Psychology

Timezone 1

To protect the integrity of the assessments, increasing use is being made of examination variants. By using variants of the same examination, students in one part of the world will not always be responding to the same examination content as students in other parts of the world. A rigorous process is applied to ensure that the content across all variants is comparable in terms of difficulty and syllabus coverage. In addition, measures are taken during the standardisation and grade awarding processes to ensure that the final grade awarded to students is comparable.

Contents

Grade boundaries

Higher level overall

Grade:	1	2	3	4	5	6	7
Mark range:	0 - 7	8 - 18	19 - 30	31 - 44	45 - 58	59 - 72	73 - 100

Standard level overall

Grade:	1	2	3	4	5	6	7
Mark range:	0 - 8	9 - 19	20 - 30	31 - 44	45 - 58	59 - 72	73 - 100

Internal assessment

Grade:	1	2	3	4	5	6	7
Mark range:	0 - 2	3 - 5	6 - 8	9 - 11	12 - 13	14 - 16	17 - 22

Higher level paper one

Grade:	1	2	3	4	5	6	7
Mark range:	0 - 2	3 - 5	6 - 10	11 - 17	18 - 23	24 - 30	31 - 49

Standard level paper one

Grade:	1	2	3	4	5	6	7
Mark range:	0 - 3	4 - 7	8 - 12	13 - 19	20 - 27	28 - 34	35 - 49

Higher level paper two

Grade:	1	2	3	4	5	6	7
Mark range:	0 - 5	6 - 11	12 - 18	19 - 25	26 - 32	33 - 39	40 - 44

Standard level paper two

Grade:	1	2	3	4	5	6	7
Mark range:	0 - 2	3 - 5	6 - 8	9 - 11	12 - 14	15 - 17	18 - 22

Higher level paper three

Grade:	1	2	3	4	5	6	7

Mark range:	0 - 2	3 - 5	6 - 8	9 - 11	12 - 15	16 - 18	19 - 24

Internal assessment

The range and suitability of the work submitted

The topics chosen for the internal assessment (IA) were typically from the cognitive approach to understanding behaviour with some limited examples from the sociocultural approach. Popular studies to replicate included Stroop (1933; 1935), Landry and Bartling (2011), Loftus and Palmer (1975), Mueller and Oppenheimer (2014), Tversky and Kahneman (1974) and Glanzer and Cunitz (1966). These studies are very suitable as they offer both a methodologically and ethically sound approach. Additionally, these studies are easily linked to an appropriate model or theory. Replications based on Brewer and Treyens (1981) as well as investigations based on the framing effect, e.g. Tversky and Kahneman (1986) were less successful in regard to operationalizing variables and calculating the statistical tests.

As in previous sessions, students struggled to link the theory/model to their own investigation, often linking the theory to the replicated study (which is not required). Studies into the chameleon effect were often the weakest, with no relevant background theory identified. Some students also struggled with identifying what was being tested in prospect theory (framing effect).

The stronger IAs only had two conditions and this is encouraged for future students; there is no need to have more than two conditions, and this only makes the IA far more challenging for the students.

Most of the IAs submitted were experimental, with a few exceptions that did not manipulate an independent variable, or were quasi-experimental, with age, culture, or gender etc being compared. There were also some survey studies conducted online where there were not two identifiable conditions and therefore no manipulated IV.

Student performance against each criterion

Criterion I: Introduction

As in previous sessions, the biggest challenge was describing the theory and linking it to the investigation. Many reports reflected that the term 'theory' is not well understood, and students tried to use any kind of explanation of behaviour, such as an 'effect' or a 'bias.' When a relevant model or theory was presented, it was often not in sufficient detail and students struggled to explain the link to their own investigation. Students often wrote long summaries of the replicated study but did not use the study effectively to explain the theory. At times, the description of the model/theory could have been more detailed.

The aim of the study was sometimes very generic – e.g., "to replicate the original study". Also, some students did not clearly explain the relevance of the investigation, with this often being a superficial reason that was not pertinent to the actual investigation.

The IV and DV were generally operationalized, but students should also ensure their hypotheses are clear, as at times, they lacked clarity. Students that attempted to investigate more than one level of the independent variable rarely stated the hypotheses coherently.

Students should also be aware that if their hypothesis is directional or non-directional, the inferential calculations should reflect this, e.g., one-tailed calculations or two-tailed calculations respectively.

Criterion II: Exploration

Most students described or stated all aspects of exploration (design, sampling technique, participants, controlled variables and materials) well, but some did not explain *why* they were chosen. Also, there was a tendency to use generic reasons for their choice, such as choosing an independent samples design to avoid practice effect, without explaining the relevance of this to their investigation.

Materials were often listed, but it was not explained why they were chosen. If a word list is used, it is important to explain why these words were chosen. Letters of consent and debriefing notes are not materials that should be explained. The focus should be on materials that were part of the experiment. Students should not provide links to materials as these links are not active when received by the moderator. With controlled variables, it is not enough to just state that the experiment was controlled to avoid 'extraneous variables.'

Students should also be encouraged to include a procedure in this section as they will need to evaluate this in the 'Evaluation' section.

Criterion III: Analysis

Most students used appropriate descriptive statistics, basing their choice on the level of the data, however students often merely stated the descriptive statistics rather than interpreting them. Also, good practice would be limiting calculations to two significant figures.

Only one measure of central tendency and one measure of dispersion is required in the report. Students should base this choice on the level of data in the study. Likewise, the choice of inferential statistics should be based on the level of data and the design.

Graphs were generally labelled accurately and reflected the research hypothesis, but some presented histograms rather than bar graphs. The lines of the bars should not be touching.

Some students employed the use of the t-test without clear justification. If parametric assumptions are not met, a t-test is not the most appropriate choice.

At times, the statements of significance were not clearly presented for the inferential tests, with very little understanding shown regarding what the calculations have shown with reference to the hypotheses. Students should interpret the statistical findings as well as linking the findings explicitly to the hypothesis. At times, there was a lack of understanding that accepting the null hypothesis is not an admission of failure.

It is also required that students include all raw data in the Appendices, as well as the complete inferential statistical calculations, or at least a screenshot of the complete results from an online calculator. This is essential for the examiner, otherwise it cannot be determined if the calculations presented are accurate.

And finally, the simpler the experiment (e.g. only two conditions of the IV), the better the Analysis section. There were many very strong analyses and in nearly all of these there had been just two different conditions of the IV and one measured DV.

Criterion IV: Evaluation

The requirement here is for the findings to be *discussed* with reference to the theory/model presented in the Introduction; however many students only made brief reference, and instead compared their results in detail to the replicated study (which is not required).

Some students did not evaluate all three required aspects (design, procedure and sample) but instead focused only on one or two, or only on the limitations of all three. At times there was confusion between design and procedure. Many students incorrectly wrote that a limitation was that the groups were not balanced according to numbers, gender or age. If there was random allocation to conditions, the groups should not be balanced. In most studies of memory, there is no indication that gender is relevant, and an age difference of one year also should make no difference at all.

Evaluations were at times superficial. It is important that there is a clear link between the evaluation points and the student's investigation. Many generic approaches were used – for example, 'independent samples avoids order effects'. But this was not explained with regard to the study.

A common error was saying that a strength was that ethical guidelines were followed or that there were standardized instructions. These are requirements for an experiment and meeting these requirements cannot be seen as a strength.

Often, modifications were general and not linked to the limitations of the investigation and/or were superficial, e.g., include a larger sample size, gender imbalance, etc.

Some IAs mentioned certain limitations related to participants possibly cheating or having problems with internet connections. These are not limitations of the actual design, procedure, or sample.

Recommendations and guidance for the teaching of future students

It is essential that teachers are fully aware of the requirements and assessment criteria for the IA. Sharing the assessment criteria would also potentially help students understand the requirements more fully.

Teachers should encourage students to keep their investigation simple with only two conditions of the IV. Making an IA more complex does not make it better.

It is important that the IA is not the first time that a student has carried out an experiment and written up a report. As this is an assessment, the student should need minimal guidance in the preparation, execution and analysis of their study.

Students should practise hypotheses writing in order to operationalize the IV and DV and should also be clear about the direction of their hypothesis and how this will in turn affect the statistical calculations.

Students must clearly understand the difference between describe and explain; they should make clear *why* each component of Exploration was chosen, e.g., whilst it's important to know how opportunity sampling takes place, it's equally important to know why it takes place. Similarly, it is important to know why this sampling procedure would have limitations in context to the experiment being conducted. The concept of controls needs to be a more integrated part of the discussion of research throughout the course. Asking students what controls a researcher would have to consider will help prepare them for this aspect of the assessment.

More guidance should be given for descriptive and/or inferential statistics, ensuring that students understand the findings in relation to the hypotheses and the background theory or model. It is recommended that teachers go through the process of basic descriptive statistics with students and also teach them not only how to choose a relevant inferential test but help them to understand why the test is appropriate. Often students have conducted an analysis which has been inaccurate, and that inaccuracy has been missed by the teacher. Knowing and learning about statistics is essential for both the teacher and the student.

Some students need more guidance on discussing meaningful, relevant strengths and limitations of their investigation, and making a connection with the modifications to address those specific limitations.

Further guidance should be provided on how to follow the IA formatting requirements as some reports did not adhere to the referencing guidelines (page 11 of the Psychology guide).

All IAs should be anonymized, including the student name, school code, school name, etc. The word count should be stated on the cover page and should adhere to the limits.

Further comments

References: Very few references lists were complete. It is a requirement that all research presented is cited. Almost none were formatted according to the guidelines.

Ethical considerations: Ethics were largely adhered to in the IAs, with most students describing how ethical guidelines were followed in the Exploration section as well as including the relevant materials in the appendices, e.g., consent form, debriefing, etc.

As in previous sessions, some students collected unnecessary demographic data from their participants, such as ethnicity, learning disabilities, and even in one or two cases sexuality. Also, there was a lack of anonymity – names of students, teachers, schools and also participants were frequently shared. It is important that students remember to include space for parental consent on the informed consent form if participants are under 16 years old. The informed consent forms were often not 'informed' and gave very little, if any, information about the experiment. Some did not have space for a signature, but instead had instructions to 'raise your hand if you consent' or 'leave now if you do not consent.' This is not acceptable. Debriefing forms were similarly often missing.

Missing materials: Original materials, in the form of tasks and question sheets were often missing. Raw data were usually included in the Appendices, but inferential statistics results must also be present, and in a legible form. In one or two cases these were illegible, even with magnification of the screen. Also, examiners cannot click on links to materials or sources in the uploaded reports. All materials, consent forms and references should not be in the form of hyperlinks, but actually be physically present.

Higher level paper one

General comments

The areas of the programme and examination which appeared difficult for the students

In this examination session, many students found it challenging to identify precisely what the question was asking. This resulted in many low-scoring responses and scores of zero because the response was of no relevance to the requirements of the question.

As seen in previous exam sessions, in Section A many students struggled with addressing the command terms, and the terms 'Describe' and "Outline' were not adequately addressed. Therefore, responses were underdeveloped and lacking the required amount of detail to achieve top-band marks. Students seemed unprepared for questions on ethical considerations and the coverage of additional terms, assimilation in particular, was poor. It was evident that there was much misunderstanding of which studies are appropriate for which topics and even approaches. It is a real concern that session after session, students are using Bandura's bobo-doll experiment regardless of the question.

In Section B, the command term "Discuss' proved a challenge for many students and only a small minority of responses obtained top-band marks for Criterion D. Students continue to struggle to integrate quality critical thinking in long essay responses and evidence of critical thinking was largely limited to evaluation of the research which was often superficial, repetitive and formulaic. There was very little discussion of the actual concept or theory required by the question. Question 6 was problematic for many students as they were not well prepared to discuss research methods in the context of this question.

The areas of the programme and examination in which students appeared well prepared

The overall structure of responses to both the short answer questions (SAQs) and extended response questions (ERQs) was mostly correct and the majority of students provided research studies in support of their response even though these were not always relevant to the question. Some studies did appear more than others and these were more accurately described.

There seemed to be solid knowledge concerning studies to support the role of neurotransmitters (question 5) and the influence of emotion when a study of flashbulb memory was used (question 6).

Stronger responses in Section B showed the ability to incorporate suitable and well-developed critical thinking and to use the supporting research effectively to develop an argument.

The strengths and weaknesses of the students in the treatment of individual questions

Question 1

A range of ethical considerations were addressed for this question with the most commonly encountered being informed consent, the right to withdraw and prevention of undue stress or harm. Students did not always clearly identify the ethical consideration and many did not describe their chosen consideration in

sufficient detail. In several cases, an appropriate consideration for the study used was not selected and this made the linking difficult or even inaccurate.

The studies most often selected were the case study of HM, Antonova et al. (2011), Sharot et al. (2007) and Maguire et al. (2000). Many students chose the issue of informed consent in the study of HM but showed a lack of understanding concerning how consent was applied in the context of this study. When an animal study was the focus of the question, the most commonly encountered were Rogers and Kesner (2003) and Rosenzweig et al. (1972).

Stronger responses to this question were those that correctly identified and described an ethical consideration in some detail and then made an explicit link to a relevant study of the relationship between the brain and behaviour. These responses were fully focused on the demands of the question.

The weakest responses were often those which described an ethical consideration more appropriate for human studies, in particular informed consent, but applied it to an animal study. Most responses were in the mid-band range of mark as students provided unfocused responses with unnecessary detail covering several ethical considerations at the beginning of the response. This meant that much of the response was unfocused and the description of the selected consideration was lacking in descriptive detail. Not all chosen studies were of relevance to the biological approach and it seemed that some students simply focused on a study that could be considered ethically controversial such as Bandura's experiment of observational learning and these could not be credited.

Question 2

Students mostly referred to the dual processing model and offered outlines that were reasonably detailed in terms of the characteristics of System 1 and System 2 thinking and showed good understanding. The studies chosen to support this model were relevant in most cases. However, when a study of a cognitive bias was used, most often one of anchoring bias or framing effect, it was not always used effectively as the link referred only to System 1 thinking rather than both aspects of the model. This resulted in several otherwise well-written responses being awarded mid-band marks.

As in previous sessions, it remains a concern that many responses were awarded zero marks for this question as they focused on a model of memory, most often the multi-store or working memory model, as opposed to thinking and decision making and used an irrelevant piece of supporting research as a result. It was clear that many students were not well-prepared for this area of the cognitive approach.

Question 3

Overall, students did not appear well-prepared for this question. While most responses could describe the process of acculturation, it was a minority that could offer anything more than a sentence or two defining assimilation. Most responses described all acculturation strategies or focused on the broader concept of acculturative stress instead of assimilation. Very few students were able to describe assimilation in any detail and then link the supporting study to the concept to show how assimilation was demonstrated in the findings.

Most of the studies included in responses to this question were relevant and reasonably well-described. However, some responses focused on studies that were not appropriate, most often studies of cultural dimensions or enculturation.

Question 4

This was a popular choice and most responses showed a reasonable amount of relevant knowledge and understanding about the effects of neurotransmitters and behaviour. The stronger responses were able to provide detail about the process of neurotransmission as well as identifying relevant examples of specific neurotransmitters and how they affect specific behaviours. These responses usually scored well on Criterion B. Most responses provided appropriate studies and were able to use these effectively in support of the question. The stronger responses which used animal studies were able to link these quite well to human behaviour. In the weaker responses, the main difficulty for students was a lack of contextual knowledge and understanding about neurotransmission and how the chosen neurotransmitter(s) actually function apart from just briefly stating that it affects a particular behaviour. In such responses, the studies were often lacking in detail and were not clearly linked to the question so that there was no real argument built. Some students used examples of hormones, usually oxytocin or testosterone, rather than focusing on neurotransmitters so were awarded minimal marks. Additionally, some students referred to the effects of serotonin in depression and made use of the study of Caspi et al. (2003) which made for an ineffective argument. There were also responses which included studies of the effect of SSRIs in the treatment of depression which, again, could not be used effectively.

Question 5

Many students provided appropriate research which was mostly related to flashbulb memory. The strongest responses were able to strike a balance between a detailed theoretical background in which concepts were clearly defined, effectively linked studies and well-developed holistic critical thinking that went beyond superficial methodological evaluation of the supporting research.

Weaker responses briefly described relevant studies but failed to provide sufficient theoretical background in terms of the influence of emotion on one or more cognitive processes.These responses also showed that some students had difficulty identifying specific emotions e.g. surprise when describing a study but simply referred to how negative emotions or traumatic experiences could adversely influence a cognitive process. Likewise, there were quite a few examples of the research of Loftus and Palmer (1974) being ineffectively used in support of this question. Furthermore, several students struggled to provide any meaningful discussion so that the response was lacking in critical thinking and was very generic in its approach to the question.

Question 6

On the whole, this question was not well answered and students did not appear to be very well prepared to discuss research methods used to study the influence of globalization on behaviour. Many students were unable to provide even a reasonable level of knowledge and understanding with regard to the main features of the selected research methods. While stronger responses could identify and describe relevant research methods related to appropriate studies in this field, these were definitely a minority. Most students could explain the concept of globalization accurately and with some detail, some of the weaker responses however focused on studies related to acculturation rather than globalization. Unfortunately, several students received no credit in Criterion C as their essay focused on material from the sociocultural approach, most often related to cultural dimensions or the role of culture in cognition or behaviour, that was of no direct relevance to the question.

Some students achieved high marks for Criterion D as they were able to integrate well-developed and relevant discussion points focused on the research methods as well as evaluation of the supporting studies. However, the majority of students were unable to access top-band grades for this criterion as

evaluation was focused on the studies rather than on the research methods themselves so the essay lacked a clear focus on the demands of the question.

Recommendations and guidance for the teaching of future students

Teachers need to make certain that their students have a clear understanding of the HL syllabus and are able to identify the most suitable studies for each topic. Although it may be tempting to economise on the number of studies students are taught, this must not be at the expense of students being confident about which studies are related to specific areas of the syllabus. Students should also be given plenty of opportunities to practise how they can demonstrate understanding of how their chosen research studies link explicitly to the requirements of potential exam questions. This has been problematic in recent exam sessions for both Section A and B responses. The command terms should be regularly revised and students given ample opportunity to practise how they should change their approach to exam questions when the command term changes.

It remains clear that students need ongoing guidance in relation to showing their knowledge and understanding of the theoretical background and relevant concepts relevant to each topic across the three approaches. This is important for both Section A and B responses where students often make the studies the main focus of their answers. This is an issue that needs to be addressed in long essay responses in Section B where there is an equal number of marks awarded for theoretical background and studies.

Students are still in need of continuous support and explicit guidance on how to unpack exam questions and this should be prioritised from the beginning of the course. Students should receive targeted instruction in responding effectively to exam style questions. This should be done with specific focus on including developed theoretical context, explanation of key terminology, careful selection and application of research studies and integration of relevant critical thinking. It is recommended that teachers encourage students to go further than generic evaluation of studies to ensure they can access the higher marks in Section B responses.

Standard level paper one

General comments

The areas of the programme and examination which appeared difficult for the students

Many students misinterpreted what was being asked for in the short answer questions. For example, in question 1, responses talked about ethical issues in animal research that were not relevant to animal studies (e.g. consent) or talked about ethics in the context of research that was not focused on the brain and behaviour, and, in some cases, was not even focused on the biological approach. For question 2 there were a number of responses that focused on research on biases without linking to thinking and decision making, and a large percentage were incorrectly focused on studies of memory rather than thinking and decision making, using the multistore or working memory model and Schema theory as the basis of a response. For question 3 many responses focused on assimilation in the context of schema theory rather than assimilation in the context of acculturation.

In the essay questions, students again placed more focus on the supporting research than on the topic and command term. As such, they struggled to gain high marks for criterion B (knowledge and understanding), and criterion D (critical thinking). The majority of students only demonstrated superficial critical thinking which concentrated on methodological evaluation and failed to explicitly link the findings to the focus of the question.

Similarly to the short answer questions, there were misunderstandings, in particular with question 4 where studies focused on hormones rather than neurotransmitters were used, or, at times, studies on genetics or evolution.

The areas of the programme and examination in which students appeared well prepared

For the short answer questions only a small percentage of students included unnecessary evaluation. This is a sustained improvement compared with previous sessions.

The balance between topic/theory and supporting research was better than it has been in previous years. Students seem to be understanding that a short answer response is more than just a research study.

For most essay questions relevant supporting research studies were included, appropriate research was selected and sound basic evaluation was demonstrated by most students.

The strengths and weaknesses of the students in the treatment of individual questions

Question 1

Strong responses were able to describe the general characteristics and importance of an ethical consideration, linking this to relevant detailed research and highlighting how the ethical consideration was of specific concern in the study with an explicit link to evidence from the study.

The majority of responses referred to informed consent or protection from harm and were able to select relevant research. Many responses chose informed consent in relation to Milner and Scolville's (1957) case study of patient HM or studies making use of brain imaging techniques such as Draganski et al. (2004) or Maguire et al. (2000). Higher band responses developed the link to incorporate consent by proxy whereas weaker responses outlined the study with limited detail on the procedure.

Many responses did not explicitly link the ethical consideration to the study with evidence, and often relied on simply identifying the ethical consideration rather than describing it to show a good understanding of what it meant and its significance. Others listed a range of different ethical considerations, rather than focusing on just one.

Many students failed to select a study relevant to brain and behaviour such as studies researching genetics or hormones and failed to gain credit. Some responses used animal research, which was acceptable, but most of these lacked the necessary detail/elaboration to gain marks above the mid band.

Question 2

Most responses addressed the dual processing model of thinking and decision making.

Strong responses described the dual processing model well, selected relevant research and linked the findings to both system 1 and system 2 thinking. The strongest answers included supporting research studies such as Atler and Oppenheimer's (2007) study on font and thinking or Tversky and Kahneman's (1974) study on judgement under uncertainty where a clear link could be made to systems 1 and 2.

However, many responses did not go beyond a brief identification of the difference between system 1 and system 2 thinking. When choosing this model, research was relevant, students sometimes choosing to describe a study on a cognitive bias e.g. anchoring. In this situation unfortunately, sometimes only the bias was outlined rather than the underlying model of thinking and decision making.

The greatest difficulty seemed to be in linking the research to both systems 1 and 2, and therefore this approach did not reach the top markband. Weaker responses provided only a brief outline of the model and lacked detail in their interpretation of the research study and did not provide an explicit link to the model.

A small number of responses described theories of reasoned action planned behaviour, mostly citing the Albarracin et al. 2001 meta-analysis.

Disappointingly, many responses were off topic and misunderstood thinking and decision making to include models such as schema theory, the multistore model and the working model of memory with research relevant to those models. These were not relevant to the question.

Question 3

Assimilation was most frequently described in association with acculturation and other methods such as integration and marginalization. High band responses were able to describe acculturation in general and assimilation as one of the strategies in the context of Berry's model, describing assimilation specifically, referencing the abandonment of the native culture in favour of the new cultural norms and values. Stronger responses also tended to make reference to acculturative stress as a result of assimilation and the presence of acculturation gaps creating more acculturative stress. These stronger responses generally had more detail in research with an attempt to link explicitly to assimilation as an acculturation strategy, usually as a strategy that in the study presented increased acculturative stress. The strong responses used research of Leuck and Wilson (2010) or Miranda and Matheny (2000). Studies were well described and there was a strong link back to how the results relate to assimilation.

However, many students appeared confused by this question, defaulting to assimilation in the context of schema theory rather than acculturation, or presenting enculturation research rather than acculturation research. Many just wrote about acculturation not assimilation.

Weaker responses presented research that focused on the question, but details were often lacking in the study and the link presented was to other acculturation strategies or acculturation in general. Most students seemed unprepared to address the single strategy comprehensively, with some bringing in any research that addressed any aspect of the sociocultural approach or culture in general and trying to make a link work – e.g. Bartlett, Asch and Tajfel.

Question 4

This question demanded knowledge and understanding of the effects of one or more neurotransmitters on human behaviour. Stronger responses were able to explain neurotransmission before giving a full explanation of the role of their chosen neurotransmitter. Acetylcholine, dopamine and serotonin were popular choices and students showed good understanding of their roles.

Weaker responses did not include any explanation of the role of their chosen neurotransmitter, instead focusing solely on the supporting research, and these gained low marks for criterion B. Many of the responses that reviewed Acetylcholine utilised an animal study but did not explicitly link this to human behaviour. Some responses lacked relevance as they focused on hormones such as oxytocin and testosterone which were not credited. Many tried to use Caspi's (2003) study on the 5HTT gene (as it is a serotonin transporter gene), but without a focus on serotonin this gained minimal credit.

Very few responses included anything other than methodological evaluation for criterion D.

Question 5

Most students chose to write about flashbulb memory research. The stronger responses gave a good explanation of what flashbulb memories are, how they are related to emotion and described the biological aspects of flashbulb memory. Vocabulary was well developed in these responses and the studies presented were explained with the results linked back to flashbulb memory and emotion. Relevant research studies included Brown and Kulik's (1977) study of flashbulb memory and Neisser & Harsch's (1992) study. Yuille and Cutshall's (1986) study of real life eye-witnesses was also often used to demonstrate the accuracy of flashbulb memory. The strongest students provided relevant and well detailed descriptions of research, often with contrasting arguments about the accuracy of the memories. Their discussion was well developed, going beyond generic evaluation of methodology, providing a holistic discussion of the relationship between emotion and memory, applications of the research and contradictory evidence.

Weaker responses did not include any explanation of how emotion may influence memory e.g. through flashbulb memories, instead focusing solely on the supporting research, and therefore they gained few marks for knowledge and understanding (criterion B). Some poorer answers attempted to use research relating to eye witness testimony, which was either difficult to relate to the role of emotion or not relevant to the question, such as Loftus and Palmer. Critical thinking was either generic and methodology based, or missing in these answers.

Question 6

Most students who chose this question managed to at least provide a brief overview of social cognitive theory. The best answers focused on a good definition of the theory; explaining attention, retention, reproduction, motivation and self-efficacy, with reciprocal determinism and the factors that made it most

likely for an observer to imitate a model included in some of the strongest answers. These responses presented focused and detailed research that was explicitly linked to the mediational processes, evaluated the research presented, explaining the significance of the evaluation points and linking back to evidence in the study. Better responses also embraced the command term and evaluated social cognitive theory itself.

Weaker responses tended to lack any explanation of social cognitive theory itself, instead focusing solely on the supporting research, and therefore they gained few marks for criterion B. Many of these responses only provided a simplistic link between research and social cognitive theory that lacked development and a large number of responses engaged in rote and simplistic evaluation of research only.

Most students included research on Bandura and Ross's (1961) Bobo Doll study, Odden and Rochat (2004) study on observation learning in enculturation, and Joy, Kimball and Zabrack's (1986) longitudinal study on the effect of the introduction of TV on aggression in children.

Students who tried to use Zimbardo, Tajfel and Asch did not gain credit.

Recommendations and guidance for the teaching of future students

In short answer questions, it would be recommended that in exam preparation students are taught to give equal consideration to the command term (describe/ outline/ explain) as well as the research study as many focus mainly on the study. Students could practise focusing on the question/command term, and then bringing in the research to support the response, as opposed to the research being the entire response. Students should also be taught to demonstrate their understanding of how their chosen study can be explicitly and clearly linked to the demands of the question. A focus on explicitly linking research to the topic presented will allow access to the highest markband.

For essay questions, students would benefit from practice in discussing the findings of research studies in relation to the theory. Many provide lists like methodological evaluations which show limited critical thinking. The marking criteria could be broken down and thoroughly discussed with students, with a particular emphasis on what is needed for criterion B and criterion D. Students could practise writing sub sections, placing particular emphasis on different aspects of the marking criteria. Teachers could consider providing exemplars of different mark bands to help students understand the difference between superficial and well-developed critical thinking. Reminding students that the research should be 'supporting' the topic or theory may encourage them to include more in their responses than just the research.

Students should receive targeted support in answering each command term effectively. In particular, the difference between the command terms 'evaluate' and 'discuss'. This could involve a focus on how to structure essay responses so that besides the standard inclusion of theory and research, students become more confident in the integration of critical thinking that is appropriate both to the question and the relevant command term. Teaching students to identify relevant evaluation points for each study rather than relying on a generic methodological evaluation strategy for every study, and explaining the relevance of the evaluation, is critical. Statements about ecological validity, control of variables, cause and effect and lack of generalization of results offer minimal critical insight to a response. They should consider the strengths and implications of research findings, offer alternative explanations, addressing practical applications of research etc.

In addition, a clear understanding of what content fits under what topic heading would be helpful to avoid loss of marks through selection of inappropriate pieces of research.

Higher level and standard level paper two

General comments

The areas of the programme and examination which appeared difficult for the students

A recurring challenge for many students appeared to be difficulty in explicitly identifying the issue/problem embedded in the question and providing an explanation of it in their response. This needs to be done early in the essay, preferably in the opening paragraph. Those that do not do so tend to fall foul of not addressing the question specifically asked, or providing evidence of knowledge and understanding that is not made explicitly relevant to the question.

Some students demonstrated difficulty in displaying critical thinking skills in depth relevant to the issue in the question. The default position was quite often to merely evaluate research based upon strengths and limitations of individual studies. This tended not to develop any line of argument on the core issue in the question. Such an approach does not demonstrate well developed critical thinking skills.

Some questions seemed to pose additional challenges due to the command term used or the embedded focus of emphasis. For example, question 2 the command term 'contrast' seemed to be overlooked and in question 1 the focus on research methods seemed to be disregarded by some. The latter was also evidenced in questions 3, 7 and 10 where the focus of the question was on studies not the generic topic.

The areas of the programme and examination in which students appeared well prepared

Most students displayed sound exam technique in trying to provide basic organization to their responses and writing clearly. Time management was also sound and nearly all students provided complete responses.

There was a sense that most students had a good understanding of how to organise an essay-based response with a sound structure built around an engaging introduction, paragraphed essay body and need for an appropriate conclusion based on what they had presented. Many essays read well and therefore clarity was evident. For the most part, responses gained high marks for criterion E even if content was not wholly relevant.

The strengths and weaknesses of the students in the treatment of individual questions

Question 1

This was a popular question but many students struggled to focus on specific research methods. In some that did unfortunately the methods were erroneously identified or lacked detail and specific research terminology and core concepts. The main focus of the response needed to be on the research methods used in the studies cited, not on the studies themselves.

Relevant research method(s) included but were not limited to:

- Case studies

- Correlational studies
- Surveys
- Interviews
- Experiments / quasi-experiments
- Meta-analyses.

Question 2

This was also a popular question in the option. Many students seemed well prepared in terms of general understanding of the two different explanatory approaches, and most tried to incorporate research to support each. The challenge for students seemed to be in addressing the "contrast" demand rather than just describing the approaches with contrasting points missing or at best implied. Some responses just contrasted studies rather than explanations.

Question 3

Students could address one disorder to demonstrate depth of knowledge, or address more than one disorder to demonstrate breadth of knowledge.

Unfortunately, some students neglected the culture aspect of treatment in their study choices.

Evaluation of the selected studies included a range of factors such as:

- methodological and ethical considerations
- gender considerations
- contrary findings
- practical applications of the empirical findings
- how the findings of research have been interpreted
- implications of the findings
- validity and reliability.

To be successful in evaluating the studies students needed to clearly address the focus on the studies (not the topic) in their introductions and maintain that focus throughout the response.

Marks awarded for knowledge and understanding refer to definitions of terms and concepts relating to the research studies chosen. Overall, this includes some knowledge of the topic but much more specifically and relevant is knowledge and understanding related to research methods and ethics of chosen studies. Critical thinking is demonstrated by how well the student explains strengths and limitations of the study/studies focused on.

Question 4

This was not a popular question. There were many examples of relevant studies that could be chosen including as examples:

- Curtiss's (1977; 1981) case studies on the effects of deprivation in critical periods (Genie)
- Feldman and Vengrober's (2011) study and Luo et al.'s (2012) studies on PTSD as a consequence of trauma
- Rutter et al.'s (2001) and Rutter's (1981) studies on the consequences of deprivation
- Cockett and Tripp's (1994) study on long-term attachment deprivation effects
- Koluchova's (1972; 1976) case studies showing the possibility of reversing the effects of
- deprivation

- Zeanah et al.'s (2005); Rutter's (2007) studies on the effects of institutionalization on children.

It was useful and appropriate for students to make reference to deprivation, neglect, domestic violence and resilience in order to explain the impact of childhood trauma on cognitive and/or social development.

Question 5

This was not a popular question and was generally poorly done.

There were many theories that could have been used including the examples that follow:

- biosocial theory of gender development (Money and Ehrhardt, 1972)
- social cognitive theory of gender development (Bandura, 1977)
- gender schema theory (Martin and Halverson, 1978)
- transgender identity theories (Nagoshi and Brzuzy, 2010)
- social role theory of gender development (Eagly, 1987)
- cognitive developmental theory of gender (Kohlberg, 1966)

Discussion points included:

- underlying assumptions of gender identity development
- evidence in support of the theories
- the strengths and limitations of the theory/theories
- methodological and ethical considerations
- cultural and/or gender considerations
- contrary findings or explanations
- practical applications of the findings
- implications of the findings.

Question 6

This was the most popular question in this section with many responses taking a breadth approach and covering two theories (almost exclusively those of Piaget and Vygotsky). Some chose to cover one theory and add more depth.

Theory accounts were generally sound although many Piaget ones launched into brief stage descriptions without covering the core concepts underlying the theory (such as schema, assimilation, accommodation, etc.).

Responses tended to be descriptive so it is worth highlighting there were many opportunities to explore any of the following examples of evaluation points:

- stages versus continuous process
- the accuracy and clarity of the concepts
- practical applications of the theory
- how the findings of research have been interpreted
- assumptions and biases
- areas of uncertainty
- supporting and/or contradictory evidence
- contradictory explanations
- gender and/or cultural considerations
- methodological and ethical considerations

- comparisons/contrasts of different models.

Question 7

This was not a popular question and is therefore difficult to comment on other than to indicate there were many potential studies that could have been used as in the following examples:

- Golechha's (2016) study on health promotion methods for smoking prevention and cessation
- Li et al.'s (2015) study on health promotion interventions and policies addressing excessive alcohol use
- Langford et al.'s (2015) study on effectiveness of the health promoting schools' framework
- Lowe et al.'s (2004) study on "food dudes" programme
- Peckman and Reibling's (2006) study of the effectiveness of fear campaigns
- Sanderson and Yopyk's (2007) study on promoting condom use
- Black et al.'s (2010) study on effectiveness of challenge health promotion model

Discussion of the selected studies could have included the following:

- methodological and ethical considerations
- cultural and/or gender considerations
- practical applications of the findings.

Question 8

This question did not attract many responses but when it was addressed some responses reflected good evidence of theoretical knowledge and were able to offer empirical evidence in support. There were inevitably some that struggled with the complexities.

Responses tended to address the following:

- biological factors such as genetics, age, sex, nutrition and previous illnesses
- psychological factors, such as health beliefs, habits, health knowledge, coping skills or strategies.
- sociocultural factors such as socioeconomic status, peer pressure, family pressure, social norms, social support and availability of health care facilities.

Responses tended to focus on the following discussion points:

- cultural/gender considerations
- methodological and ethical considerations
- usefulness of application of biopsychosocial models
- assumptions and biases.

Question 9

Most students wrote about health problems in relation to health topics in the psychology guide with stress and eating disorders being the most popular.

Relevant sociocultural factors influencing health problems included:

- social media
- peer groups/role models
- family
- cultural influences
- advertisements
- governmental influence.

When responding to the command term "to what extent", students could consider, for example:

- degree of empirical support
- methodological considerations
- cultural and/or gender considerations
- possible theoretical assumptions and/or biases
- issues of validity and reliability
- generalizability of findings
- contradictory explanations or findings.

Question 10

Wedekind's (1995) study on mate preference based on genetic makeup and Buss et al.'s (1990) study on cross-cultural factors in attraction (the international mate selection project) were the most popular study choices.

To be successful in evaluating studies questions students need to clearly address the focus on studies not the topic in their introductions and maintain that focus throughout the response.

Question 11

Students tended to address either origins of conflict or conflict resolution to demonstrate depth of knowledge. Only a very few addressed both to demonstrate breadth of knowledge. Both approaches were acceptable. Likewise students could examine one or two factors in depth or a range for breadth. Both types of response were in evidence.

Relevant factors related to origins of conflict included:

- realistic conflict theory
- competition
- perceived injustice
- misperception
- minimal group paradigm
- relative deprivation theory.

Relevant factors related to conflict resolution included:

- styles of conflict resolution
- co-operation
- negotiation
- conflict management.

Question 12

It was very clear to most students what was required. An open question that demanded knowledge of theory and relevant research supporting it. There was tendency for some to plunge into lengthy study descriptions rather than addressing the core concepts and factors that influence bystanderism.

The best responses introduced the theory and related concepts and factors with evidence to support their argument with some critical awareness.

There were many descriptive responses that seemed unsure how to access the discussive elements of which there were potentially many; some useful examples are listed below:

- methodological and ethical considerations related to the research into by-standerism
- how the findings of research have been interpreted and applied
- implications of the findings
- the accuracy and clarity of the concepts
- the productivity of the theories/explanations/factors in generating psychological research
- assumptions and biases
- areas of uncertainty
- supporting and/or contradictory evidence
- alternative theories/explanations.

Recommendations and guidance for the teaching of future students

It needs to be highlighted once more that too many students were not addressing the key aspects of the question. In this regard it is important that teachers devote as much time as possible, using past question papers, to help guide students on how to "unpack" a question. Many times, students were obviously attempting to respond to the content related to the question, but not the specific question itself. Unfortunately, this places the students at a disadvantage, since material outside of what the question is asking, however good, is only going to gain minimal credit.

In order to support students, teachers need to encourage them on how to structure their responses by paying particular attention to addressing the specific wording in the question to identify the key issue and explaining that issue in the introduction. Identifying an area or topic is rarely enough alone.

Students also need to practise how to link all parts of the response back to the question in presenting knowledge and understanding and especially their use of critical thinking. Developing a line of argument is crucial.

Paper two provides a large variety of question types each with different focus and use of command terms. Students need to be as attuned and adaptable as possible to respond to this potential question range.

To ensure students are well prepared for 'Evaluate studies or research methods' questions they would find it helpful to be able to identify thoroughly the research methods used in at least one relevant study for each topic. They should also know how to thoroughly evaluate the use of that method. Relevant research concepts need to be identified and elaborated for higher marks.

Higher level paper three

General comments

Overall students performed quite well. Many students understood that the study in the stimulus material investigated possible differences in recall and comprehension between screen and paper reading. However, some students incorrectly understood that the study was about preferences for these methods of reading.

There was some tendency to give rather generic or simplistic responses that often seemed to be a standard, pre-learnt answer. This could be because students struggle to relate what they have learned to the stimulus material. However, this is a very necessary skill for this paper and greatly affects the marks that can be awarded, particularly in questions 1c, 2 and 3.

Quite a few students did not use the correct psychological terminology. An area where this was a particular issue was addressing ethical considerations in question 2. Common examples included using 'anonymity' and 'confidentiality' interchangeably, and referring to a 'debrief' when a briefing was being described.

The areas of the programme and examination which appeared difficult for the students

The questions that appeared to be most difficult for students were questions 1c, 2 and 3.

A good number of students demonstrated accurate knowledge in their answers to 1a and 1b. However, it was common to see answers where knowledge was present but full marks were not able to be given because of the lack of relevant detail. Although 1a requires two characteristics of the identified method, many answers gave only one. 1b requires students to describe the sampling method but responses frequently focused more on describing the sample that was collected instead.

Question 1c asks for an alternative/additional research method that can be used to investigate the aim of the original study. Selecting an appropriate research method appeared to be more challenging than in previous sessions. This question also asks for one reason for the choice of alternative/additional research method, but many answers just focused on how the research would be carried out, or simply gave a collection of briefly stated reasons.

Although answers to question 2 demonstrated a general awareness of the ethical considerations applicable to psychological research, there were some clear areas of difficulty seen across many students' answers. Addressing the command term effectively was an area of difficulty across all of the questions. However, this was particularly the case in question 2 where the ethical considerations need to be described or explained within the context of the described study. It was common for them to simply be copied from the stimulus material, listed or generically addressed. The accurate use of terminology relevant to ethical considerations was also an area that appeared to be difficult for students. A third area of difficulty was differentiating between ethical considerations that were already stated as having been applied in the study, and ones that could be applied but that had not been specifically mentioned in the stimulus material.

There were some excellent answers to question 3 that demonstrated a high level of knowledge and understanding of how the researchers in the study could avoid bias. Weaker answers simply focused on identifying potential causes of bias within the described research. There was also a lot of confusion

between the concepts of sampling bias and generalization. Many students seemed more prepared for a question on generalizability.

The areas of the programme and examination in which students appeared well prepared

Students seemed to be most prepared for questions 1a, 1b and 2.

Many students were able to accurately identify the research method in question 1a as a

laboratory experiment. They often went on to also provide at least one relevant characteristic. It was pleasing to see such a high number of 3-mark answers for this question.

The majority of students were able to accurately identify the sampling method in question 1b and many provided one relevant characteristic. However, these answers were less detailed than those for 1a and less likely to receive full marks.

In question 2, most students were able to identify a number of ethical considerations. The majority were able to accurately identify the ethical considerations mentioned within the stimulus material. However, these were often given as exact quotes from the stimulus material and the lack of added description resulted in a lower mark being awarded.

The strengths and weaknesses of the students in the treatment of individual questions

Question 1a

An experiment (true/laboratory) was the correct answer here. Other forms of experiment (such as field or quasi) were not accepted. A good number of students answered this question well and scored the maximum of 3 marks. Characteristics most typically outlined were that a 'lab experiment involves random allocation of participants to the experimental groups' and that 'a lab experiment investigates the effect that manipulating an independent variable (IV) has on a dependent variable (DV)'.

Apart from identifying an incorrect research method, the main reason for not receiving full marks for this answer was outlining only one characteristic.

Question 1b

Most students identified the sampling method correctly. Although the sampling method was made explicit in the stimulus material, some students did suggest a number of other sampling methods such as snowball, quota sampling, and convenience sampling.

Apart from identifying an incorrect sampling method, the main reason for not receiving full marks for this answer was the lack of description. It was common for a characteristic to be addressed but not have enough detail for a mark to be awarded. It is important that the command terms are addressed in all of the questions on this paper.

Question 1c

This question asked for a research method that could be used to investigate the same aim as the original study. This was not always well thought through by many students. The aim of the original study was to investigate possible differences in recall and comprehension between screen and paper reading. A case

study would not be appropriate for this aim because they are generally used for unique situations/behaviours and to learn as much as possible about an individual or group. This is not appropriate therefore for a behaviour that is regularly carried out by millions of people, i.e. screen and paper reading. Observations would also be of limited use for such an aim as it is not possible to simply observe recall or comprehension.

Apart from identifying an incorrect research method, the main reason for not receiving full marks for this answer was only explaining how the research would be carried out, or simply giving a collection of briefly stated reasons.

Question 2

Most students correctly identified informed consent and the right to withdraw in the stimulus material. Many students also spotted that there was no deception because the consent was informed and some addressed the lack of coercion ('not forced'). However, a number of students stated that both informed consent and deception were used in the study, suggesting that the concept of informed consent is not understood fully.

For further ethical considerations, students typically referred to confidentiality (although often confused or addressed with anonymity), receiving a debrief and the avoidance of harm. Weaker answers only considered whether or not the ethical considerations had already been applied (sometimes simply assuming they had been regardless of the description) and did not address the element of further application at all. This immediately limited the available mark to 3.

The ethical consideration of providing a debrief was inaccurately addressed in several ways. Firstly, it was often the term used when a briefing was being described (i.e. before the study to provide information to the participants so they could give informed consent). Secondly, students often explained the debrief as being a time when the participants were told what the actual aim was. Given that the description of the study states the participants were fully informed, they would already be aware of the true aim. A third issue was answers stating that the results would be shared in the debrief. However, results take time to analyse and so are not available at the end of a study when participants are being debriefed.

The ethical consideration of confidentiality was often not awarded any marks because it was described as being anonymity instead. It is important that students are aware of the distinct difference between these two ethical considerations.

The ethical consideration of the avoidance of harm was often addressed with limited understanding of what might actually constitute harm, especially within the context of the described study. Given the participants in this study were fourth year medical students who had volunteered, it is highly unlikely that taking a test would have been a cause of great distress.

Many students misunderstand the nature of the stimulus material and use it to support claims such as the lack of inclusion of personal details means confidentiality has already been applied. The stimulus material is based on a published study, but it is not the publication itself.

The importance of responding to the command terms in question 2 has been mentioned in previous subject reports. Ethical considerations that were identified but not accurately described or explained were awarded less marks than those that were.

Question 3

Almost every answer attempted to address sampling bias. However, this was widely misunderstood and was largely more about generalization than bias. Many responses also referred to the potential use of researcher triangulation in order to avoid bias.

Stronger answers covered much of the scope of the mark scheme with reflexivity, the use of a double- or single-blind procedure, and methods used to prevent procedural bias being the next most commonly addressed ways to avoid bias.

Weaker responses did not clearly address the question asked but rather a question on the extent to which the various aspects of the study were in some way potentially a source of bias. While having some relevance, these were often undeveloped answers with a limited focus. Many answers addressed generalization at some point, with this being the complete focus for some answers.

Recommendations and guidance for the teaching of future students

General comments

Paper 3 is based on static questions (questions 1 and 2) and a short answer question (question 3) related to approaches to research. Since question 3 is the more demanding of the questions it is recommended to practice time management in answering paper 3. It is not necessary to write long answers to questions 1a, 1b, and 1c but in question 3 there is a requirement of structure, a clear argument and critical thinking skills. Therefore, more time should be spent in writing the answer to this question.

It is important that students are able to apply their knowledge to the study in the stimulus material rather than write generically. This is particularly important in questions 1c, 2 and 3.

Question 1c

Alternative methods of research should be included in regular teaching of studies to help students give a suitable answer to question 1c. Students should also be encouraged to give one elaborated reason for their choice. Examples of elaboration include:

- saying what the alternative or additional research method compensates for in the original method;
- giving details of how the alternative or additional research method would be beneficial;
- saying how the alternative or additional research method might be carried out and why.

Although a detailed description of how the research method might be carried out is not required to be the main focus of this answer, it is beneficial for students to show that they understand how the research method would be appropriate to be used to investigate the aim.

Question 2

In question 2 it is recommended that students use headings to clearly identify 'already applied' and 'further applied'. Sub-headings for each ethical consideration may also be very helpful in ensuring that answers cover each one in enough detail. Students should be encouraged to address at least three 'already applied' considerations and at least three 'further applied' considerations. Simply copying what is written in the stimulus materials is not enough for a description. The descriptions/explanations given need to fit with the provided description of the study. Learning to use the terminology accurately is important. Examples include being able to differentiate between 'anonymity' and 'confidentiality, 'and a 'debrief' and a 'briefing'.

It is important that students understand that the stimulus material is only based on a published study and is not the publication of a study.

Question 3

It is recommended that teaching around answering question 3 is focused on the distinction between quantitative and qualitative methods and the use of the appropriate concepts. Since there are three questions that can be asked, it is recommended to use various examples of research studies in order to build an understanding of generalization/transference, credibility, and avoiding bias respectively. With regard to generalization/transference it is recommended that students understand that "generalization" should be used if the study is quantitative while "transference" should be used if the study in the stimulus is qualitative. It should be possible to take such an approach with the research studies that are already chosen for the course. Doing small research projects, making class presentations and discussions of studies could contribute not only to developing critical thinking but also a deeper understanding of how to validate research findings. Preparation for answering question 3 could also include reading studies or summaries of studies to increase conceptual knowledge related to quantitative and qualitative research methods.

Summing up, it is recommended to prepare students in such a way that they have both (1) a general knowledge of quantitative and qualitative research methods as outlined in the guide *and* (2) competence in applying this knowledge in relation to the stimulus material, especially in questions 2 and 3, as well as (3) competence in using appropriate terms and concepts from approaches to research in the Psychology guide. Taking care to address the actual command terms (4) and covering all the aspects of the question in sufficient detail (5) are also key to students maximizing their ability to demonstrate their knowledge and understanding.