2021 VCE Extended Investigation Critical Thinking Test report

General comments

Student responses to the Critical Thinking Test of 2021 demonstrated a general awareness of what was required to score at a reasonable level within the test. The test is deliberately constructed to examine different aspects of critical thinking across its 10 questions. It is the quality of thought and explanation, rather than the quality of the writing or accuracy of keyboard skills, that is assessed.

A debatable issue will allow at least two possible sides for argument. Students should practise analysing, critiquing and evaluating different points of view about issues and arguments in preparation for this test and throughout their study of Extended Investigation.

The drag-and-drop question involves thinking about how statements become reasoned arguments. The idea of taking the different sides of an argument and the notion that every argument can, in theory, be countered are implicit in the critical thinking model of this test.

Students offered a range of answers and took different approaches in their responses to the questions. The quality of reasons or explanations – whether explicit or implicit – were judged on their individual merits. It is important to stress that there is no prescribed way to demonstrate effective critical thinking and students are rewarded for finding suitable ways to evaluate the issues under discussion.

Responses that explained and justified a viewpoint scored more highly than those that offered generalised comments with little specific reference to the issues presented. Words associated with research such as ‘subjective’, ‘objective’, ‘valid’, ‘reliable’ and ‘variables’ were sometimes used incorrectly or out of context. Too many students attempted to analyse the persuasive features of language, potentially derived from studies of English such as ‘appeal to the hip pocket’ or ‘use of an inclusive voice’ without any attempt to utilise these phrases to help analyse or appraise the actual argument under consideration.

Specific information

Note: Student responses reproduced in this report have not been corrected for grammar, spelling or factual information.

This report provides sample answers or an indication of what answers may have included. Unless otherwise stated, these are not intended to be exemplary or complete responses.

The statistics in this report may be subject to rounding resulting in a total more or less than 100 per cent.

Criteria for assessing arguments

In general terms, the marks for Questions 3 and 4 and 8 to 10 are allocated on the understanding of an issue, the comprehensiveness of the response and the validity of the reasoning and argument presented.

In assessing arguments there is a premium on explaining why a judgment is made, but it is recognised that such explanations can be difficult, particularly under test conditions. Consequently, the reasoning and explanations of students can often be implicit, but such implied reasoning may be rewarded.

Question 1

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Marks | 0 | 1 | 2 | 3 | Average |
| % | 15 | 45 | 24 | 16 | 1.4 |

This drag-and-drop item required students to see how statements relate to each other in terms of a proposition, and how they can be best aligned in opposition to statements provided in the table. Students were asked to consider the pros and cons of Australia becoming a republic, and then drag the three italicised statements into one of five empty cells in the table.

A recommended approach is for students to start by classifying the statements as potentially for or against arguments, and then decide which statement from the other side of the argument most closely opposes them.

|  |  |
| --- | --- |
| For | Against |
| Many Australians come from countries with no association or with a negative association with the United Kingdom. | British heritage is an important part of Australian culture. |
| A mature nation should take full responsibility for its own directions and decisions. | Internationally, Australia is recognised as an independent country with a British heritage. |
|  | A monarch is above party politics and is therefore a symbol of unity. |
|  | Australia is located in Oceania but, culturally, it has a Western European background. |
| Declaring a republic would be a breath of fresh air for Australians. | It is better to leave things the way they are than to invite instability. |

For this issue, the idea of British heritage in row 1, which is important to some, is, just as significantly, of no interest or perhaps even has negative implications to others. In row 2, the opposition is between the ‘for’ idea that Australia needs to become a republic to stand on its own feet and the ‘against’ idea that Australia is already an independent country that stands on its own feet (so it doesn’t have to become a republic to do that). In this case the reference to British heritage was an intentionally irrelevant distraction. The statements in rows 3 and 4 had no direct opposing statement. In row 5 the idea of instability was considered an effective counter argument to a breath of fresh air.

Many students incorrectly assigned statement B, ‘Internationally, Australia is recognised as an independent country with a British heritage’, to the ‘for’ side. Although the statement could generally be used for or against the proposition in argument, it does not oppose any of the ‘against’ arguments in the table.

As only 16% of students scored full marks for this question, many may have underestimated its complexity, rushed it, did not read the introduction fully or review their solution and initial allocation to the ‘for’ or ‘against’ sides.

Question 2

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Marks | 0 | 1 | 2 | 3 | 4 | Average |
| % | 11 | 10 | 35 | 14 | 30 | 2.4 |

This question shows a diagram representing a possible line of reasoning about the payment of surrogate mothers. Students were given definitions of four terms and were asked to drag four of six statements (A to F) into the appropriate space for each of those terms. Two of the statements did not appropriately fit any of the spaces. One mark was awarded for each correct response.

|  |  |
| --- | --- |
| Elaboration | The sacrifices and risks in bearing a child are significant. |
| Evidence | In most cases, surrogacy involves many expenses other than just the cost of medical care. |
| Opposing argument | Commercialisation of surrogacy leads to exploitation of vulnerable women. |
| Counter argument | The surrogacy process can be effectively regulated. |

The difference between an elaboration and a counterargument or an elaboration and evidence are the most difficult distinctions in most lines of argument. In this case, the elaboration extends the argument by explaining why a person who undertakes a surrogacy service deserves to be compensated, beyond reimbursement of medical expenses. The evidence is that the current arrangements do not reward fairly.

Of the two statements that did not fit into the line of argument, many students incorrectly identified as evidence ‘In 2019, the birth rate dropped to its lowest rate ever’, because it contained statistical data. Most students considered the argument that ‘surrogacy is not good for family relationships’ as relevant to the broader question of whether surrogacy is a good thing in principle, but not to whether existing surrogate mothers should receive fair payment, and thus were not tempted to use it to complete any line of argument.

Students are advised to read the introductory text to this type of question carefully as it contains key background information.

Question 3

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Marks | 0 | 1 | 2 | 3 | 4 | 5 | 6 | Average |
| % | 2 | 6 | 20 | 27 | 26 | 14 | 5 | 3.3 |

Students were presented with a pro/con table that considered the complex issue of live animal export and Australia’s place within this international practice. Individual statements on each side of the table were labelled and students were asked to explain which of these statements was most convincing and why, in terms of its ideas and reasoning, not its rhetorical appeal to others or its use of persuasive devices.

Responses that scored highly displayed a clear understanding of the issue within an evaluative response that was comprehensive and contained a plausible interpretation, as in the following example:

Arguments B, H and J all revolve around the benefit to humans that the animal exportation industry does or does not provide, rather than looking towards the welfare of animals. This human-centric argument will resound more with your average Australian, as it has been found that humans do not consider animal lives to be worth the same amount as human lives. Therefore these arguments are more likely to get the attention of the public. For vegans, vegetarians or animal rights advocates, the arguments that centre around the safety of the animals will be more convincing, this is true for arguments A, D and I, which speak towards the safety of the animals during this process. Of these arguments, E fundamentally raises the best argument that does not have a rebuttal on the against side, it is not reasonable to assume that every country around the world will follow suit for humane treatment, which has been shown through the NIKE sweatshop scandal where third party manufacturers were using unlawful slaves to create the products.

Question 4

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Marks | 0 | 1 | 2 | 3 | 4 | 5 | 6 | Average |
| % | 1 | 5 | 11 | 26 | 26 | 19 | 11 | 3.7 |

In this question, students were asked to consider arguments for and against the proposition that internet access should be subsidised by the government for low-income families with school-aged children.

In 2021 a system malfunction resulted in the text of Question 4 and a repetition of the Question 3 text appearing on the same screen. This was addressed in the marking process by scoring in terms of Question 4, Question 3 or any combination of the two. To the students’ credit, most responses appeared unaffected by the confusion and students were able to complete the task effectively.

The following student response addressed almost exclusively the requirements of Question 4 as intended. The first two paragraphs thoroughly cover a range of interconnected issues; within each paragraph the development is clear and sequential and the reasoning sound; and in the final paragraph the student uses the arguments in the table to justify, contextualise and clarify their own position.

I am for the proposition due to the fact that it will likely reduce income inequality in the long run, based on the fact that school-aged children will have more access to their education and will be able to study what they are passionate about and get a job in that field, lessening the cycle of poverty and creating a better, more equal Australia. It will also benefit many rural communities and Indigenous peoples who do not currently have access to the same education as inner-city middle class families.

I believe that free internet access should be provided to all low-income households with school aged children because the financial stress on low-income households with school-aged children would be reduced. Without this worry for the families to think about, the children would be free to peruse the education they wish for, creating more opportunities for them in the future. It also frees up the time that families need to spend educating their own children as they will have access to their own school curriculum, allowing more time for the parents to work to provide for their children.

The arguments against the proposition are not focused on the benefit of those in low-income households, rather the fact that other households may experience disadvantage because of this, making these arguments appealing to high-income families who feel they have worked hard to earn their money compared to the low-income families. The propositions for the argument will appeal to the sense of justice that many people have. Many Australians believe that it is not fair that children have to suffer because of the errors of their parents and will want them to receive a good education. The For arguments are justice/ human based while the against are fiscal/hip pocket based.

Criteria for assessing research-related responses

Considerations in evaluating research questions and conducting data collection include:

* clarity and focus of the question
* substance and significance of the question
* impartiality and objectivity of the question and available research methods
* opportunities for ethically gathering useful data
* practicality and manageability
* likelihood of an answer from the research.

Responses to Question 5 were assessed on the quality of the question, the plausibility of the proposed data collection methods and the connection between them.

Responses to Questions 6 and 7, which in 2021 focused on manageability, were assessed in terms of how well they critically evaluated the selected question against the considerations outlined above, with particular reference to practicality and the broader issue of manageability.

Question 5

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Marks | 0 | 1 | 2 | 3 | 4 | 5 | 6 | Average |
| % | 1 | 6 | 15 | 34 | 26 | 13 | 5 | 3.4 |

Students were asked to write a research question on one of the issues dealt with in Questions 1 to 4 and indicate how good data might be collected to address it. The range of responses covered questions that were considered very impractical to impractical, through to manageable to easily managed. Students are encouraged to consider the significance of their potential research question, evaluate who potential stakeholders may be and link the wording of their proposed question to appropriate methods.

Responses that scored highly were clear, substantial and comprehensive. They envisaged manageable and productive questions and suitable methods for answering them. Responses that did not score well supplied formulaic and generalised comments about the chosen methods that did not address the specific circumstances of the intended research. Some of the questions were unanswerable and simply listed a variety of data collection methods without consideration of their practicability.

It is possible for a student to score highly with a clearly or precisely phrased question that could be answered well, but if the student does not envisage a realistic way of answering the question, they will not be able to score highly overall. On the other hand, a simple and obvious question could score highly when an appropriate way of answering it is envisaged.

Some questions and answers offered by students were devised within the scope of the Extended Investigation (with a limited timeframe) while others were conceived as more hypothetical within a broader academic setting. It may be helpful for students to identify the situation for which their research question is best suited as this would justify their choice of methods in a clear and explicit way.

The following example of a high-scoring response identifies several ways in which the question could be addressed and practical issues that would help in finding an answer to the question.

A good research question to explore issue D would be "does access to the internet increase the academic performance of Victorian school-aged children?". The scope, population and variables makes for the collection of good data in order to answer this research question. The scope of only addressing Victorian, school age children makes for the easily determined selection of a population which could consist of strategically sampled students from around Victoria. Students could be proportionally chosen in relation to the number of students in each year level. The group could then be divided into "low-income households" and "non low-income households". This information would be easily received as it is likely already know by the school due to Medicare arrangements etc. The Independant variable would be the presence or absence of internet in 50% of the students in each of the two groups. The dependent variable would be the academic growth measured from an academic test taken before and after the period of learning with/without internet. The results could then be compared to see which group showed the most growth. An extraneous variable that must be considered is the quality of education provided through the online methods, such as children who go to public as opposed to private schools.

Questions 6 and 7

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Marks – Question 6 | 0 | 1 | 2 | 3 | Average |
| % | 4 | 28 | 49 | 19 | 1.8 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Marks – Question 7 | 0 | 1 | 2 | 3 | Average |
| % | 4 | 34 | 44 | 18 | 1.8 |

These two questions involved analysis and assessment of research questions and envisaging how a research question might be answered. They are designed to assess what students have learned from their own Extended Investigation and how they transfer their own experience to another hypothetical context. Marks are awarded to students who can see the limitations or strengths within their chosen question.

Responses that scored highly focused on what would be involved in answering a particular question and whether that would make it more or less manageable in practice.

In the following two responses, each student clearly explains the issues inherent within their chosen question and elaborates upon them, pointing out the ways in which the question could be tackled or highlighting the fact that it is severely limited due to inherent practical difficulties.

The following is an example of a high-scoring response to Question 6.

B. Would be the most manageable question in practice because it clearly states what they will be measuring and have two stated variables, marks in reading writing and maths and also the link to choral singing. The term “improvements” is known to be better than previous data and they have specifically listed what would be tested, that is reading, writing and mathematics. Because it has a time span of two years, data could be collected at the start of the two years with children in the choral singing and their marks in the stated reading, writing and maths and then again maybe at the 6month or 1 year mark and then again at the end of the two year mark, to identify an improvement in grades whether that be a letter mark or percentage. This question also states the number of schools tested so that it is within a controlled environment as well as the age of participants, that is primary school aged. It is clear what kind of primary schools, both regional and urban which can be interesting to compare or contrast results.

The following is an example of a high-scoring response to Question 7.

A is the least manageable in practice as there can be uncontrolled variables leading to confounding data. Firstly “good” street art and “ugly” street art is highly subjective to the individuals, ones tastes and opinion on what is “good” is often not reflective of others, even within the same community. Secondly, graffiti is often criminalised so artists often go “underground” to keep their identity hidden thus it would be highly difficult to track them down to be surveyed or interviewed, in the same vein, these artists that produce many of these works are unlikely to attend a “local government program” as they want to stay hidden. Lastly, the question lacks specificity in location as it only states “a specific area” and art is highly different according to the culture of a specific area, what you would find in the Melbourne CBD can be wholly different to a place like an abandoned mine in regional Victoria.

Questions 8 and 9

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Marks – Question 8 | 0 | 1 | 2 | 3 | Average |
| % | 4 | 23 | 47 | 26 | 2.0 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Marks – Question 9 | 0 | 1 | 2 | 3 | Average |
| % | 4 | 24 | 48 | 24 | 1.9 |

Students were asked to present their reasons, with justification, for raising the school leaving age or for leaving it as it is. Although some students confused ‘the school leaving age’ with the age at which students usually leave school, it had no effect on the assessment.

The following two student responses exemplify how a chosen position can be strengthened by elaboration and evidence – as displayed in the model of argument in Question 2. Both students end their responses by explaining why they believe they have presented a strong argument in a concise and precise way. While this part of the question can often be implicit, in these instances the students’ self-evaluation consolidates and clarifies their position on the issue.

The following is an example of a high-scoring response to Question 8.

The school leaving age should be raised to at least 18 as the current age limits the pathways of students well into the future. At the current school leaving age of 16, students are limiting themselves and their opportunities into the future. As there is a limited number of tertiary pathways available for students without finishing secondary school, this is limiting their abilities later in life to obtain a stable income for themselves. In our world, to progress anywhere, you generally need at the minimum a Bachelors Degree, with many also studying for a Masters. Without any formal qualifications, the range of jobs and career pathways you have is severely limited. This creates continuing financial instability for the individual and a greater burden on the economy. This is the strongest argument as it shows the understood consequences of leaving school at 16 and establishes how this not only affects the individual, but also the wider community.

The following is an example of a high-scoring response to Question 9.

The strongest argument against the proposition is that the current age has been decided acknowledging that although pathways are limited for students, there are several TAFE institutions available for school-leavers, and qualifications such as diplomas which can lead to other forms of qualifications, which are more suitable for some students rather than formal secondary school. Formal schooling does not and cannot cater properly for all students, as each student have their own specific learning needs. The best teachers can to is cater for the majority. This leaves many students left behind. Formal schooling environments do not suit these students. Instead, at 16 they are able to attend TAFE institutions to gain qualifications which are more cater to them and their needs than formal schooling. Allowing these students to have this opportunity will create a better life for them and allow them to have a jumpstart on the rest of their life, rather than being stuck in the back of the classroom lost and unable to understand what they are being taught. This is the strongest argument as it presents a more contemporary view of the topic and refutes the more traditional and unrealistic views that leaving school early or at 16 is setting you up for failure later in life.

Question 10

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Marks | 0 | 1 | 2 | 3 | Average |
| % | 9 | 32 | 39 | 21 | 1.7 |

This task was presented as part of a line of reasoning, and students were asked to provide an opposing argument to both the proposition and argument that schools should ban the sale of junk food. Responses needed to explain, explicitly or in the course of presenting the argument, how the opposing argument is effective in addressing the issue, rather than its use of persuasive devices.

A number of responses contradicted the proposition or the argument in isolation, without considering both aspects and then going beyond their simple contradiction.

Responses that scored highly offered a sound, precisely expressed argument, which dealt with both the proposition and the argument. Some of the effective opposing arguments included:

* Schools have an obligation to try to teach good dietary habits by modelling them on campus, because if students have no example of good nutrition practice, at school or at home, they have little chance of learning good dietary habits in later life.
* Schools are unable to control behaviour off-campus, but they may be able to influence it through modelling good practice and upholding good nutritional standards during school hours.
* Dietary habits are affected by many factors, but schools have no chance of influencing young people to eat healthily unless they practise what they preach by providing healthy food while at school.
* Schools have a moral obligation or duty of care to set good dietary habits/examples to students irrespective of whether it affects students out of school. Banning the sale of junk foods on school grounds is one way of promoting good dietary habits.

The following is an example of a high-scoring response.

Schools should ban junk food because although students still have the opportunity to make unhealthy choices outside of school hours, it is the school’s responsibility to both limit time where students are able to access unhealthy food and set an example to educate their students on healthy food choices. Banning junk food in schools will not only limit she student’s access to these unhealthy foods, but contribute to teaching them about good food choices through influence, leading to a healthier future population who will teach their children to make good food choices. Some may argue that it is the parent’s responsibility to educate their children on correct food choices, but not all children have parents who are educated on how to make healthy food choices themselves, leaving room for children to be influenced by their parent’s bad eating habits from an early age and then have that reinforced by schools through their continuation of the allowance of junk food.