Helping you Achieve Highest Grades in IB

IB Psychology HL

First Assessment 2019

Psychology Themes

Core Approaches To Researching Behavior
Core Biological Approach to Understanding Behavior
Core Cognitive Approach To Understanding-Behaviour
Core Sociocultural Approach To Understanding Behavior
Options Abnormal Psychology
Options Developmental Psychology
Options Health Psychology
Options Psychology Of Human Relationships

Mark Scheme

Short Answer Questions

Topic: Core Approaches To Researching Behavior

Marks: 77

Total Marks: / 77

Markschemes

19M.3.HL.TZ0.1

a.

Award [1] for stating experiment (acceptable terms: lab experiment, controlled experiment, true experiment). Stating 'experiment' without specification is acceptable.
Award [0] for field experiment, natural experiment, quasi experiment, field study.
Answers related to characteristics of the experiment may include two of the following characteristics: Award [1] per relevant point, up to a maximum of [2].
Answers that outline characteristics such as controls, cause-effect relationship, IV and DV, may be awarded marks for this even if they have not identified the research method as a lab experiment.

- The lab experiment is designed to test a hypothesis (and null hypothesis).
- The lab experiment involves at least two conditions, the IV (in this paper a multitasking (listening to a lecture and complete 12 online tasks) or a non-multitasking condition) and DV (score on the test).
- Controls, for example for participant variables: the participants were randomly allocated into the two conditions by assigning them to a random seat number.
- The lab experiment can establish a cause-effect relationship between manipulation of the IV and its effect on the DV. The results of this experiment showed that participants in the multitasking condition scored significantly lower on the comprehension test than participants in the non-multitasking condition.
- Any other relevant point.

b.

Award [1] for stating convenience (or opportunity) sampling. Self-selected sampling (or volunteer sample) is acceptable if linked to convenience (as this is specifically mentioned in the stimulus paper).
Description of the sampling method may include two of the following characteristics: [1] per relevant point. Maximum of [2].

- Convenience (or opportunity) sampling is a non-probability sampling method, which means that participants are not chosen randomly.
- A convenience/opportunity sample consists of participants who represent the population of interest. In the case of the study in the stimulus material, the population is university students but the topic is of general interest.
- A convenience/opportunity sample consists of participants based on availability and willingness to participate.
- Convenience sampling is an easy and quick way to get a sample and often used in research at universities as in this study.
- A convenience/opportunity sample suffers from selection bias and is therefore not necessarily representative of the population being studied or to other populations.
- Any other relevant point.

c.

Award [1] for naming an alternative or additional research method and [2] for rationale.
Alternative/additional research methods that could be used to study the same topic as the experiment in the stimulus (that is, if multitasking on a laptop while listening to a lecture impairs learning) include, but are not limited to:

Markschemes

A survey Rationales for using surveys as an additional or alternative method could include, but are not limited to:

- Using a survey as alternative method with random sampling of participants would be more representative of the population and easier to generalize results.
- A survey could ask students more specific questions related to multitasking, for example, how often they multitasked, or to what extent they experienced that multitasking impaired their learning, and/or the effectiveness of note taking when they multitask, eg texting or visiting Facebook during lectures.
- Data from a survey as an additional research method could be used to compare if the results of the experiment corresponded with students' own perception of a possible influence of multitasking on their learning. Students might respond that they can multitask and that their performance in class is not affected negatively.This could be compared with the result of the experiment.
- The survey as an additional method would add further data into a complex problem that researchers could then decide to explore using qualitative methods
- The survey enables a relatively rapid and inexpensive collection of a large amount of data.

Focus group interviews

Rationales for using focus group interviews as an additional or alternative method could include, but are not limited to:

- Exploring the student's own perception of the issue of multitasking in class as an additional method. The facilitator would encourage the participants to share their views and experiences on multitasking during lectures. A qualitative approach such as this would give a more subjective view on multitasking and the effects students perceive on concentration and remembering. Such data could be compared to the findings of the experiment and thus give a more holistic view of the problem of multitasking during lectures.
- Data from focus groups on participants' experiences of quality of learning during lectures with and without multitasking could give the researchers insight into aspects of the problem that they had not thought of themselves.
- Data from a focus group as an alternative method could give researchers an idea of how students perceive multitasking and then use these data for further research, perhaps using an experiment.

19M.3.HL.TZ0.2

For describing the ethical considerations that were applied in the study: [1] per relevant point made, up to a maximum of [3].

The researchers gave the participants a consent form to sign before the start of the study, in line with ethical guidelines in psychological research.

The lecture was based on an ethically neutral (non-sensitive) topic.

The participants were debriefed after they had completed the study. Therefore participants were fully informed about the study once the experiment was completed, including how the data would be used.

Markschemes

For explaining further ethical considerations that could be applied: [1] per relevant point made with a maximum of [3].

- Confidentiality and anonymity are important in all research. It may be difficult to ensure because students in this study sit close to one another in the simulated class setting. A way to deal with this could be to test students individually. In the context of this study it may be less important because there is not much personal information involved so it would be difficult to identify students from their data set.
- Participants should be informed that they could contact the researchers if they had any questions about the study, for example if they would like to know how the data would be used.
- Deception is used in the study. It must be clearly justified, for example, in a research ethics application form why (minor) deception is necessary in this particular study.
- Participants should be informed of their rights to withdraw from the research once it has started, as well as consequences of doing so. In this study, that was not done.
- Receiving course credit for participation in research is a common way to recruit participants at many universities. An ethical issue here is whether students feel coerced to participate. Students who do not wish to participate in this research should not be disadvantaged in any way and they should be offered a comparable alternative task to receive the same credits.
- Any other relevant point(s).

Answers do not need to follow the order of applied and further considerations in writing about the ethical considerations in relation to the study. Any order of mentioning the ethical considerations are valid when awarding marks.

19M.3.HL.TZ0.3

Refer to the paper 3 markbands when awarding marks. These can be found under the “Your tests” tab > supplemental materials.

Marks should be awarded according to the descriptors in the markbands. Each level of the markband corresponds to a range of marks to differentiate candidates' performance. A best-fit approach is used to ascertain which particular mark to use from the possible range for each level descriptor.

The command term “discuss” requires candidates to offer a considered review that includes a range of arguments. Conclusions should be presented clearly and supported by appropriate knowledge of generalizing the findings of the study in the stimulus material. Generalization means drawing inferences from results of a study to something outside the study (external validity). The study in the stimulus is quantitative. The most appropriate model of generalization would be statistical generalization but that would require a random sample because this is typically representative of the target population.

Discussion points related to the possibility of generalizing/transferring the findings of the study in the stimulus material could include, but are not limited to:

Markschemes

The sampling method (a convenience sample). In this study the population is university students in North America enrolled in an introductory psychology course. The study used convenience sampling and students could sign up for participation in the study or not (self-selection). This means that it is a non-probability sample rather than a random sample (probability sampling).

- The sample was relatively small with only 40 participants and therefore the sample is not considered statistically representative of the population even though the researchers had recruited an even number of males and females.
- The fact that students received credit for participation could also result in selection bias. When there is requirement to participate, students may be more likely to sign up for one study and not another on the basis of a convenient appointment time, rather than because they are making an informed choice about the kind of study they want to participate in.
- If the researchers added more participants to the sample it would enhance the possibility of generalization, as well as adding to statistical power. The more participants, the greater the chance that differences between participants will be balanced out, and therefore generalization is more likely to happen.
- If replications of this study arrived at the same conclusion (planned replication) the potential for generalization is enhanced. If the same theory of cause-effect relationship between multitasking and lowered performance found support in additional studies it would be more likely to confirm validity of the original findings. The result of this experiment has been supported by previous research and this indicates some external validity of the findings.

Candidates who use the terms generalization and transferability interchangeably should not be penalized.

19N.3.HL.TZ0.1

a.

Award [1] for stating lab experiment (or true experiment). Stating 'experiment' without specification is acceptable.

Answers related to characteristics of the method may include two of the following characteristics: [1] per relevant point. Maximum of [2].

Answers that outline characteristics such as controls, cause effect relationship, IV and DV may be awarded marks for this even if they have not identified the research method as a lab experiment.

- A lab experiment involves random allocation of participants to the experimental groups (alternative: to the exposure of the independent variable).
- An experiment involves at least two conditions. In this study condition 1 was the "math-test" condition alone, and condition 2 was the "math-test and teaching intervention".
- The IV was whether participants were exposed to the teaching intervention or not, and the DV was the score on the math test.

Markschemes

- An experiment has a hypothesis: the hypothesis was that female participants in condition 2 (with the teaching intervention) would score higher on the math test than female participants in condition 1 (without the teaching intervention).
- A lab experiment is characterized by rigorous control to avoid confounding variables, for example, participant variables. The participants were randomly allocated into the two groups.
- The lab experiment can establish a cause-effect relationship between manipulation of the IV and its effect on the DV. In this study there was a causal relationship between the IV (learning about stereotype threat) and the DV (scores on the math test).

b.

Award [1] for stating convenience (or opportunity) sampling.

Description of the sampling method may include two of the following characteristics: [1] per relevant point. Maximum of [2].

- A convenience/opportunity sample consists of participants representing the population of interest. In the case of the study in the stimulus material, the population is female university students and the topic is of general interest (stereotype threat related to math performance).
- A convenience/opportunity sample consists of participants based on availability and willingness to participate. It is an easy and quick way to get a sample and often used in research at universities as in this study.
- Convenience (or opportunity) sampling is a non-probability sampling method, which means that participants are not chosen randomly.
- A convenience/opportunity sample suffers from selection bias and is therefore not necessarily representative of the population being studied (may lack population validity)
- Any other relevant point(s).

c.

Award [1] for naming an alternative or additional research method and [2] for rationale.

Alternative or additional research methods include, but are not limited to:

Focus group interviews

Rationales for using focus group interviews could include, but are not limited to:

- The female students' own perception of stereotype threat in relation to math and test anxiety could be explored. The facilitator would encourage the participants to share their views and experiences of anxiety and lack of confidence in math.
- This qualitative approach would give a subjective view on each participant's experiences with stereotypes, and how this might have affected their performance.
- The qualitative data could supplement the experimental data and give the researchers insight into aspects of the stereotype threat that they had not thought of themselves or, initiate further experimental research based on the findings of the focus group interviews.

Semi-structured interviews

Rationales for using semi-structured interviews could include, but are not limited to:

- Semi-structured interviews could make a valuable contribution to an overall understanding of issues involved in gender stereotypes and math. The use of semi-structured interviews gives the participants the possibility to provide in-depth answers and to elaborate on specific points.
- The inductive content analysis of the semi-structured interview may reveal themes related to everyday stereotyping or negative expectations in relation to women and math that could contribute to a deeper understanding of the problem than that found in an experiment.

Markschemes

19N.3.HL.TZ0.2

For describing the ethical considerations that were applied in the study: [1] per relevant point made, up to a maximum of [3].
The participants signed a consent form before the start of the study and agreed to participate.
They were only informed that the study was about math and gender so there was slight deception involved.
They were guaranteed the right to withdraw from the study at any time and/or withdraw their data at any time as part of consent.
They were guaranteed confidentiality and anonymity as part of consent.
The participants were debriefed after they had completed the study. This is to ensure that the participants leave the study with a full understanding of it and in the same condition as they entered it.
For explaining further ethical considerations that could be applied: [1] per relevant point made, up to a maximum of [3].
In principle, participants should be fully informed about the aim and procedures of the study, but this was not done here because this would make it impossible to conduct this particular study. For example, participants were not told the purpose of writing their gender on the paper. This would serve as a primer and is known to create anxiety in females before a math test because of the stereotype threat.
In a study like this one, on quite a sensitive issue that could potentially stress the female participants, they should have been told that they could contact the researchers if they had any questions about the study. The researchers should make sure that the female participants did not suffer any psychological harm.
Deception is used in the study. It must be clearly justified in a research ethics application form why (minor) deception is necessary in this particular study.
The researcher could inform participants during debriefing that they could still withdraw their data. Participants may not feel they can leave the study because they have given consent.
Students may feel coerced to participate when they receive extra credit. Students who do not wish to participate in this research should not be disadvantaged in any way and they should be offered a comparable alternative task to receive the same credits.
Any other relevant point(s).

19N.3.HL.TZ0.3

Refer to the paper 3 markbands when awarding marks. These can be found under the “Your tests” tab > supplemental materials.
The command term “discuss” requires candidates to offer a considered and balanced review of how a researcher could avoid bias.
Biases in research may originate from design of the experiment, the researchers, as well as the participants.
Possible ways for the researcher to avoid bias in this study could include but are not limited to:

- Researchers could reduce bias by having a well-designed research protocol that explicitly outlines how data is collected and analysed in this experiment.

Markschemes

The researcher could conduct a pilot study in order to test the suitability of the overall design, procedures and measures used in the experiment (for example, with regard to operationalization of variables) to see if a cause–effect relationship can be established between the IV and the DV (internal validity) .This would also help to see if all possible confounding variables have been taken into account. However, a pilot study may not be possible due to time restraints or lack of resources.

- A pilot study is an important step in ensuring construct validity, that is, making sure that the study in question actually is measuring 'stereotype threat' in relation to math so that the results can be generalized and used for prediction.
- Sampling bias (selection bias) is a danger in the case of a non-probability sample, as in this study. Although sampling bias may occur when participants in a sample are not selected randomly, but participants can then be randomly allocated to the experimental conditions in order to control for participant bias. This was also done in this study. Random allocation may increase the possibility of generalization. Another way to avoid sampling bias is to have a random sample but this is often not done in research like this one with a student sample.
- To prevent experimenter bias (researcher bias, the Rosenthal effect), the researcher could ensure that the experimenter is blind to the hypothesis of the study. This would help prevent threats to external validity. The researcher should also be aware of personal biases when formulating a research question and analysing data.
- The researcher can control for demand characteristics (i.e. participants respond to cues in the experiment, which somehow tell them what is expected of them) or the Hawthorne effect (i.e. the mere fact of being in a study makes participants perform better). This could affect their behaviour in this experiment and thus affect internal validity of the study. A possible way to control for this is using some degree of deception, which was also the case in this experiment.
- The researcher could control for bias related to having a male experimenter in a study with only female participants by having a female experimenter conduct the experiment. This was also the case in this study.
- The researcher could try to avoid confirmation bias and gender bias during analysis of data by having other researchers participate in the collection, analysis, and interpretation of data (researcher triangulation). This is important with regard to generalization of results, especially in a study with a single sex sample and a sensitive topic related to stereotyping.

Arguments based on a conceptual framework related to qualitative research, for example, personal reflexivity should not be credited.

Marks should be awarded according to the descriptors in the markbands. Each level of the markband corresponds to a range of marks to differentiate candidates' performance. A best-fit approach is used to ascertain which particular mark to use from the possible range for each level descriptor.

Markschemes

20N.3.HL.TZ0.1

a.
Award [1] for identification of correct research method.
Experiment (accept also: lab experiment; true experiment)
Answers related to an outline of characteristics of the method may include two of the following characteristics: [1] per relevant point. Maximum of [2].

- The experimental method involves at least two conditions. In this study, there were two conditions: social exclusion and social inclusion.
- The experiment is based on a hypothesis that predicts a causal relationship between the IV and the DV.
- The experiment (true experiment) involves random allocation of participants to the experimental group (also accept: to the exposure of the IV).
- The experiment can establish a cause-effect relationship between manipulation of the IV and levels of the DV.
- The experimental method involves control for confounding variables, for example, for participant variables to avoid bias

b.
Award [1] for naming the correct sampling method.
Convenience sampling (accept also: opportunity sample; volunteer sample; self-selected sample) [1].
Description of the sampling method may include two of the following characteristics: Award [1] per relevant point, up to a maximum of [2].
Descriptions of the sampling method used in the study could include but are not limited to:

- A convenience sample is a non-probability sample where members of the population who meet certain practical criteria (such as geographical proximity, similarity or willingness to participate) are selected.
- It is an easy way to get a sample for the researcher. This was also the case in this study where the sample consisted of psychology university students who were available and participated for course credits.
- A convenience sample is cost-effective and saves time compared to gathering a random sample.
- A convenience sample suffers from self-selection bias. The sample is not considered representative of a target population and the findings cannot easily be generalized if at all.

c.
Award [1] for naming an alternative or additional research method, and up to [2] for reason with rationale.
The candidate may choose to write about an alternative or additional method. Either approach to answering the question is acceptable. The rationale may differ depending on which is chosen.
Suitable alternative or additional research methods could be but are not limited to:

Markschemes

Focus group interviews
Focus group interviews with the participants could be used either as a follow-up (additional method) or as an alternative method. Reasons (with rationale) for using a focus-group interview could include but are not limited to:

- This is a different way to explore how people's perceptions of social exclusion influence prosocial behaviour. The facilitator would encourage the participants to share their experiences, including emotions, in situations in which they had felt socially excluded.
- This qualitative approach could give a more subjective view on what the threat of exclusion feels like and how this could potentially affect human behaviour.

A semi-structured interview
Reasons (with rationale) for using a semi-structured interview as an alternative/additional method could be but are not limited to:

- The semi-structured interview is based on an interview guide with a list of potential questions and topics that need to be covered during the interview. The focus of this research was a possible relationship between social exclusion and lack of prosocial behaviour and it can be considered a very sensitive topic. Therefore, a semi-structured one-to-one interview could be more appropriate if the researcher wants to explore how individuals experienced social exclusion and how that affected them.
- The semi-structured interview is flexible. There are both closed and open-ended questions and the interviewer can ask respondents to elaborate on answers, which could potentially lead to a better understanding of participants' own subjective understanding of this very sensitive issue.
- The one-to-one setting in a semi-structured interview is likely to establish a good rapport between the interviewer and the respondent. This could be extremely important in a research study on a sensitive issue.

20N.3.HL.TZ0.3

Refer to the paper 3 markbands when awarding marks. These can be found under the "Your tests" tab > supplemental materials.
Marks should be awarded according to the descriptors in the markbands. Each level of the markband corresponds to a range of marks to differentiate candidates' performance. A best-fit approach is used to ascertain which particular mark to use from the possible range for each level descriptor.
The study in the stimulus material is a quantitative study so it is expected that candidates use terminology related to generalization in quantitative research. Use of concepts related to qualitative research such as "theoretical generalisation" and "inferential generalisation" should not be awarded credit.
The command term "discuss" requires candidates to offer a review of the possibility of generalizing the findings of the study in the stimulus material.
Discussion related to the possibility of generalizing the findings of the study in the stimulus material could include but are not limited to:

Markschemes

- Generalization means drawing inferences from findings in this experiment to something outside the study (external validity). The study in the stimulus is quantitative and therefore a model of generalization could be statistical generalization (also accept: nomothetic generalization). Although the participants in this study are randomly allocated to the two conditions, the sample is not randomized (as it was a convenience sample). Therefore, generalization would be problematic.

In this study, the target population is psychology students who as part of their education are expected to sign up for a certain number of research studies. The study used convenience sampling, which is a non-probability sample, but it is also an easy and quick way to select a sample. However, this sampling method has received a lot of criticism, as psychology students at universities cannot be expected to represent a wider population. Therefore, it can be argued that it might at best be possible to generalize these results to psychology students at universities. Some would argue that a convenience sample only represents itself.
The sampling method (based on convenience) is not considered statistically representative of a target population as it suffers from self-selection bias. One way to ensure generalization in a study is to choose a random sample (probability sampling).
The fact that students received credit for participation could result in selection bias. When there is requirement to participate, students may be more likely to sign up for one study and not another on the basis of a convenient appointment time, rather than because they are making an informed choice about the kind of study they want to participate in.
The sample was relatively small with only 26 participants. However, the researchers had ensured that the sample included both males and females as well as different ethnic groups. If the researchers added more participants to the sample it would enhance the possibility of generalization, as well as adding to statistical power. The more participants, the greater the chance that differences between participants will be levelled out and therefore generalization is more likely to be possible.
If replications of this study arrived at the same conclusion, the potential for generalization is enhanced. If the same theory of cause-effect relationship between social exclusion and decrease in prosocial behaviour found support in additional studies it would be more likely to confirm the validity of the original findings.