

# *Ideas for HL Internal Assessment*

HL candidates must *design* an experiment and not simply replicate one, although you may change the independent variable of a previous experiment. All plans for experiments must be approved by me.

**Here is a list of sample IA topics.**

## **A. MEMORY**

1. **Memory and the serial position curve:** Cunitz and Glanzer's study. Subjects learn a long list of words and after a delay they have to recall as many as possible. The hypothesis is that people tend to remember the first and last words in a list due to the primacy and recency effects.
2. **Memory and acoustic learning:** There is a theory that when we have to learn something like a telephone number that we store the number in the form of the mental sound that it makes i.e. acoustically. Subjects have to learn lists of letters and then write them down after a delay. According to the acoustic coding theory subjects will have more difficulty recalling letters which sound similar compared to a list of words which sound quite different.
3. **Improving memory:** Imagery vs. rehearsal: participants recall more words from a (20) word list when they use an imagery method (forming a vivid mental image and linking each item to the last in a dynamic fashion) than if they use either rehearsal (repeat each item until you hear the next) or no particular method (no prior instruction). Bower (1967); Paivio (1971).
4. **Imagery vs. rehearsal:** participants recall more words from a (20) word list when they use an imagery method (forming a vivid mental image and linking each item to the last in a dynamic fashion) than if they use either rehearsal (repeat each item until you hear the next) or no particular method (no prior instruction). Bower (1967); Paivio (1971).
5. **The Role of Ambiguity:** Give subjects an ambiguous passage (which could mean anything) which they later have to recall. Some subjects are given a title to the passage which makes it sensible while other subjects are not. Those with the title should process the passage more meaningfully and therefore recall the passage more successfully.
6. **Memory and levels of processing:** Craik and Lockhart hypothesize that the deeper and more meaningfully we process information the better subsequent recall will be. Subjects are asked to process words either at a basic structural level like 'is the word in capitals?' or at a level requiring the comprehension of meaning e.g. 'is it something you can eat'? Subjects would be expected to recall those words processed more deeply more successfully. Craik and Tulving (1975).
7. **Organization and memory:** If word lists are organized in some meaningful way, subjects will recall better than from a jumbled list?
8. **Memory interference:** This could be nicely applied to school revision. Subjects have to learn for example a list of words and then recall them. However, memory is interfered with by learning another list of words but some subjects learn this interfering list before the main list and some learn it after the main list to see which has the greater effect.
9. **Eye-witness reports:** Loftus and Palmer (1974); Loftus and Zanni (1975). Participants asked how fast cars were going when they 'smashed' into each other, after viewing a car accident, report greater speeds than do participants asked the speed when they 'hit' each other. The former group are more likely to report seeing broken glass (when none is there) a week later.
10. Does the time of day influence a person's ability to recall words?
11. Does background noise impair memory?

## ***B. PERCEPTION, THINKING AND PERFORMANCE***

- 1. Perceptual Sets:** **a.** This one is based on the idea that people have a very fixed association between color and taste and attempts to find out how strong this is. It involves giving subjects colored drinks but in some conditions the color doesn't match up with the flavor (e.g. red colored mint). By measuring how long it takes for subjects to judge the flavor will tell us how strong the associations are. **b.** This is based on the hypothesis that peoples' perception of color depends on what they associate that color with. For example people associate tomatoes with being red so might perceive a stronger red color than say a red hat which doesn't have the same associations. This practical involves showing subjects pictures of fruit but with some of the colors mixed up. For example subjects are showed a picture of a red tomato and then a red banana and later have to judge the colors of each on a color chart. **c.** Solving lists of anagrams is easier if all the words belong to a category (e.g. animals) than if they are random words. **d.** It has been suggested that people perceive the size of coins depending on how they perceive its value. Specifically children and people from low income families are thought to overestimate the size of coins. This can be designed easily enough by showing subjects different coins and asking them to later to judge their size using a comparison chart of different sized circles. **e.** This is based on the old/young woman ambiguous figure you may have seen - but will only work on students who haven't seen it (or you could invent your own alternative). The hypothesis is that if you predispose someone to think positively or even romantically by reading a short story or showing a film clip they will be more likely to see the young woman than the old witch. **f.** People are first predisposed to think about a particular set of objects e.g. fruit or letters of the alphabet, by showing them pictures. Then an ambiguous picture is flashed to them which could be a banana or a letter 'C' for example. The hypothesis is that they will label the object according to the set of objects they saw previously. **g.** The subject is presented briefly with a list of words about a topic e.g. letter, post, stamp etc. which they have to write down - and then one of them is misspelled e.g. mael, and the hypothesis is that because a strong mental concept of the topic has been set up that they will write down the word as 'mail'.
- 2. Stroop effect:** Participants take a lot longer to name the color of ink that words are written in when the words themselves are contradictory color words e.g. 'red' written in yellow ink – Dyer (1973).
- 3. Word and letter recognition: Visual search:** Time taken to find X's hidden in a four column list of similar shaped letters (Y, Z etc.) is longer than for lists with letters such as S, R, P etc. – Neisser's (1964) feature analysis model of pattern recognition. Alternatively: Participants will take longer to find 0 among letters if it is called 'zero' than when it is called letter 'oh' and vice versa – Jonides & Gleitman (1972).
- 4. Estimation of time: Effects of mental activity on the estimation of time:** Ornstein hypothesized that the more mental activity we do in a fixed period of time the longer the subjective estimate of that time interval. This could be tested by asking subjects to listen to a passage of prose for say 100 seconds and then to estimate when a further 100 seconds of the prose had elapsed. In one group the prose could be read slowly to reduce the amount of mental processing and in the second group the prose would be read out faster.
- 5. Is performance is impeded by noise?** Subjects have a task to perform with or without noise.
- 6. Illusions:** This is based on the Muller-Lyer illusion: By re-designing the illusion it is possible to test the hypothesis of constancy scaling put forward by Richard Gregory that the reason the illusion works is because it has hidden depth cues. The practical involves showing subjects different forms of the illusion to find out when it is most powerful.

7. **Concrete vs. abstract reasoning (problem solving) and concept formation:** When it comes to logical problem solving people are typically very poor and tend just to look for examples which confirm their theory rather than looking for possible exceptions which might disprove it. This practical is based on giving subjects seemingly simple tests of logic to see what errors they make. However, the hypothesis being tested is that if the logic problems are purely abstract (e.g. if x is always double y and y is never an even number .....etc.) then many more mistakes will be made compared to more concrete problems (e.g., if worms are always animals and animals are sometimes birds....etc.) even if the basic logical pathway is the same. A similar alternative is as follows: The Wason (1969) selection task –participants are shown four cards displaying B E 3 and 8. They are given the rule ‘every consonant has an even number on the other side’. Participants have to decide which two cards to turn over in order to check the validity of the rule. They tend to demonstrate false logical reasoning and assume that the B and 8 cards must be turned over whereas B and 3 are correct. Griggs and Cox (1982) used more realistic material with ‘beer’ or ‘Pepsi’ on one side and an age on the other. To check the rule ‘only 18 year olds and above may drink’, and given cards showing ‘beer’, ‘Pepsi’, ‘16’ and ‘20’, participants do much better than on the abstract task. Similarly, participants might be asked to check the rule ‘all first class envelopes are sealed’ given sealed unsealed, first and second class stamped envelopes. Frequencies of correct response can be compared with those for the abstract Wason task using chi-squared.
8. **Heuristics:** Tversky and Kahneman’s (1973) ‘availability’ hypothesis. If people recall more items from one set than from another they assume (heuristically) that there actually were more in the former set. Demonstrate this by giving participants a set of names to remember containing 19 very famous males and 20 not so famous females. Since participants tend to recall more male names they tend to judge that more males were in the list.
9. **Anchoring Bias** - Tversky and Kahneman. Someone's estimates of something will be greatly influenced by the way the question is structured. For example, people asked to estimate  $1 \times 2 \times 3 \times 4 \times 5 \times 6 \times 7 \times 8 \times 9$  give lower estimates than those estimating  $9 \times 8 \times 7 \times 6 \times 5 \times 4 \times 3 \times 2 \times 1$  because the earliest numbers affect perception of the answer. Similarly, if subjects are asked to guess the length of the river Vltava, their estimates will be influenced by a preceding question "is 2000 km (or 20,000km in the other condition) an over or underestimate of the length of the river Vltava". (Kahnemann and Tversky (1973) and Northcraft and Neale (1987)
10. **First impressions and Primacy effects:** ask participants to score a person’s maths test and then estimate the overall score on that person on Maths ability: Group A have correct answers first, then incorrect. Group B have incorrect answers first, then correct. Group A will estimate a higher score than Group B.

### *C. Social Psychology*

1. **Person perception:** Versions of Asch’s (1946) ‘warm’, ‘cold’ central traits paradigm can be implemented in many topical ways. Candidates give one description of a person to one group of participants and an identical version to another group varying only one characteristic, for instance ‘agrees with nuclear testing’ for one group and ‘disagrees....’ for the other. They then ask participants to assess the fictitious person on, say, liking or trustworthiness on a 10 point scale and look for differences between groups. Asch’s ‘primacy’ effect can also be tested using a list of descriptors – e.g. ‘orderly entertaining humble cool calculating moody’ in that order for one group and in the opposite order for another. Those hearing the positive traits first might rate the person more favourably on a ten point scale – Anderson and Barrios (1961). Luria and Rubin (1974) – participants given the same picture of a baby but one group told it is male the other female. Record differences in descriptions. It is best to give a checklist to participants containing ‘typical’ masculine and feminine **traits** – fine featured, strong, robust, sensitive, cute, and delicate.

2. **Person perception and first impressions:** A two paragraph description or story of someone is written with one paragraph being more positive than the other. Paragraph order can be reversed and subjects get one of the two possible orders. Subjects then have to rate the person on a questionnaire. The hypothesis is that due to first impressions the subjects who hear the story with the first paragraph being the positive one will rate the person more positively. E.g. Story of Jim with the first half suggesting he is friendly and the second half suggestion he is unfriendly. Different subjects receive different orders of the story.
3. **Social facilitation:** The idea is that people tend to perform better when in groups than when on their own. Subjects can be given tasks (e.g. word searches) either in groups or on their own to test this theory.
4. Snyder and Uranowitz (1978) presented two versions of a woman's life to two different groups. One group was later told that she took up a lesbian life-style (avoid this specific example); for the other group, she married. From the statement in the description 'although she never had a steady boyfriend she did go out on dates', the former group were more likely to recall the first part of this statement and the second group did the reverse.
5. **The halo effect:** The effects of physical attractiveness: The halo effect states that attractive people are perceived as having more positive attributes.
6. **Conformity:** Do people over-estimate the number of beads in a jar if they see a list of other peoples "over-estimates?" i.e. do they conform to other peoples' views?
7. **Defensive attribution:** The more serious an accident appears, the more people wish to assign responsibility to the driver.
8. **Prisoner's Dilemma:** This is a study involving a social dilemma. In this game two people have to choose one of two options without knowing what the other person will choose. The number of points or imaginary money you win depends on the options chosen by both people. On page 309 of your Social Psychology text you will see a good example you may want to use. The actions of those playing the game seem to reflect what you see outside the lab. To find the solution desirable to both parties, people must trust each other. Often they will sacrifice each other so no one wins. (Batson and Ahmad 2001; Insko and Schopler, 1998; Kelley and Thibaut 1978; Pruitt 1998)

#### D. Drives and Motivation

1. **Incentives and performance:** It would seem logical that incentives should improve our performance. This could be tested by asking subjects to perform simple tasks like anagrams and measuring their speed of performance under different conditions. e.g. with or without an incentive like a Mars bar or alternatively by creating a fear of failing - to see whether positive or negative incentives are the most effective (e.g. telling the subjects that the results will be put on display and that the average number of completed anagrams in 5 minutes by 8 year olds is 15!) This could be developed to find whether the fear of failure impedes performance most on more complex cognitive tasks like anagrams rather than simple memory recall type tasks. Alternatively you could test the hypothesis that a group of subjects will perform better on a task if they have previously (based on an earlier test) been told they have scored highly, than a group who have been told (falsely) they have performed badly.

#### E. Other assorted ideas

1. **Hand Gestures and Memory Recall of Words Verbally.** One theory is that hand gestures help in the retrieval of words. Studies done by Frick-Horbury and Guttentag (1998) demonstrate that gestures are important in verbal memory recall. Design an experiment where subjects need to recall a list of words or definitions verbally without the use of any hand movements. Design an experiment to test the above hypothesis.

2. **Social Facilitation.** According to this theory an improvement in performance of a well-learned/easy task and deterioration in the performance of poorly learned/difficult tasks in the mere presence of others. Mere presence means people who sit passively by and watch the performance. Think of experiments that can facilitate or hinder the performance of a task you design. Reference Platania and Moran (2001) or Griffin and Kent (1998)
3. **First Impressions and Primacy Effect.** According to the Primacy Effect ones first impression is more durable despite evidence to the contrary. Design an experiment to create a first impression of a real or imagined person based something the subject observes. Reference Sharps, Price and Bence (1996).
4. **Gender Stereotyping.** Luria and Rubin (1974) found in a series of studies that regardless of the actual sex of a baby, if a subject is told it is a girl then more feminine characteristics will be used if asked to describe the baby and male characteristics if it is a boy. You may want to limit the choice of traits. Harrison and O'Neil (2003) thought it may even be found in association with certain musical instruments. White, Morris and Arthur (1996) thought that even when judging pictures of animals at work or with children.
5. **Estimation of time:** Effects of mental activity on the estimation of time. Design a memory activity where the task or stimulus moves quickly and the response also must be quick. In another group the task or stimulus moves slowly and does the memory task. For example, have a passage read or a list of words read either slowly or quickly and responses given slowly or quickly.
6. **Effects of First Names on Perception of Physical Attractiveness.** Effects of attractive vs. unattractive first names on perceptions of physical attractiveness in either males or females. One variation might be to use a description of a person rather than a picture and counterbalance the names. Design an experiment that provides a way of measuring if first names make a difference on judgments of physical attractiveness. If names do make a difference you will need to find a reliable way of choosing desirable vs. undesirable first names. You will also need to decide what factors you will use to determine physical attractiveness or you will need to write descriptors of persons they are to judge.

***Your Social Psychology Text is filled with ideas for research. Just be sure they follow the IB Ethical Guidelines.***