

Psychology General Senior Syllabus 2019 v1.3

Subject report 2020

February 2021

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Introduction

The first summative year for the new Queensland Certificate of Education (QCE) system was unexpectedly challenging. The demands of delivering new assessment requirements and processes were amplified by disruptions to senior schooling arising from the COVID-19 pandemic. This meant the new system was forced to adapt before it had been introduced — the number of summative internal assessments was reduced from three to two in all General subjects. Schools and the QCAA worked together to implement the new assessment processes and the 2020 Year 12 cohort received accurate and reliable subject results.

Queensland's innovative new senior assessment system combines the flexibility and authenticity of school-based assessment, developed and marked by classroom teachers, with the rigour and consistency of external assessment set and marked by QCAA-trained assessment writers and markers. The system does not privilege one form of assessment over another, and both teachers and QCAA assessors share the role of making high-stakes judgments about the achievement of students. Our commitment to rigorous external quality assurance guarantees the reliability of both internal and external assessment outcomes.

Using evidence of student learning to make judgments on student achievement is just one purpose of assessment. In a sophisticated assessment system, it is also used by teachers to inform pedagogy and by students to monitor and reflect on their progress.

This post-cycle report on the summative assessment program is not simply being produced as a matter of record. It is intended that it will play an active role in future assessment cycles by providing observations and findings in a way that is meaningful and helpful to support the teaching and learning process, provide future students with guidance to support their preparations for summative assessment, and promote transparency and accountability in the broader education community. Reflection and research are necessary for the new system to achieve stability and to continue to evolve. The annual subject report is a key medium for making it accessible to schools and others.

Background

Purpose

The annual subject report is an analysis of the previous year's full summative assessment cycle. This includes endorsement of summative internal assessment instruments, confirmation of internal assessment marks and external assessment.

The report provides an overview of the key outcomes of one full teaching, learning and assessment cycle for each subject, including:

- information about the application of the syllabus objectives through the design and marking of internal and external assessments
- information about the patterns of student achievement in each subject for the assessment cycle.

It also provides advice to schools to promote continuous improvement, including:

- identification of effective practices in the design and marking of valid, accessible and reliable assessments
- identification of areas for improvement and recommendations to enhance the design and marking of valid, accessible and reliable assessment instruments
- provision of tangible examples of best practice where relevant, possible and appropriate.

Audience and use

This report should be read by school leaders, subject leaders and teachers to inform teaching and learning and assessment preparation. The report is to be used by schools and teachers to assist in assessment design practice, in making assessment decisions and in preparing students for external assessment.

The report is publicly available to promote transparency and accountability. Students, parents, community members and other education stakeholders can learn about the assessment practices and outcomes for General subjects (including alternative sequences and Senior External Examination subjects, where relevant) and General (Extension) subjects.

Report preparation

The report includes analyses of data and other information from the processes of endorsement, confirmation and external assessment, and advice from the chief confirmer, chief endorser and chief marker, developed in consultation with and support from QCAA subject matter experts.

Subject data summary

Subject enrolments

Number of schools offering the subject: 116.

Completion of units	Unit 1	Unit 2	Units 3 and 4*
Number of students completed	2838	2932	2952

*Units 3 and 4 figure includes students who were not rated.

Units 1 and 2 results

Number of students	Satisfactory	Unsatisfactory	Not rated
Unit 1	2750	82	6
Unit 2	2756	171	5

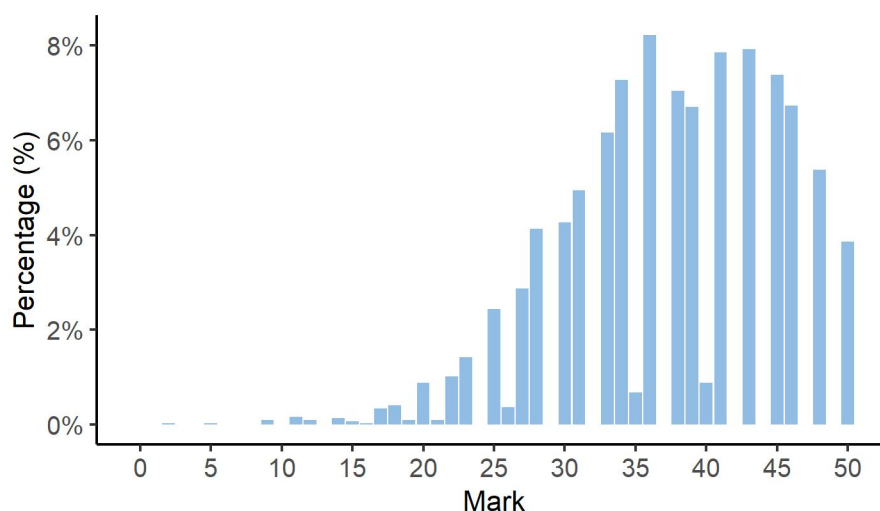
Units 3 and 4 internal assessment results

2020 COVID-19 adjustments

To support Queensland schools, teachers and students to manage learning and assessment during the evolving COVID-19 pandemic in 2020, the QCAA Board approved the removal of one internal assessment for students completing Units 3 and 4 in General and Applied subjects.

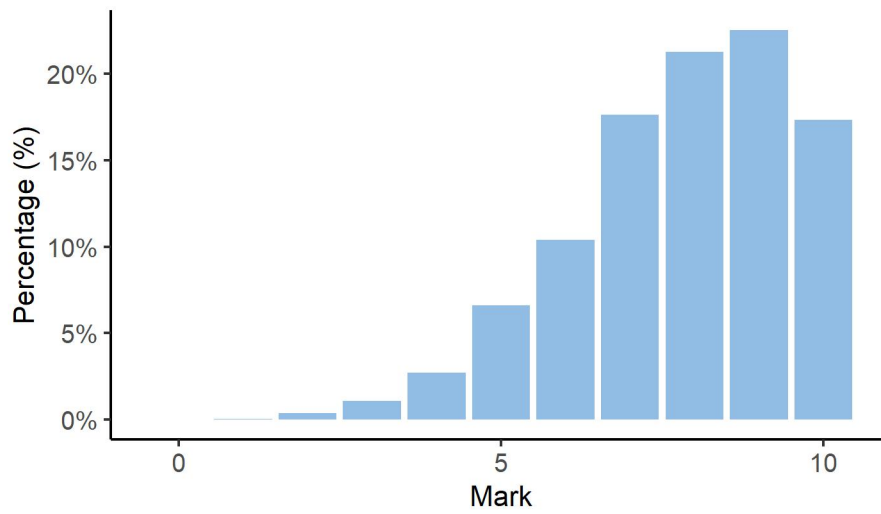
In General subjects, students completed two internal assessments and an external assessment. Schools made decisions based on QCAA advice and their school context. Therefore, across the state some instruments were completed by most schools, some completed by fewer schools and others completed by few or no schools. In the case of the latter, the data and information for these instruments has not been included.

Total results for internal assessment

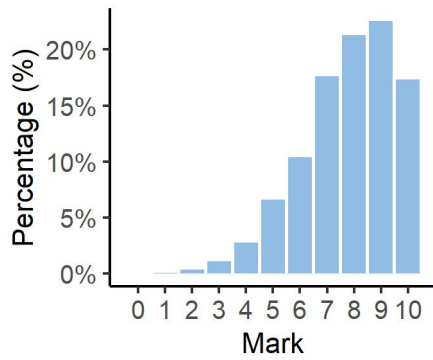


IA1 results

IA1 total

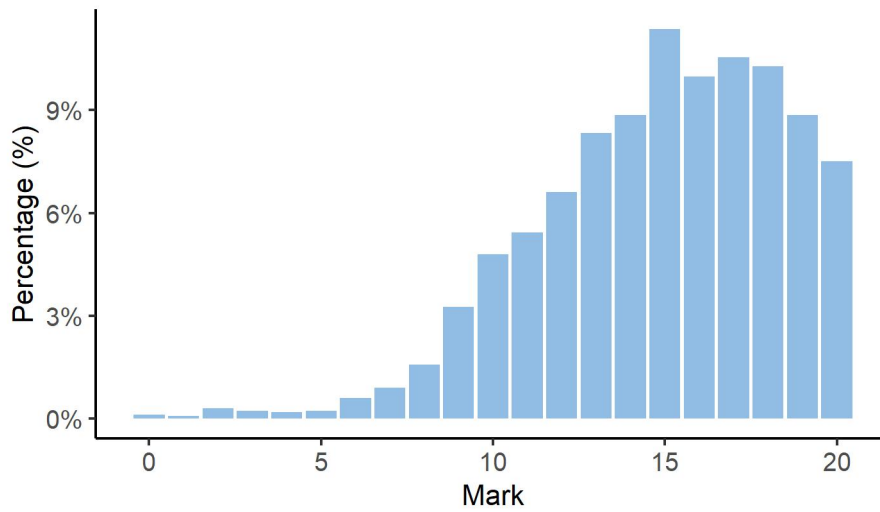


IA1 Criterion 1

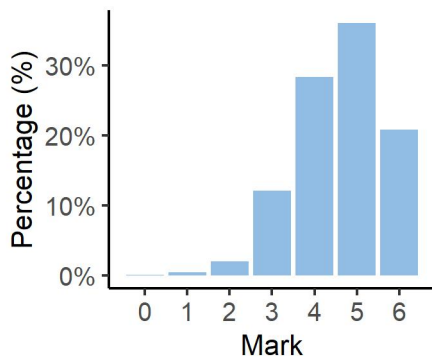


IA2 results

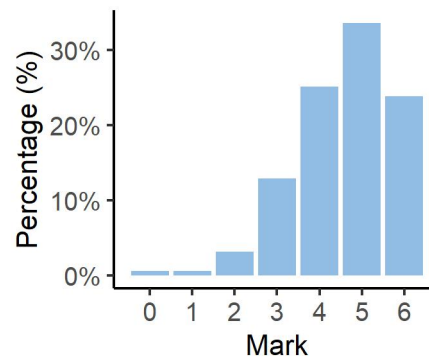
IA2 total



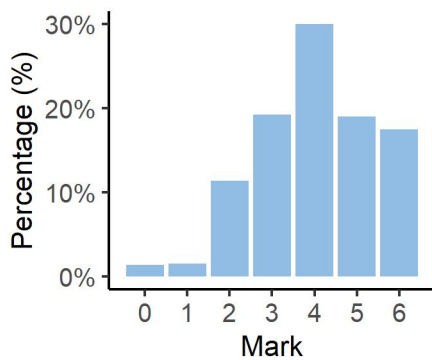
IA2 Criterion 1



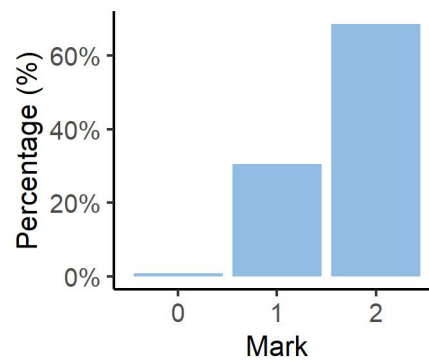
IA2 Criterion 2



IA2 Criterion 3

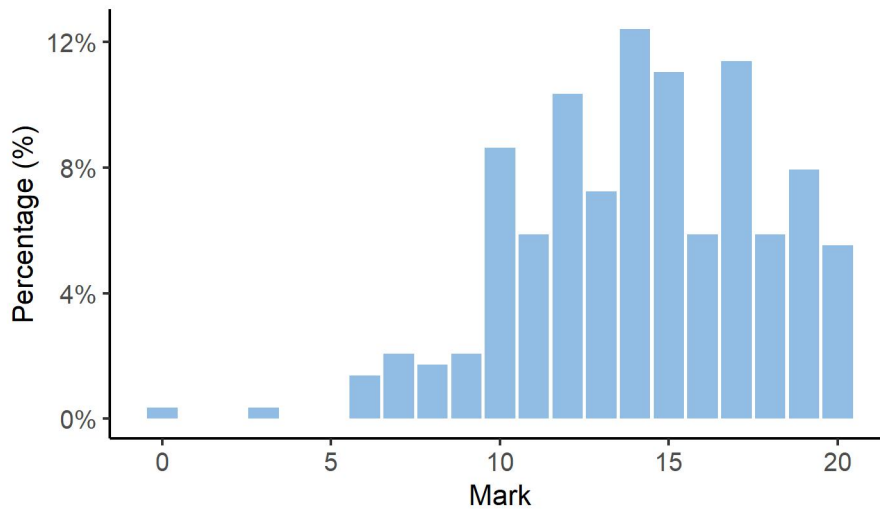


IA2 Criterion 4

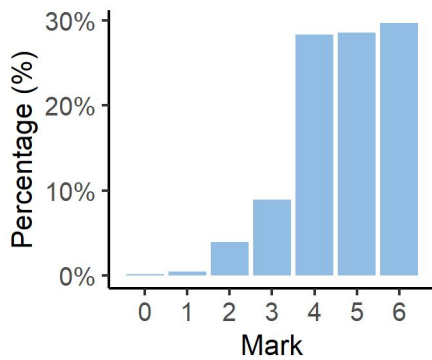


IA3 results

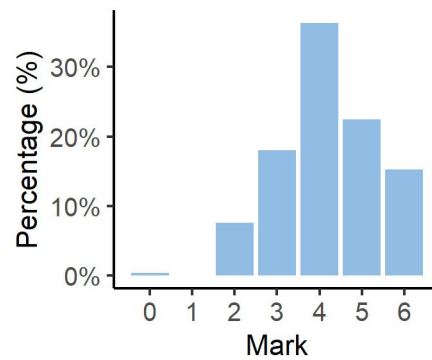
IA3 total



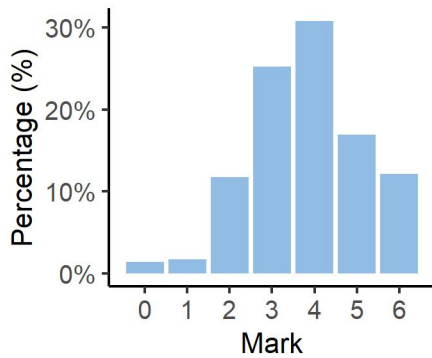
IA3 Criterion 1



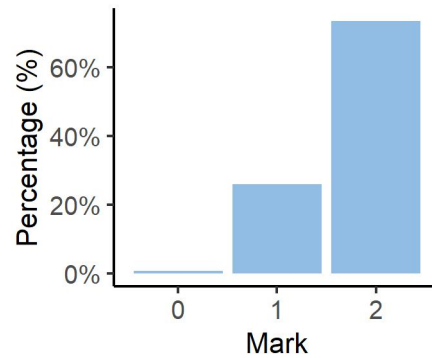
IA3 Criterion 2



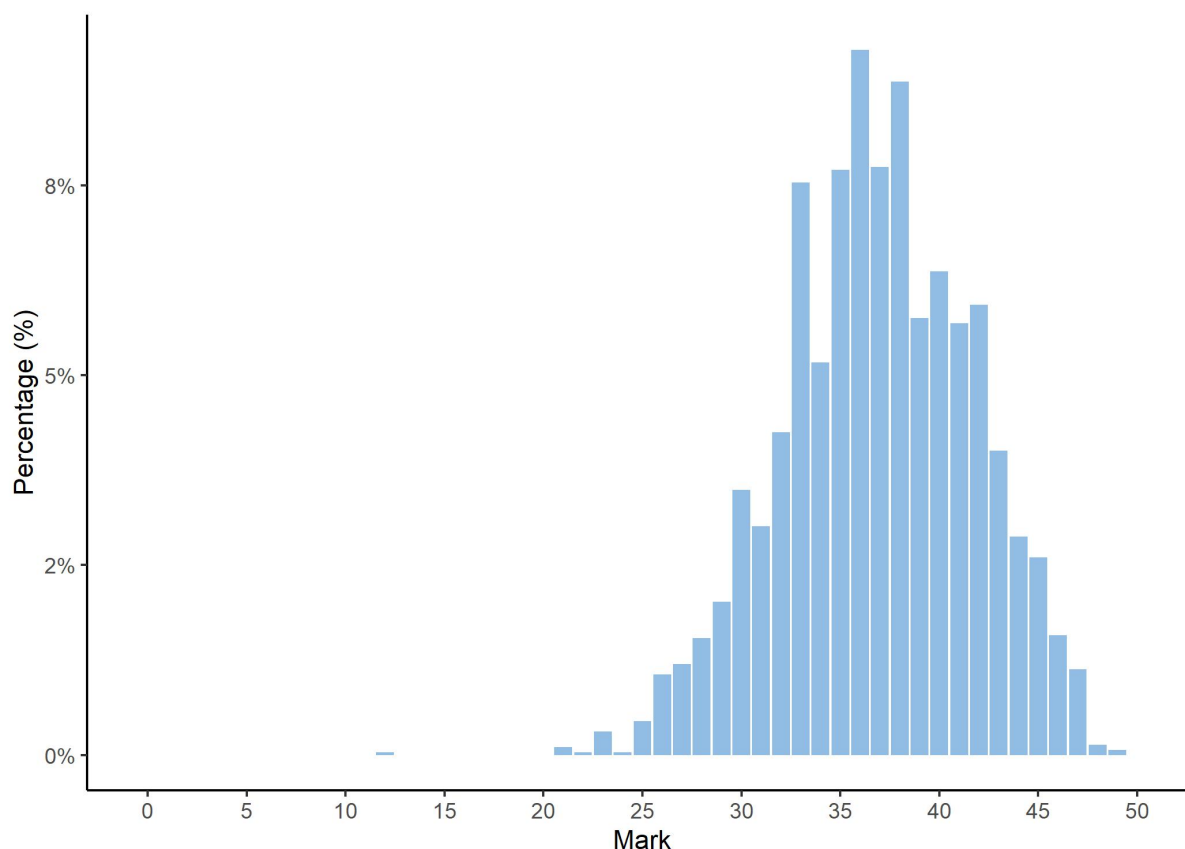
IA3 Criterion 3



IA3 Criterion 4



External assessment results



Final standards allocation

The number of students awarded each standard across the state are as follows.

Standard	A	B	C	D	E
Number of students	688	1244	948	36	0

Grade boundaries

The grade boundaries are determined using a process to compare results on a numeric scale to the reporting standards.

Standard	A	B	C	D	E
Marks achieved	100–84	83–70	69–48	47–22	21–0

Internal assessment

The following information and advice pertain to the assessment design and assessment decisions for each IA in Units 3 and 4. These instruments have undergone quality assurance processes informed by the attributes of quality assessment (validity, accessibility and reliability).

Endorsement

Endorsement is the quality assurance process based on the attributes of validity and accessibility. These attributes are categorised further as priorities for assessment and each priority can be further broken down into assessment practices. Data presented in the assessment design sections identifies the reasons why IA instruments were not endorsed at Application 1, by the priority for assessments. An IA may have been identified more than once for a priority for assessment, e.g. it may have demonstrated a misalignment to both subject matter and to the assessment objective. Refer to the quality assurance tools for detailed information about the assessment practices for each assessment instrument.

Total number of items endorsed in Application 1

Number of items submitted each event	IA1	IA2	IA3
Total number of instruments	117	117	117
Percentage endorsed in Application 1	49	85	62

Confirmation

Confirmation is the quality assurance process based on the attribute of reliability. Teachers make judgments about the evidence in students' responses using the instrument-specific marking guide (ISMG) to indicate the alignment of students' work with performance-level descriptors and determine a mark for each criterion. These are provisional criterion marks. The QCAA makes the final decision about student results through the confirmation processes. Data presented in the assessment decisions section identifies the level of agreement between provisional and final results.

Number of samples reviewed at initial, supplementary and extraordinary review

IA	Number of schools	Number of samples requested	Supplementary samples requested	Extraordinary review	School review	Percentage agreement with provisional
1	116	673	0	0	0	99.97
2	99	596	175	0	0	99.03
3	17	83	16	0	0	98.44

Internal assessment 1 (IA1)

Data test (10%)

The IA1 data test requires students to apply a range of cognitions to multiple provided items. Students respond to items using qualitative and/or quantitative data derived from practicals, activities or case studies from Unit 3. The task requires students to identify unknown scientific quantities or features; identify trends, patterns, relationships, limitations or uncertainty in datasets; and draw conclusions based on the analysis of data.

Assessment design

Validity

Validity in assessment design considers the extent to which an assessment item accurately measures what it is intended to measure and that the evidence of student learning collected from an assessment can be legitimately used for the purpose specified in the syllabus.

Reasons for non-endorsement by priority of assessment — validity practices

Validity priority	Number of times priority was identified in decisions*
Alignment	36
Authentication	0
Authenticity	4
Item construction	1
Scope and scale	17

*Total number of submissions: 117. Each priority might contain up to four assessment practices.

Effective practices

Validity priorities were effectively demonstrated in assessment instruments that featured:

- a variety of datasets clearly derived from Unit 3 subject matter, e.g. mandatory or suggested practicals
- items that demonstrated clear alignment with the objectives being assessed by using the cognitive verbs listed in the mark allocation table in the syllabus, e.g. objective 2 items that used the following verbs: calculate, determine, identify, recognise and use
- authentic datasets and questions clearly based on teaching and learning activities that students had experienced, e.g. extending the work of Craik and Tulving (1975) to determine if certain study methods could enhance encoding of information into long-term memory
- items that showed clear alignment between the cognition in the question, the objective being assessed and the expected student response
- items that used only one cognition
- a marking scheme that clearly matched each mark (including partial marks) to a valued feature of the expected response, e.g. 1 mark for correct substitution into the formula and 1 mark for the correct value
- clear indications of the objective and cognition being assessed, aligned with mark allocations within the marking scheme.

Practices to strengthen

It is recommended that assessment instruments:

- include unseen datasets that are appropriately different from QCAA sample assessments
- include a sequence of items that is appropriately different from QCAA sample assessments
- contain at least two and no more than four datasets
- contain an appropriate amount of data within each dataset, allowing students to understand the dataset and respond to the item within 60 minutes
- include a balance of items across the apply, analyse and interpret objectives as per the syllabus instrument mark allocation table
- include only items that require students to use the given datasets
- reflect the key research skills listed in the syllabus.

Accessibility

Accessibility in assessment design ensures that no student or group of students is disadvantaged in their capacity to access an assessment.

Reasons for non-endorsement by priority of assessment — accessibility practices

Accessibility priority	Number of times priority was identified in decisions*
Transparency	6
Language	8
Layout	0
Bias avoidance	6

*Total number of submissions: 117. Each priority might contain up to four assessment practices.

Effective practices

Accessibility priorities were effectively demonstrated in assessment instruments that featured:

- clear links between the items and the data required to answer the question, e.g. see figure 1 in dataset 1
- language from the syllabus that was consistent between datasets and questions
- clear communication of task elements
- consistent layout and language with clearly legible datasets, including legends, labelled axes, correct units, and figure labels
- minimal distractors, e.g. brief and succinct instructions that avoided unnecessary detail or complexity
- use of page breaks to ensure that datasets, figure labels and items are not separated across pages
- items that were constructed to avoid factors such as gender, social and/or cultural background.

Practices to strengthen

It is recommended that assessment instruments:

- use language consistently between datasets and items, e.g. avoid referring to the same measurement using different terms — *average* recall versus *mean* recall
- avoid jargon and acronyms in the datasets
- are checked for typographical, spelling and grammatical errors within items and datasets.

Assessment decisions

Reliability

Reliability is a judgment about the measurements of assessment. It refers to the extent to which the results of assessments are consistent, replicable and free from error.

Agreement trends between provisional and final results

Criterion number	Criterion name	Percentage agreement with provisional	Percentage less than provisional	Percentage greater than provisional
1	Data test	99.97	0	0.03

Effective practices

Accuracy and consistency of the application of the ISMG for this IA was most effective when:

- school-developed marking schemes clearly matched each mark to a valued feature of the expected response
- school-developed marking schemes identified how alternative responses were marked
- marking schemes were updated and clearly explained how marks (including part marks) were awarded
- schools applied their marking schemes consistently across cohorts.

Samples of effective practices

There are no student response excerpts because either the student/s did not provide permission or there were third-party copyright issues in the response/s.

Practices to strengthen

To further ensure accuracy and consistency of the application of the ISMG in this IA, it is recommended that:

- schools check that mark totals and percentages have been determined correctly
- schools use the percentage cut-offs from the ISMG to determine the final mark out of 10
- if necessary, schools update the original marking scheme (that was submitted at endorsement) to indicate how unexpected responses are marked
- schools implement internal quality assurance processes (e.g. cross marking) to ensure intra-marker and inter-marker reliability.

Internal assessment 2 (IA2)

Student experiment (20%)

The IA2 student experiment requires students to modify (i.e. refine, extend or redirect) an experiment to address their own hypothesis or question related to Unit 3. Students may use a practical performed in class as the basis for their methodology. They develop a research question, collect and process primary data, analyse and interpret evidence, and evaluate the reliability and validity of their experimental process.

Assessment design

Validity

Validity in assessment design considers the extent to which an assessment item accurately measures what it is intended to measure and that the evidence of student learning collected from an assessment can be legitimately used for the purpose specified in the syllabus.

Reasons for non-endorsement by priority of assessment — validity practices

Validity priority	Number of times priority was identified in decisions*
Alignment	3
Authentication	2
Authenticity	0
Item construction	0
Scope and scale	0

*Total number of submissions: 117. Each priority might contain up to four assessment practices.

Effective practices

Validity priorities were effectively demonstrated in assessment instruments that featured:

- mandatory or suggested practicals from Unit 3 as experiments for students to use as the basis for their methodology and research question
- authentication strategies that included guidance for drafting, scaffolding and teacher feedback
- clear alignment of cognitions and language with the syllabus and the assessment objectives
- checkpoints to monitor student progress through the task, e.g. select modifications, complete risk assessment, collect and analyse data, submit draft, submit final response
- an indication of how students can work collaboratively and how the school will manage authentication of student work in these situations, e.g. the teacher will compare the responses of students who have worked together in groups
- clear scaffolding that modelled processes and directed students to address all components of the task without leading students to a pre-determined response
- a clear statement that feedback can only be provided on one draft.

Practices to strengthen

It is recommended that assessment instruments:

- include only experiments clearly related to Unit 3 subject matter (i.e. General syllabus — localisation of function in the brain, visual perception, memory or learning) for students to modify
- include all the task specifications in the task description
- include appropriate information in the scaffolding section, e.g. timeline, checkpoints, prompts about the requirements for the response
- include appropriate drafting and authentication strategies, e.g. collecting progressive samples of student work, interviews with students, using plagiarism-detection software.

Accessibility

Accessibility in assessment design ensures that no student or group of students is disadvantaged in their capacity to access an assessment.

Reasons for non-endorsement by priority of assessment — accessibility practices

Accessibility priority	Number of times priority was identified in decisions*
Transparency	12
Language	0
Layout	1
Bias avoidance	0

*Total number of submissions: 117. Each priority might contain up to four assessment practices.

Effective practices

Accessibility priorities were effectively demonstrated in assessment instruments that featured:

- clear instructions that aligned to the specifications within the syllabus, the assessment objectives and the ISMG
- clear communication of task elements, using clear, succinct language
- clear, appropriate headings.

Practices to strengthen

It is recommended that assessment instruments:

- include scaffolding that clearly directs students to address all aspects of the task, including the rationale
- maintain consistent formatting, layout and visual design across the instrument to minimise distractors
- avoid repetition of elements of the task in different sections.

Additional advice

It is not necessary for schools to remove teacher feedback from student responses before uploading them for confirmation, particularly if the feedback is expressed in the language of the ISMG.

Assessment decisions

Reliability

Reliability is a judgment about the measurements of assessment. It refers to the extent to which the results of assessments are consistent, replicable and free from error.

Agreement trends between provisional and final results

Criterion number	Criterion name	Percentage agreement with provisional	Percentage less than provisional	Percentage greater than provisional
1	Research and planning	99.02	0.19	0.79
2	Analysis of evidence	98.23	0.75	1.01
3	Interpretation and evaluation	99.14	0.49	0.38
4	Communication	99.74	0	0.26

Effective practices

Accuracy and consistency of the application of the ISMG for this IA was most effective when:

- in the Research and planning criterion
 - a *considered* rationale clearly connected the research question to the relevant psychological concepts from Unit 3 subject matter
 - a hypothesis was accompanied by a *specific and relevant* research question
 - a *specific* research question was explicit enough to be answered within the required response length
 - *justified* modifications to the methodology ensured that the experiment collected sufficient data to draw valid conclusions, e.g. at least five subjects in a sample population, at least five data points to establish a trend
- in the Interpretation and evaluation criterion
 - *justified discussion* of the reliability and validity of the experimental process
 - gave an explanation of each issue rather than a simple list of issues
 - referred to the uncertainty and limitations identified in their analysis of the evidence
 - suggested improvements and extensions to the experiment were *logically derived* from the uncertainty and limitations of evidence identified in the analysis.

Samples of effective practices

The following is an excerpt from a response that illustrates the characteristics for the criterion at the performance level indicated. The sample may provide evidence of more than one criterion. The characteristics highlighted may not be the only time the characteristics have occurred throughout the response.

**Research and planning
A considered rationale
for the experiment**

The rationale explicitly communicates the experiment's purpose.

1.0 RATIONAL

Memories are a component of the human brain which allow individuals to understand, encode and store relevant information for later experiences that could require recollection of specific experiences or information. It is suggested that when given information, interpreting and **assigning a meaning to the word gives one a greater chance of recalling later on**. Furthermore, the more emotional a word is, the more likely it is to be recalled from a sequence of neutral and emotional words (*Kensinger and Corkin, 2003*). This meaning may be **an individual's interpretation of a word based off of an emotive meaning given to it by an association of that word with a specific memory**. Kensinger and Corkin's work (2003) also references to the importance of the amygdala and hippocampus to linking emotion to memory. This theory explains how particular words can act as emotive triggers for memories. The process of encoding and storing information may also be interrupted by certain factors, causing a particular memory to decay or even fail to encode properly- consequently leading to a retrieval failure.

A 1973 study by Elias and Perfetti, "Encoding Task and Recognition Memory: The Importance of Semantic Encoding" (*Journal of Experimental Psychology, 1973*), studied the significance of distraction on encoding information, with "encoding task affect[ing] overall performance and... direction of distraction" (*Elias and Perfetti, 1973*). Following 2 thorough studies, findings showed there to be statistical significance in associating an 'associative' word (or synonym) to a specific word is of the "lowest level of distraction" (*Elias and Perfetti, 1973*). This would mean less distraction gives a greater chance of consolidating a particular word as a memory, and this memory may be regarded as more reliable for later recollection. However, as suggested by Kensinger and Corkin (2003) there are many more branches of memory and its function that allows one to consolidate and recall memories. Episodic memory, controlled primarily in the frontal lobe, is a form of declarative of memory that concentrates on autobiographical long-term memories and experiences from one's life. It suggested this is the localised area of function for individual, personal understanding of words. **This particular experiment has been redirected** from a focus of semantic memory **to concentrate** on the area of episodic memory and if there is any significance in the recall process- that is- **the consolidation of personal meaning and memories to information, to recalling information**.

**Research and planning
A specific and relevant
research question**

The research question is connected to the rationale and enables effective investigation of encoding in long-term memory.

2.0 RESEARCH QUESTION

Does **association of episodic information with a series of to-be-remembered words** significantly enhance **recall** of the to-be-remembered words **compared to** a control group with **no prompted** association of to-be-remembered words?

**Research and planning
Justified modifications
to the methodology**

The response gives sound reasons for how the modifications to the methodology will refine, extend or redirect the original experiment, and includes strategies for achieving these modifications.

4.0 MODIFICATIONS TO ORIGINAL

Elias and Perfetti (1973) structured their experiment with an independent variable concentrating on the importance of semantic memory on recollection. This has been **modified to investigate the new independent variable- the role of episodic memory on recall**. The single dependent variable remained the same- that is the number of words correctly recalled. There was a total of 80 words shown for 10 seconds each in the original – **the number of words was reduced to 20**, and timing the word was shown remained at a standard 10 seconds. A series of 80 words were refined to 20, **due to the fact finding a memory for one to associate with 80 different stimulus words may take** time and a greater capacity in this modified experience than what was asked of participants in Elias and Perfetti's research.

**Analysis of evidence
Thorough
identification of
trends, patterns and
relationships**

The identified trends, patterns and relationships are not superficial and allow a justified conclusion to the research question to be drawn.

6.0 ANALYSIS OF EVIDENCE

As shown in Table 2 and Graph 1 above, there is a slight difference in the amount of words correctly recalled by participants in each condition, with the Episodic group having, on average, a greater number (19.14286) of words recalled in comparison to the Control group (17.14286). As the calculation of mean values include outliers, a median value, which does not take such values into account, provides a more reliable measure of central tendency (Episodic: 19, Control: 18). With a standard deviation- variance in the results returned as values under 4, (C: 3, E: 2), it may be assumed there is normal distribution within the results of each condition. Overlapping error bars are a means for further inferential statistics to be applied to determine if there is any significance to this difference between the two treatment conditions. Based off collection of intervals (numerical valued) data, to test a one-tailed hypothesis, a t-test was decided most appropriate to discern any statistically significant difference in conditions. However the p-value returned (0.104948) is above the generally accepted $p < 0.05$, and so must be acknowledged as insignificant in difference.

As there is such a small, insignificant difference in the number of words recalled, it must be assumed that the control group had already made a personal connection between their individual understanding of the word- even without being asked, hence the greater number of words they recalled. This would mean that the control group engaged in a non-deliberate, unconscious episodic processing of the words. It might also be that the Episodic group might have been distracted by the task of writing that they forgot the word all together. In turn, it would seem the testing method might have worked against the aim. These circumstances of having an extraneous influence – that is, variables that were uncontrolled- on the experiment, have meant

Practices to strengthen

To further ensure accuracy and consistency of the application of the ISMG in this IA, it is recommended that:

- *thorough* identification of trends, patterns or relationships should involve the following analysis techniques (where relevant)
 - measures of central tendency, e.g. mean and median
 - measures of dispersion, e.g. standard deviation and standard error
 - correlation, e.g. Pearson's correlation coefficient and Spearman's rank correlation coefficient
 - inferential statistics, e.g. Mann-Whitney U, T-test, Wilcoxon signed-ranks test
- *thorough* identification of trends, patterns or relationships should involve the following descriptions (where relevant)
 - identifying trends within correlations, including the strength and direction of the relationship
 - selecting the correct inferential statistic for use and including an explanation for its use in the dataset
 - identifying differences in descriptive statistics
- *thorough and appropriate* identification of uncertainty and limitations of evidence should involve the following analysis techniques (where relevant)
 - two-sample t-test (unpaired and paired)
 - Mann-Whitney U test
 - Wilcoxon signed-ranks test
 - confidence intervals
- *thorough and appropriate* identification of uncertainty and limitations of evidence should involve the following descriptions (where relevant)
 - error bars

- Type I and II errors
- outliers
- measurement uncertainties (for devices such as stopwatches)
- sample size
- population and sample used.

Additional advice

- Schools should use the ISMG from the syllabus without making any changes to wording or formatting.
- In the best-fit process for using ISMGs, when all the descriptors in a performance level have been demonstrated, the mark should be the higher of the two possible marks for that performance level.
- Experimental methodologies should be based on experiments that consider only one dependent variable (e.g. mandatory or suggested practicals from the syllabus) rather than complicated experiments that consider more than one dependent variable or involve complex systems in which external variables were difficult to control.
- As part of the teaching and learning process, teachers should demonstrate the relevant data processing techniques that can be used to identify trends/patterns/relationships and uncertainty/limitations of data in practicals before students use these practicals as a basis for their experiments. This should include teaching students to infer statistical significance using appropriate measures (e.g. confidence intervals) rather than inappropriate measures (e.g. standard deviation).
- Teachers should use the strategies identified in the *QCE and QCIA policy and procedures handbook* to
 - manage response length to ensure that student responses meet the conditions of the syllabus
 - promote academic integrity to ensure that student responses clearly demonstrate their students' own achievement.
- Teachers should work within their various communities of practice to cross-mark and check consistency of marking across samples prior to submission of provisional marks to the QCAA.

Internal assessment 3 (IA3)

Research investigation (20%)

The IA3 research investigation requires students to gather secondary evidence related to a research question in order to evaluate a claim about Unit 4. Students develop a research question, collect and analyse secondary data, interpret evidence to form a justified conclusion, discuss the quality of the evidence and extrapolate the findings of the research to the claim.

Assessment design

Validity

Validity in assessment design considers the extent to which an assessment item accurately measures what it is intended to measure and that the evidence of student learning collected from an assessment can be legitimately used for the purpose specified in the syllabus.

Reasons for non-endorsement by priority of assessment — validity practices

Validity priority	Number of times priority was identified in decisions*
Alignment	14
Authentication	4
Authenticity	0
Item construction	7
Scope and scale	17

*Total number of submissions: 117. Each priority might contain up to four assessment practices.

Effective practices

Validity priorities were effectively demonstrated in assessment instruments that featured:

- simple and direct claims that were clearly aligned to Unit 4 subject matter, e.g. antisocial behaviour is more common due to the bystander effect
- claims that could generate multiple research questions, e.g. cultural norms influence social identity
- claims that could be narrowed down into specific and relevant research questions, e.g. social norms dictate behaviour
- claims that have sufficient data available for students to research, e.g. social media is increasing conformity
- sufficient claims for the size of the cohort, allowing students to develop unique responses to the task
- authentication strategies that included guidance for drafting, scaffolding and teacher feedback
- checkpoints to monitor student progress through the task
- scaffolding that directed students to address all components of the task.

Practices to strengthen

It is recommended that assessment instruments:

- include all the task specifications in the task description
- contain claims that are clearly derived from Unit 4 subject matter, i.e. General syllabus — social psychology, interpersonal processes, attitudes or cross-cultural psychology
- use claims that are assertions without evidence. Science as a Human Endeavour (SHE) statements from the syllabus can be used as a starting place to develop claims; however, these statements are not necessarily suitable to be directly used as claims
- include appropriate drafting and authentication strategies, e.g. collecting progressive samples of student work, interviews with students, using plagiarism-detection software
- include appropriate information in the scaffolding section, e.g. do not lead students towards a predetermined response by specifying the scientific concepts students are to investigate.

Accessibility

Accessibility in assessment design ensures that no student or group of students is disadvantaged in their capacity to access an assessment.

Reasons for non-endorsement by priority of assessment — accessibility practices

Accessibility priority	Number of times priority was identified in decisions*
Transparency	4
Language	3
Layout	0
Bias avoidance	0

*Total number of submissions: 117. Each priority might contain up to four assessment practices.

Effective practices

Accessibility priorities were effectively demonstrated in assessment instruments that featured:

- claims written using clear, succinct language and featuring accurate spelling, grammar and textual features
- clear instructions that align to the specifications within the syllabus, the assessment objectives and the ISMG
- clear, appropriate headings
- checkpoints that provide an indication of the time available to students (e.g. Week 4) rather than specific dates.

Practices to strengthen

It is recommended that assessment instruments:

- are checked for typographical, spelling and grammatical errors
- avoid repetition of elements of the task in different sections.

Assessment decisions

Reliability

Reliability is a judgment about the measurements of assessment. It refers to the extent to which the results of assessments are consistent, replicable and free from error.

Agreement trends between provisional and final results

Criterion number	Criterion name	Percentage agreement with provisional	Percentage less than provisional	Percentage greater than provisional
1	Research and planning	99.65	0.35	0
2	Analysis and interpretation	97.55	2.1	0.35
3	Conclusion and evaluation	98.6	1.05	0.35
4	Communication	98.6	0	1.4

Effective practices

Accuracy and consistency of the application of the ISMG for this IA was most effective when:

- in the Research and planning criterion
 - a *considered* rationale clearly connected the research question to Unit 4 subject matter
 - a *specific* research question was explicit enough to be answered within the required response length
 - selection of *sufficient and relevant* sources provided a variety of scientifically credible sources.

Samples of effective practices

The following is an excerpt from a response that illustrates the characteristics for the criterion at the performance level indicated. The sample may provide evidence of more than one criterion. The characteristics highlighted may not be the only time the characteristics have occurred throughout the response.

Research and planning
A considered rationale
identifying clear
development of the
research question
from the claim

The rationale shows evidence of careful, deliberate thought. The sequence of ideas involved in the development of the research question to the claim is easily seen.

Rationale

There is a growing concern among researchers and the public that “violent media leads to violent behaviours”. (MediaSmarts, 2014). Readily accessible and affordable, video games are becoming increasingly popular in young adults, with more than half containing depictions of violence. (Harvard Publishing, 2020). People with violent videogame habits experience consistent exposure, with the State of Online Gaming (2020) research reporting that the average gamer spends over six hours a week playing video games. The high consumption of this immersive media type leaves room for concern; however, studying the effects of video games is particularly important as they allow the player to act out simulated violence as if they were committing a real violent act (rather than just viewing it), and games are often revisited several times.

Desensitisation is defined as a process that diminishes emotional responsiveness to a negative, aversive, or positive stimulus after repeated exposure to it. (Cherneva, 2020) This is dangerous in terms of violence for several reasons. It presents the possibility of apathy toward life events. (David, Nias and Phil, 1979). Someone who is emotionally desensitised to violence may have a diminished or even no reaction to a dangerous event. (Mrug, Madan and Windle, 2015). If negative emotional responses to violence are habituated, it may cause players to consider violent acts whilst feeling little to no guilt, remorse, or sadness. Furthermore, desensitisation may reduce the perceived seriousness of an event or injury. Combined with other negative effects of media, there is also a concern that this emotional desensitisation may provide a pathway to aggression or other antisocial behaviours. (Krahé, 2014)

It is vital to consider the effects this media may have on young adults. For the purpose of this research investigation, the phrase ‘young adults’ is used as an umbrella term for people in the 18-25 age bracket. At this age, the prefrontal cortex (responsible for emotion regulation, risk assessment and the brain’s reward systems) is still developing. (Big Think, 2020). This means young adults are still vulnerable to priming concepts through external stimulus, overly aggressive responses to conflict, and the mimicking of behaviours. (Huesmann, 2007). This is particularly worrisome in young adults as they are vulnerable to the negative effects while having significantly less parental protection or supervision. There is no limit of game use from an authority, they have more freedom over their schedule and gaming habits, and freer use of their income. Identifying the likelihood and severity of these potential effects is crucial in determining whether video games are harming young adults, and in turn, society. It was from this background information that the research question ‘Does regular exposure to violent video games increase emotional desensitisation in young adults?’ was developed.

Practices to strengthen

To further ensure accuracy and consistency of the application of the ISMG in this IA, it is recommended that:

- in the Analysis and interpretation criterion, *thorough and appropriate* identification of limitations of evidence should identify
 - weak points of the data with respect to the research question
 - methodological limitations of the sources.

Additional advice

- Schools should use the ISMG from the syllabus without making any changes to wording or formatting.
- Teachers should develop resources and teaching/learning strategies that reflect the specific requirements of a research investigation (e.g. a rationale that develops the research question from a claim, extrapolation of findings of the research to the claim) rather than using approaches from previous Science syllabuses (e.g. extended response task) or other contexts (e.g. literature review).
- Teachers should develop ways to demonstrate to their students how to access scientifically credible sources, e.g. peer-reviewed articles. Simple Google searches and internet news articles are not sufficient for this type of assessment.

- Teachers should use the strategies identified in the *QCE and QCIA policy and procedures handbook* to
 - manage response length to ensure that student responses meet the conditions of the syllabus
 - promote academic integrity to ensure that student responses clearly demonstrate their students' own achievement.

External assessment

Summative external assessment (EA): Examination (50%)

Assessment design

Assessment specifications and conditions

Description

This examination included two papers. Each paper consisted of a number of different types of possible items:

- multiple choice
- short response items requiring single-word, sentence or paragraph responses
- calculating using algorithms
- interpreting graphs, tables or diagrams
- responding to unseen data and/or stimulus
- extended response (300–350 words or equivalent).

Conditions

Paper 1

- Time: 90 minutes plus 10 minutes perusal.
- Other: QCAA-approved graphics calculator permitted.

Paper 2

- Time: 90 minutes plus 10 minutes perusal.
- Other: QCAA-approved graphics calculator permitted.

The assessment instrument consisted of two papers. Questions were derived from the context of Units 3 and 4. This assessment was used to determine student achievement in the following assessment objectives:

1. describe and explain localisation of function in the brain, visual perception, memory, learning, social psychology, interpersonal processes, attitudes and cross-cultural psychology
2. apply understanding of localisation of function in the brain, visual perception, memory, learning, social psychology, interpersonal processes, attitudes and cross-cultural psychology
3. analyse evidence about localisation of function in the brain, visual perception, memory, learning, social psychology, interpersonal processes, attitudes and cross-cultural psychology to identify trends, patterns, relationships, limitations or uncertainty
4. interpret evidence about localisation of function in the brain, visual perception, memory, learning, social psychology, interpersonal processes, attitudes and cross-cultural psychology to draw conclusions based on analysis.

Paper 1 Section 1 was 30 multiple choice questions (30 marks).

Paper 1 Section 2 was 10 short response questions (20 marks).

Paper 2 was 5 short response questions (50 marks).

For the Alternative sequence, the assessment was used to determine student achievement in the following assessment objectives:

1. describe and explain intelligence, diagnosis, psychological disorders and treatments, emotion and motivation, social psychology, interpersonal processes, attitudes and cross-cultural psychology
2. apply understanding of intelligence, diagnosis, psychological disorders and treatments, emotion and motivation, social psychology, interpersonal processes, attitudes and cross-cultural psychology
3. analyse evidence about intelligence, diagnosis, psychological disorders and treatments, emotion and motivation, social psychology, interpersonal processes, attitudes and cross-cultural psychology to identify trends, patterns, relationships, limitations or uncertainty
4. interpret evidence about intelligence, diagnosis, psychological disorders and treatments, emotion and motivation, social psychology, interpersonal processes, attitudes and cross-cultural psychology to draw conclusions based on analysis.

Paper 1 Section 1 was 30 multiple choice questions (30 marks).

Paper 1 Section 2 was 10 short response questions (19 marks).

Paper 2 was 6 short response questions (46 marks)

Assessment decisions

Overall, students responded well to the following assessment aspects:

- applying understanding of Unit 4 subject matter
- analysing Unit 3, Topic 4 subject matter
- answering questions with the cognitive verbs 'describe' and 'identify'.

Effective practices

The following samples were selected to illustrate highly effective student responses in some of the assessment objectives of the syllabus.

Multiple choice item response

Assessment objective: Objective 1 — Describe and explain

Item: General syllabus Paper 1, Question 1

QUESTION 1

The structure of the central nervous system contains the

- (A) brain and spinal cord only.
- (B) somatic nervous system and brain only.
- (C) autonomic and somatic nervous systems only.
- (D) spinal cord and autonomic nervous system only.

This question required students to recall the structure of the central nervous system.

Option	Validity statements
A	Key
B	These are structures of the peripheral and central nervous systems.
C	These are structures of the peripheral nervous system only.
D	These are structures of the peripheral and central nervous systems.

Item: Alternative sequence syllabus Paper 1, Question 1

QUESTION 1

The use of medication in the treatment of schizophrenia would be considered a

- (A) behavioural approach.
- (B) biological approach.
- (C) cognitive approach.
- (D) social approach.

This question required students to identify the approach that would use medication in the treatment of schizophrenia.

Option	Validity statements
A	The behavioural approach uses learning theory as a basis for treatment.
B	Key
C	The cognitive approach uses internal processes such as perception, attention and language as a basis for treatment.
D	The social approach uses social and cultural processes that are external to the person as a basis for treatment.

Assessment objective: Objective 2 — Apply understanding

Item: General syllabus and Alternative sequence syllabus Paper 1, Question 14

QUESTION 14

Aronson and Worchel (1966) led participants to believe that the person with whom they had interacted either liked them or disliked them. The results indicated that ‘liking’ had a significant effect on the participants’ feelings for the other person.

Which origin of attraction do the results of this investigation support?

- (A) proximity
- (B) similarity
- (C) familiarity
- (D) reciprocity

This question required students to read the stimulus research by Aronson and Worchel (1966) and identify the origin of attraction the results of the investigation support.

Option	Validity statements
A	Proximity as an origin of attraction is related to our physical closeness to another person; this was not investigated.
B	Similarity as an origin of attraction refers to the characteristics that are alike between those in a relationship; this was not investigated.
C	Familiarity as an origin of attraction occurs when we are more attracted to people the more we interact with them; this was not investigated.
D	Key

Short response 1

Assessment objective: Objective 1 — Describe and explain

Item: General syllabus Paper 1, Question 36

This question required students to describe encoding failure with reference to an example from everyday life.

Effective student responses:

- described the features of encoding failure
- identified an example relevant to everyday life.

Student sample of effective response

Describe and explain (2 marks)	<p>QUESTION 36 (2 marks) <i>pseudo-forgetting, lack of attention</i></p> <p>Describe encoding failure with reference to an example from everyday life.</p> <p>Encoding failure can be described as a failure to encode information at the time of learning, which results in an inability to store the information in memory (short and long term). An example of this would be when a student experiences pseudo-forgetting in class, whereby a lack of attention causes a failure for them to encode the information being taught to them by a teacher.</p>
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This sample has been included to demonstrate an appropriate response for the cognitive verb 'describe'. The response:

- describes features of encoding failure such as the failure to encode information at the time of learning, resulting in an inability to store the information in memory
- identifies an example of encoding failure from everyday life, i.e. a student in class experiencing a failure in encoding.

Assessment objective: Objective 2 — Apply understanding

Item: General syllabus Paper 2, Question 1c

This question required students to describe spontaneous recovery and support their response with an example relevant to the investigation by Pavlov (1897/1902).

Effective student responses:

- described spontaneous recovery
- identified an example of spontaneous recovery relevant to the investigation.

Student sample of effective response

Apply understanding (2 marks)	<p>c) Describe spontaneous recovery. Support your response with an example relevant to the investigation. [2 marks]</p> <p>Spontaneous recovery is occurs after extinction has occurred where the conditioned stimulus is presented by itself over and over (without the presence of the unconditioned stimulus (food)) until the conditioned response (salivating) no longer occurs. After a time delay, the conditioned stimulus is presented and elicits the conditioned response again. In the experiment, this could occur after a time delay where the bell is rung and the dog salivates in response, demons-</p> <p>★ d) Compare Pavlov's investigation to that conducted by Skinner (1948) - training [3 marks]</p> <p style="border: 1px solid black; padding: 2px; display: inline-block;">Spontaneous recovery.</p>
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This sample has been included to demonstrate an appropriate response for the cognitive verb 'describe'. The response:

- described spontaneous recovery in classical conditioning
- identified an example of spontaneous recovery relevant to the investigation by Pavlov (1897/1902) by referring to the bell, dog and salivation.

Assessment objective: Objective 3 — Analyse evidence

Item: General syllabus Paper 1, Question 38

This question required students to use examples to contrast self-serving and confirmation biases.

Effective student responses:

- recognised a difference between self-serving and confirmation biases
- identified an example of self-serving bias and an example of confirmation bias.

Student sample of effective response

<p>Analyse evidence (3 marks)</p>	<p>QUESTION 38 (3 marks) Contrast self-serving and confirmation biases. Give an example of each.</p> <p>Unlike confirmation bias, Self serving bias is a form of attribution error where positive outcomes are ^{attributed} accredited to dispositional factors and negative outcomes to situational factors. For example ^{accrediting} accredited good marks to your own self control, intelligence and hard work and to bad marks to having to work, ¹⁹²⁹ bad group members, or a bad study space. Confirmation bias on the other hand, is the way in which information is recalled based on whether it suits our motivations. It is based p on the desire to be right. For example, remembering political events which suit the favour the image of your preferred candidate - (ignoring their wrongdoings or mistakes) as you seek to view them as the best candidate).</p>
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This sample has been included to demonstrate an appropriate response for the cognitive verb 'contrast'. The response:

- recognises a difference between self-serving bias and confirmation bias by describing both types of biases, by giving a causative sentence connector, 'on the other hand'
- identifies an example of self-serving bias
- identifies an example of confirmation bias.

Assessment objective: Objective 4 — Interpret evidence

Item: General syllabus and Alternative sequence Paper 2, Question 3d

This question required students to read an extract of commentary from the Darley and Latane (1986) study and infer why a group of participants may have reacted with increased concern nervousness and emotion.

Effective student responses identified evidence of the likely cognitive dissonance experienced by the participants in the investigation.

Student sample of effective response

<p>Interpret evidence (1 mark)</p>	<p>d) Participants who failed to report the emergency showed signs of <u>extreme concern</u> when the experimenter entered the room to terminate the study. Many showed physical signs of nervousness and seemed more emotionally charged than those who did report the emergency.</p> <p><u>Infer</u> why this group of participants may have reacted this way. [1 mark]</p> <p>The people who did not report the emergency were likely to be experiencing guilt over not assisting the victim, as they would believe they may be in trouble for not taking responsibility. In this case, these people would be experiencing cognitive dissonance between the knowledge that help was required, and the disparity in that their actions did not match this knowledge to act. ↓ of an obligation</p>
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This sample has been included to demonstrate the nature of the cognitive verb 'infer'. The response infers that the participants' reaction was due to the likely cognitive dissonance between their attitudes and behaviours in the study.

Practices to strengthen

It is recommended that when preparing students for external assessment, teachers consider:

- the skills associated with responding to cognitive verbs linked to subject matter, especially contrast, distinguish, compare and discuss
- all of the research referenced in the subject matter of the syllabus (see References section)
- in Paper 2, that when an item asks for an example to be given, the example should refer specifically to the investigation identified in the item
- that the number of marks allocated per question refers to the number of statements, cognitions or calculations required to achieve full marks.