Cambridge Assessment International Education

Cambridge International AS & A Level

CANDIDATE NAME: *StemUp Model Solution*

CENTRE NUMBER | | | | | |

CANDIDATE NUMBER | | | | |

8630400168

PSYCHOLOGY **9990/11**

Paper 1 Approaches, Issues and Debates **October/November 2022**

1 hour 30 minutes

You must answer on the question paper.

No additional materials are needed.

INSTRUCTIONS

- Answer **all** questions.
- Use a black or dark blue pen. You may use an HB pencil for any diagrams or graphs.
- Write your name, centre number and candidate number in the boxes at the top of the page.
- Write your answer to each question in the space provided.
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INFORMATION

- The total mark for this paper is 60.
- The number of marks for each question or part question is shown in brackets [ ].

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Answer **all** questions.

1 From the study by Dement and Kleitman (sleep and dreams):

(a) State the number of participants who were 'studied intensively' in this study.

5 [1]

(b) Describe the procedure used to investigate dream recall in this study.

At various times during the night participants were woken by a doorbell ringing loudly near the bed, either during REM or NREM sleep. They then spoke into a tape recorder next to the bed, first stating whether or not they had been dreaming and, if so, describing the content of the dream. Sometimes the experimenter entered the room to ask further questions. [3]

2 From the study by Saavedra and Silverman (button phobia):

(a) Name **two** stimuli that were rated 5 or higher on the boy's Disgust/Fear Hierarchy.

1 *Hugging his mom when she wore large plastic buttons.*

2 *Small clear plastic buttons.* [2]

(b) Outline **one** conclusion from this study.

Disgust plays a crucial role in the development and maintenance of a button phobia, and disgust-based imagery exposure can have a positive long-term effect in reducing the distress linked to the phobia. [2]

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3 From the study by Baron-Cohen et al. (eyes test):

(a) Describe the sample for Group 1 in this study.

Group 1 was 15 adult males diagnosed with Asperger syndrome or high-functioning autism (AS/HFA), with a mean age of 29.7 years. They were a volunteer sample, recruited through advertisements in a magazine and support groups. They had IQs in the normal range and were of a similar socioeconomic class and educational level to Group 2.

..... [3]

(b) The original 'Reading the Mind in the Eyes' test had several problems. Two of these problems were:

- the test only used 25 pairs of eyes
- some words in the test were difficult to understand.

State how this study solved each of these problems with the revised 'Reading the Mind in the Eyes' test.

Problem 1: the test only used 25 pairs of eyes *The revised test used 36 pairs of eyes.*

.....

.....

Problem 2: some words in the test were difficult to understand *A glossary of definitions of all the mental state words was provided, which participants could read before and during the test.* ..... [2]

4 From the study by Laney et al. (false memory):

(a) Describe the 'Memory or Belief?' questionnaire used in this study.

Participants were given three items from the Food History Inventory, one of which was the critical item "loved asparagus the first time you tried it". For each item they had to choose one of three options: "I have a specific memory of this event", "I believe this happened to me but have no specific memory of it" or "I am positive this never happened". They were also encouraged to explain their answer choices.

..... [4]

(b) Outline **one** weakness of the 'Memory or Belief?' questionnaire used in this study.

It has restricted choices: with only three fixed options, a participant who was unsure had to pick one, so ticking "specific memory" of loving asparagus may not show a real (or implanted) memory, which reduces the validity of the results.

..... [2]

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5 From the study by Piliavin et al. (subway Samaritans):

(a) Describe the results in the 'no model' condition when help was given. You **must** use data in your answer.

When the victim carried a cane, help was given on 100% of trials for both the black and the white victim, so race made no difference. The drunk victim was helped less than the ill victim, and the black drunk victim was helped least, on 73% of trials, less often than the white drunk victim. Males were more likely to help: 90% of first helpers were male.

[3]

(b) Outline **one** methodological strength of this study.

It had high ecological validity because it was a field experiment. A man collapsing on a subway train is an event that can happen in real life, and the passengers did not know they were being studied, so their helping behaviour was natural.

[2]

6 The debate about nature versus nurture relates to the study by Schachter and Singer (two factors in emotion).

Outline what is meant by this debate. Include **one** example for nature and **one** example for nurture from the study by Schachter and Singer.

Nature means that behaviour is caused by innate, biological factors that we are born with, such as genes and hormones, so it is hard-wired. Nurture means that behaviour is learned after birth from the environment and experience. In Schachter and Singer, an example of nature is the injection of epinephrine, which caused automatic physiological arousal (e.g. a faster heart rate, trembling and flushing) because the body is hard-wired to respond to adrenaline. An example of nurture is that misinformed participants labelled this arousal as euphoria or anger by using cues from their environment, i.e. copying the stooge, who flew paper planes or tore up the questionnaire. [4]

7 Makena has a job creating advertisements for television. She wants to use emotion to advertise a new product and asks you for advice.

Outline the advice you would give to Makena, using your knowledge of the study by Canli et al. (brain scans and emotions).

Canli et al. found that pictures rated as highly emotionally intense caused greater activation of the left amygdala and were remembered better three weeks later. So Makena should use images that are strongly emotionally intense and highly arousing. She could pre-test images by asking people to rate how emotionally intense they are, as Canli did, and choose those rated the highest. Each emotional image could be shown for about 3 seconds, as Canli showed each picture for 2.88 seconds, and the order of the images could be randomised each time the advertisement is shown. She could also link the images to the television programme the advertisement follows. [4]

8 **(a)** Outline what is meant by the ethical guideline of 'privacy'.

Participants have the right not to reveal personal information that they would not normally reveal in everyday life, and they can refuse to answer questions or take part in any part of a study that they feel uncomfortable about.

[2]

(b) From the Bandura et al. study (aggression):

Two friends, Adria and Don, are discussing this study in terms of ethics.

Adria believes the study is ethical but Don believes the study is **not** ethical.

Outline why you think **either** Adria **or** Don is correct, using evidence from the study.

I think Don is correct. The study broke the guideline of protection from psychological harm. Children aged about 3 to 5 years watched an adult hit the Bobo doll with a mallet and shout "Sock him in the nose", which may have frightened them, and they learned new aggressive behaviours that could continue outside the study. They were also deliberately frustrated by being shown attractive toys and then told the toys were reserved for other children. The study also lacked informed consent; there is no evidence that parents were asked for permission, and the children were too young to consent or know they could withdraw. [4]

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9 **(a)** Describe the psychology being investigated in the study by Milgram (obedience).

The study investigated obedience, which is following a direct order from a person in authority. Milgram was testing the "Germans are different" idea, i.e. whether obedience is caused by individual (dispositional) factors or by the situation. He believed people are socialised to obey authority and that they may enter an agentic state, giving up their free will to act as an agent for the authority figure, rather than an autonomous state where they follow their own morals. Obeying against their conscience causes moral strain. In the study, prods were used to see whether participants would obey and shock a stranger up to 450 volts. [4]

(b) Explain **one** similarity and **one** difference between the study by Milgram (obedience) and **one** other study from the social approach.

One similarity is that both Milgram and Piliavin et al. deceived their participants. In Milgram's study, the participants believed they were giving real electric shocks to Mr Wallace, a stranger who got word pairs wrong, when he was really a confederate and no shocks were given. In Piliavin et al., the passengers on the New York subway were led to believe that the victim who collapsed was really ill or drunk and needed help, when he was a trained confederate acting. In both studies the participants never knew the scenarios were fake while they took part.

One difference is the setting. Milgram's study took place in a laboratory at Yale University, so it was highly controlled, but the situation of shocking a learner for errors was artificial, giving low ecological validity. Piliavin et al. was a field experiment on a real subway train between 59th Street and 125th Street, and passengers did not know they were being studied, so their helping was natural behaviour with high ecological validity, although there was less control over extraneous variables, such as how many people were in the carriage.

[8]

10 Evaluate the study by Andrade (doodling) in terms of **two** strengths and **two** weaknesses. At least one of your evaluation points **must** be about reliability.

One strength is that the study was reliable because it had a highly standardised procedure. All participants heard the same tape-recorded message, lasting about 2.5 minutes and spoken in a monotonous voice, and were given the same instructions to write down the names of the people coming to the party. The doodling group were all given the same sheet of squares and circles to shade. This means the study can be replicated to check whether doodling consistently improves recall.

A second strength is that it collected quantitative data. The researcher counted the number of names and places correctly recalled, and the doodling group recalled 29% more information than the control group. This is objective, so it is easy to compare the two conditions and to test whether the difference is significant, which increases the internal validity of the conclusion that doodling aids concentration.

However, one weakness is low ecological validity. Shading in printed shapes is not the same as natural, free doodling, and listening to a dull mock telephone message about a party before a surprise memory test is not an everyday task. So the findings may not apply to real situations, such as doodling in a lecture or a long meeting.

A second weakness is generalisability. There were only 40 participants, aged 18 to 55, all from the participant panel of the Medical Research Council in Cambridge, UK, and they had just finished another study, so they may have been more tired or bored than most people. This makes it hard to generalise to other cultures, or to children who doodle in lessons.

Overall, the standardised procedure and objective data make it a reliable test of doodling, but the artificial task and narrow sample mean the results should be applied to everyday life with caution.

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Cambridge Assessment International Education

Cambridge International AS & A Level

CANDIDATE NAME: *StemUp Model Solution*

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2689448982

PSYCHOLOGY **9990/12**

Paper 1 Approaches, Issues and Debates **October/November 2022**

1 hour 30 minutes

You must answer on the question paper.

No additional materials are needed.

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Answer **all** questions.

1 In the study by Pepperberg (parrot learning), Alex the parrot could choose from three labels when asked 'What's same?' about two objects. Two of these labels were colour and shape.

(a) Name the label that Alex could use to answer the 'What's same?' question in this study, other than colour and shape.

Matter (Alex said "mah-mah"). [1]

(b) Describe the 'model/rival' procedure used in this study.

Two humans interacted in front of Alex. One acted as the trainer, presenting an object and asking a question about it, e.g. "What's same?". The other acted as the model, giving answers; correct answers were praised and rewarded with the object, and incorrect answers got disapproval and the object was taken away. The model was also a rival for the trainer's attention. Then the roles of trainer and model were reversed, and Alex was included. [3]

2 From the study by Dement and Kleitman (sleep and dreams):

(a) Outline **one** aim of this study.

To investigate whether there is a positive correlation between participants' subjective estimates of how long they had been dreaming and the length of time they had been in REM sleep before being woken.

[2]

(b) Outline **one** of the dreams reported where a participant was driving a car.

The participant was driving a car and staring at the road ahead. At an intersection, another car suddenly appeared, speeding towards them.

[2]

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3 From the study by Baron-Cohen et al. (eyes test):

(a) Describe the sample for Group 2 in this study.

Group 2 was 122 adults from the general population, an opportunity sample taken from adult community classes in Exeter and public library users in Cambridge. They had a wide range of occupations and education levels, similar to Group 1, and were not diagnosed with AS/HFA. Data on age were only available for 88 of them.

..... [3]

(b) The original 'Reading the Mind in the Eyes' test had several problems. Two of these problems were:

- the test only had two response options for each pair of eyes
- some words in the test were difficult to understand.

State how this study solved each of these problems with the revised 'Reading the Mind in the Eyes' test.

Problem 1: the test only had two response options for each pair of eyes *It was increased to four response options: the target word and three foil words.*

Problem 2: some words in the test were difficult to understand *A glossary of definitions of all the mental state words was provided, which participants could read before and during the test.* [2]

4 From the study by Laney et al. (false memory):

(a) Describe the Food Costs Questionnaire used in this study.

Participants had to indicate how much they would be willing to pay for each of 21 items in a grocery store. Several of these foods, including asparagus, had appeared on earlier questionnaires. For each item they circled one of seven prices, from $1.90 to $5.70 (e.g. $2.50, $3.20), or an eighth option of "I would never buy this".

..... [4]

(b) Outline **one** weakness of the Food Costs Questionnaire used in this study.

What people say they would pay on a questionnaire may not mirror their real behaviour, so circling a high price for asparagus does not mean they would actually spend that much in a real shop, which lowers validity.

..... [2]

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5 The study by Schachter and Singer investigated two factors in emotion.

(a) An Activity Index was used to collect results in the Euphoria condition.

Describe the results from the Activity Index for the Epinephrine Informed (Epi Inf) group compared to the placebo group. You **must** use data in your answer.

The placebo group scored higher on the Activity Index than the Epi Inf group, with a mean score of 16.00 compared to 12.72. This means the placebo group joined in more with the stooge's euphoric behaviour and were more euphoric, whereas the Epi Inf group joined in less, as they had an appropriate explanation for their arousal from the injection.

..... [3]

(b) Outline **one** methodological strength of this study.

It was highly standardised, so it is replicable. The stooge was given a set script of euphoric behaviour, e.g. making paper planes and playing with a hula hoop, performed in the same order for every participant, so the study can be tested for reliability.

..... [2]

6 The debate about individual and situational explanations relates to the study by Milgram (obedience).

Outline what is meant by this debate. Include **one** example from the individual explanation and **one** example from the situational explanation from the study by Milgram.

The individual explanation says behaviour is caused by factors within the person, i.e. their disposition or personality. The situational explanation says behaviour is caused by factors in the external environment. In Milgram's study, an individual example is that participants were in the same situation but some refused to continue while others (65%) went all the way to 450 V, so personality, e.g. being more submissive, may explain who obeyed. A situational example is that participants may have obeyed because of the presence of an authority figure, the experimenter in a grey lab coat, and the prods given, e.g. "You have no other choice, you must go on". ..... [4]

7 Omar organises a football team for children but they are sometimes too aggressive during games. He wants to reduce this aggressive behaviour and asks you for advice.

Outline the advice you would give to Omar, using your knowledge of the study by Bandura et al. (aggression).

Bandura et al. found children imitate the behaviour of adult models, and those who saw a non-aggressive model, who played quietly with tinker toys, showed little aggression. So Omar should bring in a calm, non-aggressive coach or older player as a model, and let the children watch the model play football fairly. He could praise or reward the model for non-aggressive play. As boys were more likely to show physical aggression, especially after a male model, he should monitor the boys and use a male model for them. He could ask parents to stop the children watching aggressive TV, and make sure the children are not frustrated before a game. [4]

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8 From the study by Piliavin et al. (subway Samaritans):

(a) Name **two** features of the sample in this study.

1 *About 4450 passengers on the New York City subway.*

2 *45% were black and 55% were white (an opportunity sample).* [2]

(b) Two friends, Saad and Amina, are discussing this study in terms of generalisability.

Saad believes the study does have generalisability but Amina believes the study does **not** have generalisability.

Outline why you think **either** Saad **or** Amina is correct, using evidence from the study.

I think Amina is correct. All the participants were passengers on one stretch of the New York subway, between 59th Street and 125th Street, on weekdays between 11 am and 3 pm. This is restrictive, as the results may only apply to urban subway passengers in New York and not to people living in rural areas, and it is possible that the same "regulars" were on this route many times. Also, it was a sample from one American city, so it may not represent the helping behaviour of people from cultures with different customs. Finally, the victims were only black or white males, so the results cannot be generalised to helping female victims. [4]

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9 **(a)** Describe the psychology being investigated in the study by Andrade (doodling).

The study investigated whether doodling aids concentration while doing a boring task. It is based on the cognitive approach, which sees the mind as an information processor of input, processing and output. One idea is that boredom reduces arousal, which leads to daydreaming, and arousal needs to be maintained to concentrate. Doodling may keep arousal high enough to stop daydreaming. However, doing two things at once (a dual task) may compete for the same limited cognitive resources, so doodling could also reduce performance. Andrade tested whether doodling while listening to a phone message improved recall. [4]

(b) Explain **one** similarity and **one** difference between the study by Andrade (doodling) and **one** other study from the cognitive approach.

One similarity is that both Andrade and Laney et al. were experiments with a manipulated IV. In Andrade's study, the IV was whether participants shaded shapes (doodled) or not while listening to a monotonous telephone message, and the DV was the number of names and places recalled. In Laney et al., the IV was whether participants were given false feedback that they had loved asparagus the first time they tried it, or were in the control group, and the effect on their beliefs and attitudes to asparagus was measured. So both tried to show cause and effect.

One difference is the type of measurement of the DV. Andrade used an objective measure: the researcher counted how many of the 8 names and 8 places were correctly recalled, so the data were not open to interpretation. Laney et al. used self-report questionnaires, e.g. the Food History Inventory, where participants rated their confidence about events on 8-point scales, and the Food Costs Questionnaire. These are subjective and open to social desirability, so they may be less valid than Andrade's recall score.

[8]

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10 Evaluate the study by Canli et al. (brain scans and emotions) in terms of **two** strengths and **two** weaknesses. At least one of your evaluation points **must** be about validity.

One strength is that the study had high internal validity because it used an objective, scientific measure of brain activity. An fMRI scanner recorded activation in the amygdala while each participant viewed 96 pictures, so the findings did not depend on interpretation by the researcher. This meant Canli et al. could show that left amygdala activation was linked to pictures rated as highly emotionally intense, and to better memory for those pictures.

A second strength is that the procedure was standardised, so it is reliable. Every picture was shown for the same time (2.88 seconds), all participants rated emotional intensity on the same four-point scale and all did the same unexpected recognition test three weeks later. This means the study can be replicated to check whether the same link between the amygdala and emotional memory is found again.

However, one weakness is generalisability. The sample was only 10 right-handed females, so the results cannot be generalised to males, whose brains may process emotional memories differently, or to left-handed people, whose brain lateralisation may differ. A small sample also means individual differences could have a large effect.

A second weakness is low ecological validity. Lying in a noisy scanner looking at photographs from a standard picture set is very different from experiencing real emotional events, and the ratings of emotional intensity were self-reports, which are subjective. So the results may not show how emotional memories are formed in everyday life.

Overall, the objective and standardised procedure makes it a valid and reliable test of the amygdala's role, but the narrow, all-female sample and artificial task limit how far the conclusions can be applied.

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Cambridge International AS & A Level

CANDIDATE NAME: StemUp Model Solution

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PSYCHOLOGY **9990/13**

Paper 1 Approaches, Issues and Debates **October/November 2022**

1 hour 30 minutes

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Answer **all** questions.

1 From the study by Andrade (doodling):

(a) State the number of participants that were in the doodling group in this study.

20 [1]

(b) Describe the mock telephone message used in this study.

It was a 2.5 minute message recorded on an audio cassette, spoken in a monotonous voice at about 227 words per minute and played at a comfortable volume. It was from a friend talking about a birthday party and contained the names of eight people who were coming, the names of three people and a cat who were not coming, and eight place names, plus irrelevant material.

[3]

2 From the study by Dement and Kleitman (sleep and dreams):

(a) Outline the relationship between the duration of time spent in REM sleep and the length of dream narrative in this study.

There was a positive correlation: the longer a participant had been in REM sleep before being woken, the longer their dream narrative was (i.e. the more words they used to describe the dream).

[2]

(b) Outline **one** conclusion from this study.

Dreams are not instantaneous events but are experienced in real time, because people could accurately judge how long they had been dreaming in REM sleep.

[2]

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3 From the study by Baron-Cohen et al. (eyes test):

(a) Describe the sample for Group 3 in this study.

Group 3 was 103 undergraduate students at Cambridge University, most of them studying science, with roughly equal numbers of males and females and a mean age of 20.8 years. They were assumed to have a high IQ, and none had been diagnosed with AS/HFA.

[3]

(b) The original 'Reading the Mind in the Eyes' test had several problems. Two of these problems were:

- the test only used 25 pairs of eyes
- the two response options in the test were semantic opposites.

State how this study solved each of these problems with the revised 'Reading the Mind in the Eyes' test.

Problem 1: the test only used 25 pairs of eyes *The revised test used 36 pairs of eyes.*

Problem 2: the two response options in the test were semantic opposites *The target word was given with three foil words that all had the same emotional valence as the target, instead of one semantic opposite.* [2]

4 Prior to the experimental part of the study by Bandura et al. (aggression), the children were observed and rated for their baseline aggressive behaviour.

(a) State where the children were observed in this part of the study.

The Stanford University Nursery School.

..... [1]

(b) State **one** person who observed the children in this part of the study.

A nursery school teacher who knew the children well.

..... [1]

(c) Outline how the children were rated for their baseline aggressive behaviour in this part of the study.

The experimenter and the teacher independently rated each child on four five-point rating scales: physical aggression, verbal aggression, aggression towards inanimate objects and aggressive inhibition. The scores were added to give each child a composite aggression score. [2]

(d) Outline **one** weakness of how the children were rated for their baseline aggressive behaviour in this part of the study.

The ratings were subjective. The teacher may already have had a biased view of how aggressive a child was, e.g. disliking one child and rating them as more aggressive, so the baseline scores used to match the children may not be valid.

..... [2]

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5 The study by Schachter and Singer investigated two factors in emotion.

(a) An Activity Index was used to collect results in the Euphoria condition.

Describe the results from the Activity Index for the Epinephrine Misinformed (Epi Mis) group compared to the placebo group. You **must** use data in your answer.

The Epi Mis group scored higher on the Activity Index than the placebo group, with a mean score of 22.56 compared to 16.00. This means the Epi Mis group joined in more with the stooge and were more euphoric, as they had no correct explanation for their arousal, so they used the stooge's behaviour to label it as euphoria.

[3]

(b) Outline **one** methodological weakness of this study.

It had low mundane realism. Being injected with a "vitamin" called Suproxin and then left in a room with a stranger who flies paper planes and plays with a hula hoop does not happen in real life, so the emotions shown may not reflect everyday emotions.

[2]

6 Outline what is meant by the 'social approach' in psychology. Include examples from the study by Yamamoto et al. (chimpanzee helping) in your answer.

The social approach assumes that our behaviour is affected by the people around us and by the social context, such as the groups we belong to, so behaviour must be understood in relation to others. Yamamoto et al. studied whether chimpanzees help each other. A chimpanzee in one booth could pass a tool, such as a stick or a straw, through a hole to its partner in the next booth, who needed it to get a juice reward. Chimpanzees mostly helped when their partner requested it, e.g. by reaching through the hole, so they were influenced by the other chimpanzee's behaviour. When they could see their partner's situation, they usually chose the correct tool to give. [4]

7 A teacher, Nina, has some students who are having difficulty learning a new skill. She wants to help these students to learn this new skill and asks you for advice.

Outline the advice you would give to Nina, using your knowledge of the study by Pepperberg (parrot learning).

Nina could use Pepperberg's model/rival technique. She could work with a second adult; Nina acts as the trainer, presents objects and asks questions about the new skill, while the other adult acts as a model who demonstrates the skill in front of the students. Correct answers should be praised and rewarded, e.g. letting the model keep the object, and incorrect ones met with disapproval and the object taken away. The model is also a rival for Nina's attention, so the students want to compete. Nina and the model should swap roles, and the students should be allowed to join in with the questions and answers.

..... [4]

8 **(a)** Outline what is meant by the ethical guideline of 'confidentiality'.

Any information that could identify a participant must not be published, and personal data, such as names, should be stored securely and separately from the results, so that no one can be linked to their data.

..... [2]

(b) From the study by Canli et al. (brain scans and emotions):

Two friends, Willow and Leo, are discussing this study in terms of ethics.

Willow believes the study is ethical but Leo believes the study is **not** ethical.

Outline why you think **either** Willow **or** Leo is correct, using evidence from the study.

I think Leo is correct. The study broke the guideline of protection from psychological harm. The participants had to look at 96 pictures, many of them highly negative and emotionally intense, and rate how intense they felt, which could have been disturbing, so they may not have left the study in the same psychological state as they entered. Lying in the noisy, enclosed fMRI scanner could also cause anxiety. The participants were also deceived; they were not told that there would be an unexpected memory test three weeks later, so they could not give fully informed consent.

..... [4]

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9 **(a)** In Experiment 2 of the study by Laney et al. (false memory), participants had to view twenty slides of common foods.

Describe what participants were asked to do immediately after viewing each slide.

Immediately after viewing each slide, participants had to rate the photograph on four scales. They rated how appetising the food looked, how disgusting it looked, the artistic quality of the photograph, and whether they thought the photographer was a novice, an amateur or a professional. Each scale was an 8-point scale from 1 = "not at all" to 8 = "very much".

[4]

(b) Explain **one** similarity and **one** difference between the study by Laney et al. (false memory) and **one** other study from the cognitive approach.

One similarity is that both Laney et al. and Andrade were experiments with a manipulated IV. In Laney et al., the IV was whether participants were given false feedback that they had loved asparagus the first time they tried it, or were in the control group, and the effect on their beliefs and attitudes to asparagus was measured. In Andrade's study, the IV was whether participants shaded shapes (doodled) or not while listening to a monotonous telephone message, and the DV was the number of names and places recalled. So both tried to show cause and effect.

One difference is the type of measurement of the DV. Laney et al. used self-report questionnaires, e.g. the Food History Inventory, where participants rated their confidence about events on 8-point scales, and the Food Costs Questionnaire. These are subjective and open to social desirability, so they may be less valid. Andrade used an objective measure: the researcher counted how many of the 8 names and 8 places were correctly recalled, so the data were not open to interpretation.

[8]

10 Evaluate the study by Milgram (obedience) in terms of **two** strengths and **two** weaknesses. At least one of your evaluation points **must** be about generalisability.

One strength is that the study was reliable because it had a highly standardised procedure. Every participant was given the same four prods, e.g. "Please continue" and "You have no other choice, you must go on", in the same order, and the shock generator went up in the same 15 V steps from 15 V to 450 V. Mr Wallace gave the same answers each time. This means the study can be replicated to check whether the same level of obedience is found again.

A second strength is that it collected both quantitative and qualitative data. The maximum voltage each participant gave was recorded, showing that 65% went to 450 V and all 40 went to at least 300 V, so obedience could be compared objectively. Milgram also recorded qualitative observations, such as sweating, trembling and nervous laughter, which explained the stress participants felt.

However, one weakness is generalisability. The sample was only 40 American males aged 20 to 50 from the New Haven area, who volunteered after seeing a newspaper advertisement. Females, or people from more collectivist cultures, may obey authority differently, so the findings cannot easily be generalised to everyone.

A second weakness is ethics. Participants were deceived into thinking the shocks were real, and they were put under great psychological stress; three had full-blown seizures. The prods made it difficult to exercise their right to withdraw, although they were debriefed and reunited with Mr Wallace afterwards.

Overall, the standardised procedure gives reliable evidence of how far people will obey an authority figure, but the narrow sample and ethical problems mean the conclusions must be treated with care.

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