardised e.g. all participants initially 'drew lots' to see who was to be teacher and learner, the 4 prods used by the experimenter to encourage the participant to continue were used in the same order, the study could easily be replicated – a characteristic of laboratory experiments. Milgram was also able to suggest cause and effect – the reason participants (teachers) were prepared to punish learners was because they were obeying the commands of a legitimate authority figure.

[6]

Milgram's study can be considered a laboratory experiment because it took place in an artificial environment (Yale University) and used specially designed equipment (an electric shock generator). This meant the study lacked ecological validity, a characteristic of laboratory experiments. A number of controls were used to make the tests fair e.g. the same experimenter played the authority figure each time. The structured procedure meant the study could easily be replicated.

[3]

Baron-Cohen

*Baron-Cohen's study can be considered at laboratory experiment because it mainly took place in an artificial environment with specifically devised tasks to investigate theory of mind skills. Although some participants were tested in their own homes, others reported to either the researchers' clinic or a laboratory in Cambridge University – both of these environments being unfamiliar to participants making the study lack ecological validity, a characteristic of laboratory experiments. The Eyes Task was specifically designed for the test and lacked realism – individuals are not normally expected to read emotions merely from photographs of eyes. A number of controls were enforced to make the test fair for all participants e.g. the Eyes task, the Strange Stories and the two control tasks (gender recognition of eyes and basic emotion recognition task) were presented in random order to all participants to prevent order effects influencing results, the same 25 standardised photographs were presented in the same order to all participants. The independent variable was manipulated by the researchers using three different groups of participants – autistic adults, normal adults, adults with Tourette's Syndrome which allowed them to measure the dependent variable – performance on the Eyes Task. This allowed Baron-Cohen to identify cause an effect – the reason some individuals lack theory of mind skills is because they are autistic; and the standardised procedure e.g. showing each picture for 3 seconds and then asking each participant a forced choice question, meant the study could easily be replicated both of which are features of laboratory experiments. [6]

Baron-Cohen's study can be considered at laboratory experiment because it mainly took place in an artificial environment with specifically devised tasks (the Eyes Task) to investigate theory of mind skills. This meant the study lacked ecological validity, a characteristic of laboratory experiments. A number of controls were used to make the test fair and the same for every participant. The procedure was standardised which meant the study could easily be replicated. The independent variable was manipulated by having three groups of participants - autistic adults, normal adults, adults with Tourette's Syndrome which allowed them to measure the dependent variable, another characteristic of laboratory experiments. [3]

16 (d) Give one advantage and one disadvantage of conducting your chosen study in a laboratory.

Samuel and Bryant

*An advantage of conducting Samuel and Bryant's study in a laboratory was that it allowed a high level of control to be exercised which meant the study could be easily replicated, allowing reliability to be checked. For example the fact that once children had been allocated to one of the three conditions each participant effected all three tasks – number, mass and volume – in exactly the same way, using the same materials – counters, playdough and water, and systematically

controlling the order in which the children undertook the tasks prevented order effects influencing results. This standardised procedure meant the experiment could be easily repeated so researchers were able to see how the ability to conserve varied with age, situation and task.

A disadvantage of conducting Samuel and Bryant's study in a laboratory was that the controlled environment and unrealistic tasks made the study low in ecological validity, meaning results may not represent natural or normal behaviour. Sitting a child at a desk with a researcher who asks them to effect conservation tasks using rows of counters, balls of playdough and glasses of water does not reflect how children are asked to conserve number, mass or volume in real life. Results from such tests may therefore not represent a child's real ability to conserve which may actually be either greater or less than indicated. [3+3=6]

An advantage of conducting Samuel and Bryant's study in a laboratory was that it allowed a high control to be exercised that meant the study could be easily replicated. The procedure for conducting the conservation tasks was standardised so researchers could easily repeat to show how conservation skills differ in children.

A disadvantage of conducting Samuel and Bryant's study in a laboratory was that the controlled environment and unrealistic tasks made the study in low in ecological validity. The conservation tasks using counters, playdough and water were not tasks children usually do so the study lacked ecological validity. [2+2=4]

Milgram

*An advantage of conducting Milgram's study in a laboratory was that it allowed a high level of control to be exercised which meant the study could be replicated, allowing reliability to be checked. For example the fact that all participants were: given a 'test' 45 volt electric shock to give the impression the shock machine was genuine, asked to read out exactly the same set of words, and heard the same responses from the learner at each shock level via a tape recorder meant the situation was highly controlled and all participants were all treated in the same way. This standardised procedure meant the study could be easily repeated so researchers could see if results were reliable in different situations – Milgram did repeat his study in a different environment.

A disadvantage of conducting Milgram's study in a laboratory was that the controlled environment and unrealistic tasks made the study low in ecological validity, meaning the results may not reflect the way people behave in real life. Sitting a person in front of an electric shock machine, asking them to read out words to a another person (a learner) sitting in another room and then expecting them to punish the learner with an electric shock if they

did not remember the words correctly just because a man dressed in a lab coat, looking like a legitimate authority figure, is not the way we normally try to encourage obedience. Results gathered in this way may not represent obedience/disobedience levels in extreme situations in real life which may be greater or less than indicated. [3+3=6]

An advantage of conducting Milgram's study in a laboratory was that it allowed a high control to be exercised which meant the study could be replicated. Making all participants sit in front of the same shock machine, doing the same task in response to the same orders from the authority figure allowed Milgram to repeat the experiment and measure obedience levels.

A disadvantage of conducting Milgram's study in a laboratory was that the controlled environment and unrealistic tasks make the study low in ecological validity. Sitting people in front of electric shock machines and making them punish people with increasingly severe shocks when they could not correctly remember word pairs is not the way people behave in real life so the study lacked ecological validity. [2+2=4]

Baron-Cohen

*An advantage of conducting Baron-Cohen's study in a laboratory was that it allowed a high level of control to be exercised which meant the study could be replicated, allowing reliability to be checked.. For example the fact that all participants completed the Eyes Task, the Strange Stories and the two control tasks – the gender recognition task and the basic emotion recognition task, following the same standardised procedure and materials, and the fact that these tests presented in random order to prevent order effects influencing results meant the researchers had tremendous control during the study so all participants were treated in exactly the same way. This allowed the study to be repeated with 16 autistic adults, 50 'normal' adults and 10 adult with Tourette's Syndrome allowing Baron-Cohen to identify the effects of cognitive disability on theory of mind skills.

A disadvantage of conducting Baron-Cohen's study in a laboratory was that the controlled environment and unrealistic tasks made the study low in ecological validity, meaning the results may not reflect the way people respond in real life. For example all 76 participants were tested individually in a controlled environment – a quiet room in their own home, in the researchers' clinics or in a laboratory at Cambridge University, where they were shown the same 25 standardised photographs of eyes, each for exactly 3 seconds and then asked the same forced choice questions about mental state. The environment would have been strange for those tested in either the clinic or laboratory and may have been very disorientating for the autistic participants who do not generally cope well in such situations. Furthermore, the Eyes Task was unrealistic as one does not normally judge a person's emotional state from static black and white photographs of the eye region alone. These factors alone may have influenced the results making them unrepresentative of the participants' theory of mind skills which may be greater or less than indicated. [3+3=6]

An advantage of conducting Baron-Cohen's study in a laboratory was that it allowed a high level of control to be exercised which meant the study could easily be replicated.

A disadvantage of conducting Baron-Cohen's study in a laboratory was that the controlled environment and unrealistic tasks made the study low in ecological validity so the results may not represent the way people behave in real life. [1+1=2]

16 (e) Suggest how your chosen study could be improved.

Samuel and Bryant

*Samuel and Bryant's study could be improved by using a larger sample with a total number of 360 participants. They used 252 children ranging between 5 and 8½ which, when they were divided into the experimental groups meant there were only 21 in each group. A further improvement could be to ensure there are an equal number of boys and girls. The sample could be improved by drawing participants from both the United Kingdom and other countries around the world, not just from schools in Devon. These three improvements would make the results more generalisable. A further improvement could be to extend the age range both upwards and downwards e.g. include children as old as 10 and as young as 4. Including the experiments as part of a child's normal educational curriculum would improve the ecological validity of the study. The conservation of number could be tested during Maths sessions, the conservation of mass as part of a cookery session and the conservation of volume in a science session. This would make the both the environment and the tasks more realistic. If the experiments were also conducted by the children's usual teachers, they would behave more naturally and are unlikely to become stressed. They could also be informed about what was being tested and debriefed afterwards with the results. A further improvement would be to make the study longitudinal by testing the same children at 4,5,6,7,8,9 and 10 years age. [8]

The sample size could be increased, an equal number of boys and girls could be used and the study could be conducted in a greater number of geographical areas around Britain and the world. The experiment could be conducted in a natural environment such as the children's own classroom using materials with which they are familiar e.g. sweets instead of counters, pastry dough instead of playdough and fruit juice instead of water. The children's usual class teacher could conduct the tests making it more realistic. [3]

Milgram

*Milgram's study could be improved by using a larger sample. His original sample of 40 was not very large and made generalisations difficult. A further improvement could be to include females and males in equal numbers. The study could be conducted in areas other than just the New Haven area of America and other countries around the world, particularly Germany, the country he was trying to link his results to. These improvements would make findings more generalisable. The environment and task could be made more realistic so the ecological validity would be improved. It could be conducted in a supermarket. The fire alarm could be activated so all the shoppers had to leave the building as quickly as possible. If CCTV cameras and microphones were strategically placed observers could note obedience levels by noting how quickly men and women stopped what they were doing, how quickly they left the building, whether they left their shopping behind as instructions request, whether they argued with the shop-assistants' instructions etc. This improved ecological validity means the participants would behave more naturally. Each observer could record results for an equal number of males and females to get a gender balance. At the end of the experiment participants could be told via the store's intercom system that this was a false alarm and that they were perfectly safe. [8]

The sample size could be increased, an equal number of males and females could be used and the study could be conducted in a greater number of geographical areas around America and the world. The experiment could be conducted in a natural environment such as a supermarket. The fire alarm could be activated so all the shoppers had to leave the building as quickly as possible. If CCTV cameras and microphones were strategically placed observers could note obedience levels by noting how quickly men and women stopped what they were doing, how quickly they left the building, whether they left their shopping behind as instructions request, whether they argued with the shop-assistants' instructions etc. At the end of the experiment participants could be told via the store's intercom system that this was a false alarm and that they were perfectly safe. [4]

Baron-Cohen

*Baron-Cohen's study could be improved by making sure there was an equal number of participants in each experimental group e.g. 50 adult autistics, 50 'normal' adults and 50 adults with Tourette's Syndrome. The study could also involve an equal number of males and females and participants could be drawn from countries as well as Britain. The environment and task could also be made more realistic. All participants in each experimental group could be tested at the same time with the test being treated as a 'game' played during a Christmas Party. Each participant could be given a pre-designed, standardised recording chart (like a bingo card). A data projector could then show photographs of full faces of both men and women and participants had to mark on their card (i) the gender of the person being shown (ii) the emotion (selected from a choice of 2) they think the person is showing. This would improve the ecological validity of the study and participants will respond naturally and honestly so findings are more valid. Ethics can be covered as participants can give consent

[] = Marking Arial 12 = Top band/excellent responses *Arial 12 Italic* = Middle band/partial answers.

to take part or withdraw by not participating; they are unlikely to become stressed as the test will be seen as a game; they will can be debriefed afterwards when the winner is announced.
[8]

An equal number of male and female participants could be used in each condition – autistic, normal and Tourette’s Syndrome. The environment and task could be made more realistic. All participants could be tested in their own homes where photographs of people’s faces could be shown via a video on their own television. They could then be asked which of two emotions they thought the face portrayed.

16 (f) Outline the implications of the improvements you have suggested for your chosen study.

Samuel and Bryant

*Using a sample totalling 300 would mean each experimental group consist of 50 participants which is likely to makes the sample more representative of the population and therefore more generalisable. Having an equal number of boys and girls will allow researchers to not only generalise the results to both genders but also to allow them to identify if the development of conservation skills differ between genders. They may find these skills develop more quickly in girls who are known to apply themselves better to academic learning. Drawing participants from different areas of not only the UK but other countries around the world would allow researchers to identify whether children develop conservation skills at different ages in different areas which would add to the nature- nurture debate. It is likely that conservation skills will develop earlier in areas where lots of money is put into education and where schooling is highly valued. Extending the age range from 4 to 10 would allow researchers to extend both Piaget’s and Samuel and Bryant’s research and identify if children as young as 4 can conserve and whether children aged 10 have developed advanced conservation skills. It is likely that in the 21st Century children as young as 4 will may developed some of these skills as their formal education now starts at a younger age than when Samuel and Bryant conducted their study. It is also likely that some children aged 10 will not have developed these skills, especially if they have learning difficulties and such findings could inform teachers and educationalists so they can plan more appropriate programmes for such individuals. Building the tests into the normal school curriculum where they are conducted by their usual teacher means they can be made more realistic, making the experiment a real-life situation. It will also reduce the chance that the children will respond to demand characteristics and give the answer they think the teacher wants because they will respond as they usually do in a teaching situation. This increased ecological validity means the results will reflect the children’s true conservation abilities making the results much more useful. By informing the children what the tests are about and giving them the results afterwards

improves the ethics of the study, making it more socially acceptable. Likewise by using the children's teacher as the researcher will leave them less stressed and more likely to perform well in the tests so the results become more valid. Finally, making the study longitudinal means individual variables can be controlled as the same participants can be tested at each stage. This will allow researchers to identify more precisely when each conservation skill develops which can again inform parents and educationalists so they design appropriate toys, games etc for children. [8]

Using a sample totalling 300, and an equal number of boys and girls would mean each experimental group consist of 50 participants– 25 boys and 25 girls - which is likely to makes the sample more representative of the population and the results more generalisable. Researchers can also identify any similarities and differences between the conservation skills of boys and girls in different countries. Conducting the test in a natural environment and using the class teacher as the researcher are likely to result in children behaving naturally so they will not respond to demand characteristics and give genuine answers. This means the results will be valid and therefore useful. [4]

Milgram

*Using a sample, possibly about 200, is likely to make it more representative of the so results will be more generalisable. Having an equal number of males and will allow researchers to not only generalise the results to both genders but also to allow them to identify if obedience levels differ between genders. They may find females, who are considered more empathetic and caring than males, are less obedient than males in situations when the well-being of others is in danger. However in situations, even novel ones, when no direct harm is being inflicted they are likely to be more obedient as it is generally accepted that females 'do as they are told' more readily than males. Conducting the study in more than one geographical area would allow researchers to identify whether obedience levels differ in different cultures. If consistent results are found they could suggest that obedience is due to nature but if levels differ they can suggest that nurture (environment) influences the extent to which an individual is obedient. It is likely that if the experiment involves participants being obedient in an extreme situation, results will be consistent as Milgram found obedience levels were high in Americans which he felt could be likened to the behaviour of the Nazis in WW2. However in other less extreme situations it is likely obedience levels with differ between cultures as more collectivist cultures are likely to be more obedient than individualistic cultures. Setting the experiment in a real supermarket where participants have to respond to what could easily be a genuine crisis improves the ecological validity of the study and will increase the chances that participants will respond naturally. This makes the findings valid and therefore more useful. Recording of the participants' behaviour will be difficult and a pilot study should be conducted beforehand to ensure coding categories are adequate and understood by all

observers – to ensure inter-rater reliability. More than one observer should record behaviour, again to check inter-rater reliability. Ethical issues of informed consent, right to withdraw, deception and stress remain an issue. However as the situation could easily happen in real life these issues can be justified because the findings of the study may provide valuable information which can inform others as to how such situations can best be managed in the future e.g. if findings show females are more obedient than males, shop assistants can be trained to ‘target’ males when practising evacuation procedures. [8]

The sample size could be increased, an equal number of males and females could be used and the study could be conducted in a greater number of geographical areas around America and the world. This will make the results more generalisable and researchers can identify whether obedience levels differ with gender and/or culture. The experiment could be conducted in a natural environment such as a supermarket using materials with which they are familiar e.g. sweets instead of counters, pastry dough instead of playdough, and fruit juice instead of water. This will improve the ecological validity of the study. The children’s usual class teacher could conduct the tests making it more realistic and would reduce the chance of demand characteristics influencing the results.

[4]

Baron-Cohen

*Making sure there was an equal number of participants in each experimental group e.g. 50 adult autistics, 50 ‘normal’ adults and 50 adults with Tourette’s Syndrome would make comparisons between the three groups easier to make and the results of the study would be more valid. Involving an equal number of males and females, and participants drawn from Britain and other cultures, would make the results more generalisable and allow researchers to identify any gender and cultural differences in theory of mind skills in both normal adults and individuals with cognitive deficits. It is likely that all participants will give similar response in the emotion recognition task to those found by Baron-Cohen as basic emotions seem to be portrayed in the same way by all cultures suggesting they are instinctive and therefore due to nature. Gender identification may differ between cultures depending on how stereotypical images of males and females are portrayed within each culture. Improving the ecological validity of the study by making the Eyes Test a ‘party game’ will lead participants to respond in a more natural and genuine manner meaning the results will be more valid and useful. An implication of this though is that the autistic participants may have difficulty ‘playing the game’ as they find unusual social situations difficult to cope with. The activity will therefore have to be explained to them carefully. Other implications for the suggested improvements are that they will increase the cost and time needed to conduct the study. There may also be language difficulties if the test is done in other cultures indicating that an interpreter may be needed. This will again lead to increased time and cost and offers a greater chance of misinterpretation leading to invalid findings. [8]

Using an equal number of male and female participants each condition would make comparison between the three groups easier to make. Making the environment and task more realistic by testing all participants in their own homes using photographs of people's faces shown via a video on their own television improves the ecological validity of the study.

[2]

SECTION C

Answer Either 17 or 18

17 (a) Outline one assumption of the developmental approach.

It assumes there are clearly identifiable systematic changes that occur in an individual's behaviour from conception to death. [2]

It assumes that developmental processes can generally be related to age [1]

17 (b) Describe how the developmental approach could explain aggression.

As children grow, through the social learning processes of observation, imitation and reinforcement, they learn to be aggressive. This was shown in Bandura's 'Bashing Bobo' study where children who observed a model being aggressive to a bobo doll, later reproduced more aggressive acts resembling those demonstrated by the model than children who either observed a model behaving passively with the doll or who saw no model at all. If this behaviour is reinforced in any way, as they develop over time, children learn to be aggressive. [4]

As children grow, through the social learning processes of observation, imitation and reinforcement, they learn to be aggressive. [2]

17 (c) Describe one similarity and one difference between any developmental approach studies.

Similarity:

E.g. Both Bandura and Samuel & Bryant used young children as their participants. Bandura used boys and girls from Stanford University Nursery School, aged between 37 and 69 months of age. Samuel and Bryant used boys and girls aged between 5 and 8½ years old from a variety of schools in Devon. [3]

Both Bandura and Samuel and Bryant used young children as participants. [1]

Difference:

E.g. Samuel and Bryant used a laboratory experiment to show how children could learn to be aggressive. In a controlled environment, children observed a model being either aggressive or non-aggressive and were then given the opportunity to imitate the behaviour they had observed in a similar controlled environment. On the other hand, Freud used a case study to

investigate the phobia of the 5-year-old boy 'Little Hans'. Through interviews and observations conducted over a period of time, between Hans and his father, Freud was able to gather data that linked Hans' fear of horses with features of the Oedipus complex, an aspect of the phallic stage he believed boys subconsciously pass through during childhood. [3]

Samuel and Bryant used a laboratory experiment to show how children could learn to be aggressive whereas Freud used a case study to investigate the phobia of a 5-year-old boy 'Little Hans'.

[2]

17 (d) Describe strengths and weaknesses of the developmental approach using examples from any developmental approach studies.

One strength of the developmental approach is that it offers an explanation for why individuals of differing ages demonstrate different intellectual abilities, social skills and emotional responses. For example Samuel and Bryant's study showed that as children got older so their ability to conserve improved. In general children aged 8 were able to conserve number mass and volume whereas children aged five were not able to do this. This is useful for teachers and educationalist who can plan schemes of work for children appropriate to their level of cognitive development.

Another strength of the developmental approach is that it adds to the continuing nature versus nurture debate. Bandura's study showed that children who were exposed to an aggressive role were more likely to be aggressive in a later situation than children who were exposed to a non-aggressive model or no model at all. This indicates that children can, through social learning processes, learn to be aggressive, suggesting that an individual's environment has a significant influence on their behaviour. Such results indicate that nurture plays a key role in the development of behaviour.

A weakness of the developmental approach is that it is often claimed to be reductionist. Bandura claimed that children learn their behaviour through the social learning processes of observation, imitation and reinforcement. Children who observed a model acting in an aggressive way to a bobo doll were then similarly aggressive when given the opportunity. He therefore claimed they had learned to be aggressive and that behaviour was due to nurture. Claiming behaviour is due to an individual's nurture is reducing its cause down to one factor. Although Bandura tried to control for aggression in his study one cannot be certain that these children were actually not naturally prone to being aggressive and therefore due to nature. It is therefore perhaps better to suggest that an individual's behaviour is shaped by the interplay of both nature and nurture.

A further weakness of the developmental approach is that many proposals in relation to age-related development have been shown to be too rigid. For example Samuel and Bryant found

that their participants were able to conserve number, mass and volume by the age of 8½ but that very few were able to do this at the age of 5½. They therefore suggested that children under the age of 5½ cannot conserve but that those over the age of 8½ could. These are very rigid demarcation lines for the development of conservation skills and do not consider the effect of the child's social and educational environment which may help or hinder their development of such skills. One should therefore be cautious about making definitive statements about age-related development because everyone is an individual who develops at their own speed depending on their own natural abilities and the environment in which they are raised. [12]

One strength of the developmental approach is that it offers an explanation for why individuals of differing ages demonstrate different intellectual abilities, social skills and emotional responses. For example Samuel and Bryant's study showed that as children got older so their ability to conserve improved. In general children aged 8 were able to conserve number mass and volume whereas children aged five were not able to do this.

Another strength of the developmental approach is that it adds to the continuing nature versus nurture debate. Bandura's study showed that children who were exposed to an aggressive role were more likely to be aggressive in a later situation than children who were exposed to a non-aggressive model or no model at all. This supports the nurture side of the nature-nurture debate.

A weakness of the developmental approach is that it is often claimed to be reductionist. Bandura claimed his participants had learned to be aggressive and that behaviour was due to nurture. However he could not be certain that these children were not naturally prone to being aggressive and therefore their behaviour was due to nature. It may be better to suggest that an individual's behaviour is shaped by the interplay of both nature and nurture.

A further weakness of the developmental approach is that many proposals in relation to age-related development have been shown to be too rigid. For example Samuel and Bryant found that their participants were able to conserve number, mass and volume by the age of 8½ but that very few were able to do this at the age of 5½. These are very rigid demarcation lines for the development of conservation skills and do not consider the effect of the child's social and educational environment which may help or hinder their development of such skills. [8]

18 (a) Outline one assumption of the physiological approach.

It assumes that all that is psychological is first physiological – that since the mind appears to reside in the brain, all thoughts, feelings and behaviours ultimately have an identifiable and measurable physiological cause. [2]

It assumes that all behaviour has a physiological basis. [1]

18 (b) Describe how the physiological approach could explain structural changes in the brain.

People who use navigational skills constantly in their work, show a different physiological structure in the part of their brain which deals with these skills compared to people who do not use these skills as frequently. This was shown in Maguire's study which compared the volume of grey matter in the hippocampi of taxi drivers and non-taxi drivers. Results showed taxi drivers had significantly more grey matter in their posterior hippocampi than non-taxi drivers suggesting a physiological basis for taxi drivers' navigational abilities. [4]

People who use navigational skills constantly in their work show differences in the part of the brain (hippocampus) that deals with these skills compared to those who don't. [2]

18 (c) Describe one similarity and one difference between any physiological approach studies.

Similarity:

E.g. Both Maguire and Dement and Kleitman used complex scientific apparatus. Maguire used an MRI scanner to measure the volume of grey matter in the hippocampi of taxi and non-taxi drivers, and Dement and Kleitman used an EEG machine to measure gross brain activity/sleep stages, and an EOG machine to measure eye movement in their study into the relationship between sleep and dreaming. [3]

Both Maguire and Dement and Kleitman used complex scientific equipment in their studies. [1]

Difference:

E.g. Maguire used 16 British (London-based) male licensed taxi drivers who had passed 'the knowledge'. All were right-handed and between 32 and 62 years of age with a mean age of 44. and a control group of 16 non-taxi drivers who were matched with the taxi drivers on age, gender and right-handedness, whereas Dement and Kleitman used 9 adult Americans (Chicago area) as participants, seven adult males and two females of which five were studied intensively. [3]

Maguire used British participants whereas Dement and Kleitman used Americans. [1]

18 (d) Discuss strengths and weaknesses of the physiological approach using examples from any physiological studies.

One strength of the physiological approach is that it provides a strong counter-argument to the nurture side of the nature-nurture debate. It assumes that all that is psychological is first physiological – that since the mind appears to reside in the brain, all thoughts, feelings and behaviours ultimately have an identifiable and measurable physiological cause. This was

shown in the Maguire study which showed that the distribution of grey matter in the hippocampus differed in the brains of taxi drivers and non-taxi drivers: taxi drivers had a greater volume of grey matter in their posterior hippocampi than non-taxi drivers and vice versa. This area is generally acknowledged to play a key role in spatial memory which is of vital importance to taxi drivers. The identified difference in the hippocampi of taxi drivers and non-taxi drivers indicates that an individual's nature – their general physiological processes – is a strong influence on their behaviour. However one be cautious when suggesting behaviour is due to nature as this means ignoring any environmental factors which may have an equal influence on behaviour.

Another strength of the physiological approach is that its research methods are very reliable. Tests frequently used highly technical, scientific apparatus which give consistent results. For example Dement and Kelitman used an EEG machine to measure sleep and eye patterns in participants in their attempt to identify a relationship between sleep and dreaming. Such machines give objective and consistent results – they consistently showed that REM sleep was related to dream experience. However one must be aware that although results may be reliable they may not be a valid measure of what is being studied. Using machines to measure sleep is not conducive to getting a really good night's sleep and so results may not reflect how participants would behave in a genuine situation.

A weakness of the physiological approach is that it tends to be very reductionist as it often narrows the cause of an individual's behaviour down to one factor. For example Maguire suggested that professional dependence on navigational skills in licensed London taxi drivers is associated with a relative redistribution of grey matter in the hippocampus. However claiming that this difference is the result of experience as a taxi driver is reductionist because the possibility that this difference existed before these people became taxi drivers, as a result of either a natural predisposition or the fact they may have lived in London all their lives so their brains had adapted before they became taxi drivers, has not been considered. One must therefore be cautious when suggesting that behaviour has a purely physiological basis, other factors may influence the individual's behaviour.

A further weakness of the physiological approach is that the research methods used tend to have low ecological validity and so do not necessarily reflect how an individual would behave in real life. For example the Dement and Kleitman study was a controlled observation conducted under laboratory conditions. Each participant had electrodes attached to their scalp and around their eyes to measure their sleep [patterns and eye movements whilst they slept. This is not the normal way people sleep. In addition they were woken at intervals throughout the night, asked they had been dreaming and if they had to report their dreams into a tape recorder. This is also not a normal thing to do during a night's sleep. This means the study lacks ecological validity as it does not represent how people behave in real life. Dement and Kleitman's results are therefore unlikely to reflect genuine sleep and dream patterns so one should be cautious about drawing conclusions from such findings. [12]

[] = Marking **Arial 12** = Top band/excellent responses *Arial 12 Italic* = Middle band/partial answers.

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A weakness of the physiological approach is that the research methods used tend to have low ecological validity and so do not necessarily reflect how an individual would behave in real life. Dement and Kleitman's participants had electrodes attached to their scalp and around their eyes to measure their sleep patterns and eye movements whilst they slept. This is not the normal way people sleep so the study lacked ecological validity. [5]