

# 2018 VCE Extended Investigation written examination report

## General comments

The Extended Investigation written report provides an opportunity for students to make public their research. Students' writing capacity and articulation of research through the written report was good. Students demonstrated a high level of complexity and control in their written reports, indicating that they approached the study confidently and with a clear understanding of the requirements. There was great balance and consideration evident in student writing with appropriate thought demonstrated in each section of the report.

The advice given in this report provides an overview of the assessment process and qualities of student work in 2018. It should be noted that the focus is on broad trends across all student reports. There are many ways that students can meet the criteria and satisfy different levels of achievement; the information given in this report should not be taken as an exhaustive or prescriptive list. It remains paramount for students to make research choices that are consistent with the intent of their research and the style of their investigation. The written report should reflect this and present a coherent account of the student's investigation in line with their intended aims and focus.

A large number of reports were founded on research questions comprising one or more parts. In some cases students presented two interrelated but distinct research questions. Students need to focus on the scope and manageability of a research question given the year-long time frame. Commencing an investigation with a clearly defined, contained and well-scoped question that focused on one core issue or problem led to greater clarity, coherence and depth in a student's investigation.

It was evident that some research questions contained multiple focuses or points of examination within a single question, or were vague or very general. These issues led to investigations that have difficulty dealing with the complexity of concepts and that are unable to explore key ideas in enough depth. While the coherence and focus of the question is only assessed explicitly in Criterion 3 within the written report criteria, a poorly scoped question can have an impact on students' ability to demonstrate knowledge and skills in their understanding of the research area, their synthesis of information and findings, and the understanding of argument in the research area.

Of particular concern was the number of questions where phrasing and scoping undermined the student's capacity to achieve a detailed, complex and sophisticated investigation. Students are reminded that complexity and sophistication does not necessarily result from research questions with multiple focuses. A research question with one clear purpose, undertaken in detail and with critical thought, is just as likely to yield a complex investigation. The addition of more ideas can in fact limit a student's ability to engage adequately with the ideas of their research field and demonstrate depth in thinking. Continued re-evaluation of this question throughout the academic year is also encouraged to ensure that the student's investigation continues to match their question.

Students were able to reference well and adhere to the expected word count. However, some students submitted reports that were significantly over the word count. These students need to be cautious that their work has not become too wordy and the clarity of their investigation is not lost. While there are no marks awarded for word count, this aspect of a student's work can affect the clarity of the report and the depth of ideas.

In 2018 there were a large number of reports that engaged with the definitions of their question as a glossary at the start of the report. While this is not necessarily problematic, if these definitions are not picked up and reiterated in the body of the report they can become decontextualised from the investigation. Students are encouraged to consider defining key terms in the context of their discussion rather than as a glossary of key terms. In addition to this, stronger definitions are always connected to academic literature rather than dictionaries or generic websites such as Wikipedia. The use of academic definitions situates the student in the body of academic knowledge and, in some cases, supports them to explore tensions in the way that key terms are defined. Similarly, it is not necessary to provide a list of key words or topics as part of the abstract or introduction. While this is a convention in some academic journals to support indexing and key word searches, it was not necessary as part of the written report.

The level of critical reflection and discussion of limitations was a strength of many reports in 2018. Students should continue to focus on the ways that each investigation has progressed and present a critical reflection on the design and conduct of the investigation as well as the outcome. This approach leads to a more complex understanding of the research question and supports students' critical thinking skills across their research. Students were discerning in their choice of methods, with evidence that students spent time considering the most appropriate method or methods for their research question. A wide range of methods was employed across investigations in 2018. While surveys were popular, other data collection methods including interviews, focus groups, and experiments were also prevalent. It continues to be important for students to consider the most appropriate research approach for their investigation as it is important that all methods are considered in light of the benefits and limitations they bring to a particular research question.

Two trends emerged in the design of some investigations in 2018. Firstly, some reports set out to prove, or disprove, existing academic research. While this should not necessarily be avoided, students need to be carefully guided through these approaches. In particular it is important that students do not set out to prove or test theories that have already been thoroughly discounted and discredited in the academic field. Positions that have already been disproven by experienced academic researchers are unlikely to lead to productive research by students. Likewise if a student is attempting to disprove an established and well-researched academic theory, this takes considerable time, resources and expertise that are often not available to students undertaking a year-long inquiry at Year 12 level. Finally, if a student is attempting to further prove a well-established theory, there needs to be a clear impetus or reason why this is necessary in order to produce a useful result. Reproducing an existing finding for the sake of confirmation only is not likely to yield a complex or detailed investigation that will fully sustain students over the course of the year.

Secondly, some students indicated that there was little or no existing research in an academic field. While this is certainly possible in some newer fields of research, it is not an issue that most students will encounter. The suggestion that there was not an existing body of academic knowledge that students could use as the basis for their investigation indicates that students need to spend greater time understanding the way that broader research fields may connect to their investigation. Students should be supported in identifying synonyms and phrases within research that may be used to uncover existing research. A lack of existing research, in most cases, is more likely the product of ineffective literature searching and understanding than a genuine lack of academic literature.

Finally, the representation of data was an area that requires additional focus and support. The purpose of graphs within reports is to provide an interpretation of data that is accessible to the reader and that supports a subsequent discussion of findings. Students need to be supported to select the most appropriate graphical representations for their data and be encouraged to use a variety of representations within their report. Representing data through using graphs generated in survey software or websites, rather than through the student's own consideration and creation, often led to a lack of clarity in the data and a difficulty in interpreting the student's intention. Similarly, representing the same data in multiple graphs led to confusion about the key finding of the investigation.

## Specific information

Each written report is assessed individually against the criteria. Comments regarding achievement levels as outlined below are for illustrative purposes only and do not constitute all aspects of a student's work that may contribute to achievement.

### Very High – High

Written reports in the highest range demonstrated a sophistication of thought, clear articulation of ideas and considered exploration of all aspects of the investigation. These students had well-scoped and well-defined questions that set up a coherent and detailed investigation. The demonstration of knowledge by these students was evident in their engagement with a range of authoritative literature, and their ability to identify areas of congruence and disconnection within this. Some students at this level were further able to situate their own research in gaps in the existing field of literature. Students consistently engaged with research across their report and were able to make relevant connections to core concepts, not only in the early stages of their investigation as they defined key terms but in the later discussion of their data.

The methodological approach of these investigations was closely connected to the research question and justified in detail. Students were able to weave together their explanation of method and their justification of its suitability as an approach in light of their question. They accounted for the benefits and limitations of their approach and considered where more than one source of data collection was warranted.

Data collected as a result of this was well synthesised and often grouped into overarching themes, to identify significant findings within the investigation. The visual representation of data within these reports was thoughtful, clear and purposeful. Consideration of the most effective means of visually representing data was evident. Rather than dealing with individual questions from a survey, for example, the data analysis in these reports synthesised multiple sets of data and dealt with the meaning within this collectively. The implications of findings were explored in detail and included links to existing literature to either justify a finding or raise questions for future research. Students at the highest levels in this range also extensively evaluated their approach and reflected on difficulties in the research process.

Writing and report structures at this level were coherent, and written with a high level of clarity and thought. Language was clearly adjusted to a non-specialised audience where appropriate and referencing was both consistent and accurate. There was evidence of extensive drafting and refining in student writing to present a considered, fluent and polished report. The conventions of academic writing and formatting were consistently applied in these reports and aided reader understanding.

Students who scored at the lower end of this range may have missed some opportunities to critically engage with their research material, for example, by summarising existing research rather than synthesising it. Typically, these students made some connections between literature, their

investigation and their findings but needed to further expand this discussion. In some cases the presentation of data was not as sophisticated, and the findings within these reports needed further clarity.

### **Medium**

Students who scored in the medium range were able to demonstrate a clear understanding of their investigation; however, these investigations tended to be more generalised and there was evidence of gaps or missed opportunities for critical engagement and greater depth within their investigation. These students were able to demonstrate a grasp of the core aspects of their research and begin to articulate some connections between ideas. At this level students needed to engage with a wider range of academic sources. For example, in defining key terms students were more likely to refer to dictionaries or general websites such as Wikipedia, rather than academic research that situated definitions of key terms in the body of existing academic knowledge. In engaging with the literature in their field some students provided historical overviews rather than literature reviews or missed opportunities to engage with key concepts and synthesis of ideas. A literature review at this level was likely to contain sections of description and recount rather than making consistent links between different pieces of academic writing. For example, rather than exploring the commonalities or differences in existing work, students at this level tended to deal with studies individually.

In discussing their method students in the medium range were descriptive and, while clearly outlining the process of their investigation, missed opportunities for critical reflection and justification. Students needed to more carefully consider the essential aspects of a method or methodology that needed to be communicated. While it is important to provide assessors with a sense of the investigation, it is also important to allow space to discuss how the approach is suited to the research question and supports the student to uncover information that will lead to a useful response to this. Overall, these reports would have benefited from greater justification and a sense of connection between research approaches rather than procedural description of their work.

When discussing their findings some students continued to report data based on individual questions rather than presenting a level of synthesis and drawing their data together into key findings. A core result of this was that the representation of data was not effective in these reports. Here students are encouraged to consider the most appropriate form of data representation and ensure that they make all graphs themselves. It was evident at this level, and in the lower ranges, that students had sometimes relied on data representations generated in survey software, rather than considering the most appropriate format for their investigation. Despite this, these reports were able to come to a clear conclusion regarding the research question and begin to engage with the limitations of their research. To extend this, students needed to consider a critical discussion of limitations rather than description.

The majority of these reports were clearly structured and applied the expected academic writing conventions. There were noticeable slips in expression within these reports and evidence that greater proofreading and accuracy of language was needed. In some cases these issues impacted on the clarity of meaning. Alongside this, students at this level sometimes missed connections between ideas of sections of work, and their report contained sections that did not clearly link together or where the reader was required to create the links themselves.

### **Low – Very low**

At the low levels of achievement reports were more likely to be wholly descriptive, demonstrate inconsistent engagement with the research question or contain significant gaps in thought or discussion. Students at this level attempted to explain their investigation; however, their reports lacked clarity, depth and connection between ideas. As they engaged with literature these reports briefly acknowledged the existence of a small number of sources or engaged with sources that

were less authoritative, including websites, blogs and media sources. Some students demonstrated limited engagement with literature overall and there was little evidence of referencing or reading in the field. Clear attribution of ideas was an issue for students in the lower ranges, with either a lack of referencing evident or the inconsistent use of different referencing systems.

A brief, solely descriptive, outline of the method was presented by students who scored highly in this range; however, this did not include key elements of their investigation, such as a discussion of participants or data collection methods. The discussion of findings at this level was either brief or confused, for example, presenting a range of statistics or raw data without explaining their meaning/purpose. The graphs evident within these reports often lacked a clear purpose and focus, and in some cases the data was not clearly connected to the research question. As a result, the key findings of the research were either brief or were not clearly connected to the purpose of the investigation.

The structure and the style of writing within reports at this level required improvement. Student responses demonstrated a number of issues, including inconsistent voice and tone, inappropriate register or formality, and missing connections between ideas. Students at the lower end of this range were likely to have included irrelevant information or not engaged with core concepts. These reports also demonstrated inconsistent application of academic writing conventions, including the structure and layout of the report and the use of a clear referencing system.

### **Assessment criteria**

The first four assessment criteria broadly apply to the ideas within a student's investigation and were often evident in specific sections of the written report. The last two criteria more explicitly relate to the communication strategies, writing style and execution of the report, and are assessed across the body of writing.

### **Criterion 1 – Knowledge and understanding of the research area**

This criterion focuses on students' knowledge of their research field and engagement with relevant academic literature. While this is initially demonstrated through the introduction and literature review present in students' reports it is reinforced throughout the entirety of the investigation, particularly in higher-scoring reports. For example, students are expected to make connections between their own findings and existing academic literature as they move through the analysis of their results.

It is expected that students engage with all aspects of their research question, giving particular attention to each of the key terms and drawing connections between these ideas. Selectively focusing on one idea or developing a question that contains numerous focuses that restrict the depth of students' writing were equally problematic in this area.

Students demonstrated a good level of knowledge regarding the key concepts and ideas in their investigation and a strong ability to position this within existing academic research. There was a clear difference between the higher- and mid-range reports in the depth, complexity and particularly synthesis of this research within the investigation. Those that scored in the high ranges were likely to deal with a wider range of academic literature and make connections between this. As students' work becomes more descriptive they are less able to demonstrate strong achievement in this criterion. Similarly, as students focus on a small number of academic sources or fail to account for academic literature in their discussion, they limit their ability to demonstrate a strong knowledge of their research area.

Developing a depth of knowledge needs to be given considerable attention as it forms the basis of students' subsequent work in the field. Reviewing and understanding the existing literature is an essential component to the success of students' research both in order to understand the existing

ideas within the field and to determine the key ideas they will engage with in their own writing. Students are therefore expected to demonstrate a degree of detail and depth of thought within this area of their work. They are expected to demonstrate the development of a detailed understanding that includes critical analysis and synthesis. This is one aspect of the investigation where critical thinking plays a central role in students analysing the arguments of others and determining their suitability for their own investigation.

It is also important for students to consider the range of sources that are most appropriate to engage with. While some investigations require engagement with media texts, this is not true of all reports. The use of sources, including websites and media texts such as newspaper articles, should be carefully considered in the context of each student's investigation and used only where applicable. Similarly, dictionaries should be used only for the explanation of definitions in the rare event that academic literature does not engage with key terms.

### **Criterion 2 – Analysis and evaluation of argument and evidence**

Criterion 2 relates to the student's ability to demonstrate critical thought regarding their own investigation, and the arguments and evidence they encounter in existing academic literature. This is again evident not only in the earlier sections of students' investigation but in the later analysis and discussion of data. Success in this criterion requires students to establish the links between key ideas and theories both in their own, and in others', work. Students who achieved very high scores made consistent and relevant connections between ideas in order to situate and explain their own research. Those who scored in the mid-range began to create links but these were general or tenuous. At the lowest level, reports consisted of significant summary of information and limited synthesis or analysis.

Overly descriptive reports were a concern in terms of their ability to effectively demonstrate the level of analysis and evaluation expected in a student's investigation. The analysis of argument expected within a report draws on the student's accumulated critical thinking skills and allows them to demonstrate the depth and complexity of their thinking. Methodologies or research questions that focus more on description than analysis are therefore problematic and limit students' ability to achieve the level of thinking expected, particularly in terms of establishing connections between their ideas, data and existing research. Higher-scoring reports therefore demonstrated a level of connection between the student's understanding of literature and the analysis of their own data. This demonstrated a level of critical thinking regarding the key ideas within their own investigation and an ability to situate their work in the context of existing argument and evidence.

### **Criterion 3 – Response to the research question**

The central starting point for all investigations is the development of a sound and coherent research question. It is expected that students are consistently engaged in the process of understanding and responding to their question through their investigation and the presentation of this in their written report. Concern exists for students who work with research questions where the scope is significantly larger than the time or resources available in this subject. While the decision about a research area is ultimately determined by the student, careful counselling and continued advice needs to be provided to ensure that the research question is appropriate in scope. In 2018 it was evident that students had engaged in research regarding a wide range of topics and issues. Those who scored highly presented clearly contained, refined and developed questions that formed the centre of their thinking and research. Those students with questions that contained multiple elements or ideas struggled to deal with the scope of their research and the numerous ideas they needed to become familiar with, and demonstrate mastery of.

In 2018 it was evident that students had kept their research question at the centre of their investigation. While there were some reports where it was evident that greater reflection on the question would have assisted the student to clarify their research, overall students maintained a

consistent focus on their question throughout their report. There were some students for whom their choice of method did not fit with the focus of the research question. These students need to be supported to consider alternative ways to approach their topic, before settling on one approach. A wide range of methodological approaches was evident in students' reports as they spend greater time considering their methodological choices in light of their overarching research question. As this aspect of investigation improves it is also important that students attend in the same level of detail to considering the most appropriate population for their study, where it involves human participants. Convenience sampling continues to be a weak justification for a sampling approach and takes little account of the overarching research aims a student sets out.

Critical justification is also important to success in this criterion. Students who scored in the highest ranges were able to present a coherent justification for their approach, in light of their research question. Those students who presented a largely descriptive summary or procedural account of their method were not able to access the higher ranges as effectively.

#### **Criterion 4 – Synthesis of findings and evaluation of the investigation**

As students draw together their investigation, the key findings that emerge from this present the culmination of their work. This criterion specifically deals with the development of these findings and their use to justify a conclusion to the research question. It should be noted that the ultimate response to a research question does not have to be positive, that is, the student may not have found what they intended and the outcome of the investigation is quite different from what they envisaged. Students may still have areas that require further investigation and where additional research is necessary and can acknowledge this in their discussion of findings and conclusions.

Students who scored highly in this criterion gave a coherent response to their research question and presented a critical reflection on this. They discussed issues, including bias, suitability of research methods, limitations and areas for future research. In order to achieve this, students need to explore their findings and conclusions in detail, and make consistent connections to the research question. They need to not only synthesise and effectively represent data, but also explore inconsistencies, and limitations in their results.

The analysis of data in particular separated students who scored well and those who did not score well in this criterion. Those students who were able to make links between the different elements of their data were more likely to present a detailed and coherent discussion of their research. In 2018 many students who scored in the middle ranges reported data descriptively without clear trends, or did not effectively use graphical representations to support their discussion. These students also made clear connections to their central research question as they discussed the relevance of their data in response to this.

Some students discussed the limitations of their work in terms of time constraints and organisation that are inherent within this subject or a product of the student's own organisational approach during the investigation. While these are indeed limiting factors, they are not the most significant or complex in understanding the reasons for participant responses and the outcome of their investigation. They are not as strong as considerations related to the design and conduct of the investigation itself, which were evident in higher-range responses.

#### **Criterion 5 – Clarity and effectiveness of writing**

This criterion deals specifically with the writing style and voice of the written report. It is expected that students submit a refined, edited and coherently structured report that is reflective of a year's work. As such it is expected that students' work is free from spelling and grammatical errors, and has been structured logically and coherently. The presentation of a well-written report is essential in order to understand not only the conduct of the investigation but the level of knowledge that students demonstrate.

An essential element of student writing is their ability to adjust language for a non-specialist audience. Some students had difficulty in this regard and needed to be guided to consider the adjustment of their language throughout the research process. Students who scored highly adapted their language to suit the context of their subject matter, using strategies such as metaphor, analogy and diagrams. Some students began to define all terms. For example, it is often unnecessary for students to define qualitative or quantitative methodology as these are commonly accepted and well-understood terms. While some students may have tended towards this definition in order to ensure that they were not penalised for language adjustment, their knowledge of the meaning of concepts such as this was made clear in their application of the terms and the way that they were deployed through their methodology. Attention to the adjustment of language would be better given to technical or subject-specific terms that are more essential to the student's research question.

Focusing on expression and clarity of language is essential to success in communicating a student's investigation. Students attempted to use complex and formal academic language to suit their research. However, there were a number of misuses of language that changed the meaning of sentences. Students need to be conscious of proofreading for meaning as well as correct spelling. The specificity of language choices can have a significant impact on the clarity of a student's ideas. While occasional slips were allowed for in student work, incorrect definitions of key concepts or repeatedly misused terms affected the achievement of some students.

#### **Criterion 6 – Observance of report writing conventions, including citations and bibliographic referencing of sources**

This criterion related to the formatting and conventions of an academic research report, including the accurate use of referencing. It is important to recognise that there is not one preferred form, structure or referencing system; however, students are expected to accurately attribute ideas and quotes to the correct academic source. Students should also present a logical and clearly structured report that engages with the style and formatting expectations of an academic piece of writing. Most reports performed well in these respects were able to achieve within this criteria.

Students who scored in the middle ranges for this criterion had inconsistencies in their referencing or areas of their reports where the structure became unclear. The use of subheadings is advised for all students as an initial means of setting out the progression of student ideas; however, students should be aware that the overuse of this structure can limit the flow of their ideas. Within each section there is also an expectation that students use cohesive devices to make connections between their ideas and the different facets of their work. The use of linking phrases and comparative language helps to support students as they contrast academic research or make connections to their own research. Students who scored in the lower ranges demonstrated either minimal or inconsistent use of referencing systems. Student reports that scored at the very lowest level also contained consistent structural issues in the development of the student's ideas and the structure of the report as a whole.