

## GENERAL COMMENTS

Students developed investigations across a wide range of disciplines and fields of study, including marketing, legal studies, health and nutrition, sociology, gender studies, political studies, technology and IT, physics, astronomy, biology, environmental studies, psychology, town planning, transport studies, education and literature. Research questions were approached in different ways, using a variety of methodologies, including qualitative, quantitative and mixed methods, literature reviews, experimental designs, action research, case studies, and various combinations. The complexity of thinking demonstrated, clarity of knowledge underpinning the investigation and description of the research strategy, as well as effective tailoring of content to the non-specialist audience, were key features of high-scoring reports.

## SPECIFIC INFORMATION

The following range of practices is important for all students in order to achieve to the best of their ability in this study.

- Carefully develop and phrase a question emerging from the student's interests and the scope of the field of inquiry.
- Research should be based on reputable sources, and links established between the research question and established knowledge.
- Students' reports should be informed by other literature, drawing out key ideas and making a case for their own investigation.
- The methodology and methods used in an investigation should be linked productively to answering the research question.
- Reports should draw together students' own findings, with respect to established knowledge in their field of investigation.
- Students should carefully structure and write their report with consideration at all times of the educated, non-specialist audience.
- Students should develop an understanding of the requirements of the report-writing genre and apply them to their report.
- Accurate citation and referencing of all sources is an essential feature of a strong research report.

### Question choice

An essential component of an effective investigation and final report was the framing of the question. This question needed to be well-framed, error-free and substantive, and indicate the direction of the research. It is important that students and teachers explicitly explore what constitutes a good question for research.

Students whose reports presented statements rather than questions tended to struggle to respond to the proposed area of research. A topic phrased as a question gave the report a clear direction and focus. Some students may have benefited from pairing the proposed question with a hypothesis that was capable of being proved, refuted or to some extent resolved.

While the Extended Investigation allows students to explore a research area of their choice, it is important that students carefully consider the nature of the educated, non-specialist audience throughout the research process, even when developing the initial question. Students who undertook a project in a very technical or esoteric field often found it challenging to make their report accessible to the general reader. Students who attempted ambitious questions, while essential and admirable, also tended to experience problems with accessing and activating relevant research within the allocated time frame, pointing to a need to consider the duration of the study in the development of the question and investigation structure.

Reports with a conceptually poor research question were fundamentally flawed and this affected achievement on many criteria. Inherent bias or subjective questions often displaced the proposed research methodology and provided little scope for discovery through the investigative process. Questions that lent themselves to investigations that were purely descriptive, based on personal opinion, with a clear and simple answer or no critical point of contention, did not lead to high performance in the report.

### Critical thinking

The Extended Investigation involves a demonstration of capacity and skill, with respect to critical thinking. The topic of the investigation was a means whereby the student could demonstrate the complexity of their understanding and thinking. A number of students did not apply skills of critical thinking in their investigation.

Students who wrote reports that simply retold or summarised the work of others did not effectively demonstrate critical engagement with the research area. Their pieces were simply descriptive and more akin to an expository article than a report of an investigation. There were a number of ways in which reports were developed that demonstrated critical thinking, including: establishing a clear problem or question to be solved; identifying key concepts, arguments or theories, and tracing them throughout the investigation; engaging with a specific debate or point of disagreement or dispute within the field of study; and drawing together previously unrelated fields of study.

## **Authentication**

All reports were checked by internet-based, plagiarism-detection software. This meant that reports featuring a large amount of direct detail from other articles were flagged for further examination. Where efforts had been made to clearly attribute such content to their proper sources – even with flawed referencing – it was deemed that an effort had been made to pull together work from others relevant to a particular research area. These reports often failed to achieve highly on many of the criteria (particularly those relating to academic writing conventions) and generally achieved lower-level scores.

Most students' reports effectively and accurately used citation and referencing conventions in order to indicate connections with other research/scholarship, and where the ideas of others were being used. These students were not just making known their knowledge of the field of study, but how their own investigation was connected to this. Some students neglected to carefully reference some information and it became difficult to distinguish between the student's own ideas and those of others. These students found it difficult to indicate the precise research they had engaged with and how it was related to their own work.

It is important that students learn the techniques and skills of appropriate attribution and citation. The style of referencing was not important, as long as it was used consistently throughout the report.

## **Word count**

Most students adhered to the word limit (4000 words, with a 10 per cent tolerance). This included the abstract of 250–300 words, text of the investigation and quotations. It did not include a title page, table of contents, acknowledgments, footnotes, in-text references, bibliography or reference lists, appendices, figures or tables. While a limited number of reports attempted to convey key information for their investigation through other means – extensive tables, footnotes/endnotes, appendices – this did not generally add to the response and disrupted the flow of proposition/investigation development for the audience.

Students who wrote reports that were below the 4000-word limit typically struggled to demonstrate complexity of understanding and engagement with respect to the field of study. This was often demonstrated by lack of deep engagement with research in the field, pointing to a need for more thorough research to lay the groundwork for an investigation of appropriate duration and complexity.

Reports that were clearly over the word limit typically featured information that was not effectively tailored to answering the investigation question.

Students who wrote reports that adhered to the word limit presented a focused discussion of their question, their investigation and their findings, with sufficient detail to convey both a breadth and depth of knowledge of the area studied to the specific audience.

## **Data and resources**

The practicality of particular research areas needs to be considered in the early development stage. While it is encouraging to see students challenging their abilities and knowledge through developing highly aspirational questions, sometimes this was undermined by the inability of a student to conduct their research effectively, or to communicate their ideas clearly to the audience.

Some students discussed problems with accessing relevant and rigorous information and literature relevant to their research, or difficulties accessing raw data for their investigation. In such cases, the lack of either background understanding or relevant data meant that the basis and findings of reports were substantially undermined. It is not sufficient for a student to say that the literature review for their research was undermined by a lack of access to resources. Students must ensure that they have access to appropriate resources early in the investigation and development of their research area.

Students need to be reminded that there are many sources of free information available on the internet, including open-source and free journals; conference proceedings and papers; government, non-government or other organisation reports (as long as any particular/potential bias is interrogated); and interviews with experts (that can be conducted via email).

### **Use of communication strategies**

Considering the non-specialist audience and the variety of research areas, it was important that students thought carefully about communication strategies and how they could be used to enhance the quality of the report. This included control of written language, formatting, organisation, use of figures and images, as well as other communication strategies. Most students used subheadings and this assisted the reader to follow the course of the investigation, especially when teamed with an appropriate abstract, table of contents and glossary (where applicable).

It was useful for students to include images, figures or diagrams to illustrate certain ideas or concepts important for the research, such as technical concepts or processes. Where figures were used as part of the discussion, rather than just being placed within the text with little or no comment, it was often an advantage. Where figures, images, tables or other data were included within the body of the report but not developed by the student, it was important that the original sources for these were referenced.

## **Assessment criteria**

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

Reports needed to demonstrate that they were based on sound and comprehensive research of a clearly identified field, or interconnected fields of study. A vital component of this criterion was clear and intentional engagement with literature and research relevant to answering the question. Most students were able to identify and explain information relevant to their investigation, and demonstrated understanding of this information through the synthesis of a variety of different sources. A literature review was the primary means by which knowledge of the field of investigation could be demonstrated; however, knowledge and understanding relevant to the investigation could be demonstrated throughout the report.

High-scoring students drew from numerous sources – books, journals, periodicals, websites, media articles, recordings, videos, etc. – but importantly, demonstrated an effective understanding of the purposes and uses of different types of sources. Students needed to demonstrate an understanding of the differences between authoritative and generalist texts in the field of research they decided to explore. This reflected a need for students to learn about how to evaluate the validity and reliability of sources. Citation and referencing was essential for all sources used.

Some reports needed to effectively deal with the relationship between research and how knowledge is developed across time. It was expected that recent and timely research was used as the basis for the investigation. If the research was drawn from over 30 years ago – even 10 years in some fields of research – it was expected that it would be explained within the body of the report why such a resource was still being used, and why the knowledge still has relevance and a purpose within the scope of the research area.

This criterion was also concerned with how effectively reports used language that was suitable to the research field, adapted for the non-specialist audience. This did not mean the use of overly colloquial or everyday language, but the use of more general formal language, rather than strings of jargon. Students needed to strike an appropriate balance between technical and general language to effectively communicate their ideas to the audience.

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

In the process of constructing their own investigation area, it was important for students to clearly and accurately identify key arguments and evidence to support the basis of their work. This was understood as a demonstration of how reports worked with the relevant research and literature concerned, and was primarily demonstrated in a literature review section of the report, though also occurred throughout. Students' ability to establish connections between relevant research and their investigation was also assessed.

The literature review was important for making the case for the need for research. It was at this point that literature and research was analysed and evaluated for their relevance and usefulness in answering the research question. In order to demonstrate this criterion, reports drew together related arguments, identified key concepts, analysed particular models or theories relevant to the investigation, challenged assumptions and identified bias, contradictions and connections within research and between fields of knowledge. Reports that simply described or summarised established knowledge or research did not achieve highly on this criterion.

Students should be able to explain how their research question has the potential to extend, challenge, support and/or refute existing research in this area. In essence, students needed to demonstrate that they understood the nature of the relationship between relevant knowledge and research in their field, and the nature of their connection with their own research. They needed to carefully evaluate the role of any ideas in the light of other research within the field, and build a case for the role of their investigation in the research tradition. To achieve highly in response to this criterion students needed to analyse and reorganise the knowledge and research of others in a productive way that established the need for their own investigation.

It was also important for reports to clearly identify how arguments and evidence linked with the investigation or process. The nature of this relationship could take a number of forms – synthesising related research, finding gaps of knowledge or incompleteness in literature, drawing together research from disparate fields. The key point was that all information and arguments should have been analysed in light of how they helped to answer the research question.

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

This criterion concerned the clear phrasing of a research question, and developing a relevant and rational method for investigating it. Essentially, this criterion related to the focus of the research, and involved the connection between the research question, and **how** the investigation was conducted. High-level reports demonstrated a clear relationship between the question being explored, and **how** this was done. This criterion was primarily concerned with the methodology of the research, but also occurred at other relevant points throughout the report.

At the heart of this criterion was the phrasing of a clear research question that accurately indicated the problem and direction of the investigation.

This criterion also concerned how students went about answering their investigation question – specifically, their identification and deployment of appropriate methodologies and methods. This involved a critical understanding of the advantages and limitations of particular research methodologies and methods, and how suited they were to exploring the area of investigation. It was important for the methodology and methods chosen to clearly link with the field of study – this included an understanding of how the data generated from particular methods would enable the question to be answered most effectively. At times the choice of methodology for the research seemed arbitrary, lacking consideration of the types of qualitative and quantitative practices available. Students should clearly justify their selection of methodologies and methods. Investigations that used methods because they were feasible, easy or practical, but without reference to how such methods would enable the research question to be answered, often did not achieve well on this criterion. It was also important that students demonstrated knowledge of the difference between methodology and methods.

Many students chose a literature review as their methodology, meaning that their investigation lacked any collection of empirical data and was instead based on an analysis, comparison, contrast and synthesis of a variety of research from different sources. Some students simply reported information or did not engage with the ideas in their field of research in enough detail to demonstrate significant depth of understanding. Investigations that were purely literature reviews require exceptional skill and a need to demonstrate complex understanding of how this can be developed. A methodological structure underpinning the literature review needed to be clearly explained to achieve well on this criterion for this type of investigation.

Sometimes the relevance of the methodology was achieved by reference to similar types of research where the method employed was standard for the type of investigation (for example, experimental designs) or was common across similar types of research. The methodologies selected by the student should help them to reach objective positions, and enable the capacity to investigate and develop rational and justifiable conclusions about their research.

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

It was important to draw together established research with the findings of the student's investigation. This criterion related to the capacity of the report to draw together the student's own work and findings, within the context of the wider field of investigation, in answer to their research question. Students addressed this criterion primarily in the latter part of their research, where they conducted analysis of data and interpreted findings in the light of research they had analysed in the earlier sections of the report.

This criterion also related to how explicitly and clearly the investigation answered the research question, with reference to the process of research. This concerned the manner in which students drew conclusions from their investigation. Higher-level responses clearly answered the research question, drawing on both the student's own research and its connection with wider knowledge in the field. Conclusions that did not effectively answer the research question did not

achieve well on this criterion. Students whose reports provided answers to their question without justification through links to their own work and/or other literature did not perform well with respect to this criterion.

In high-quality responses, synthesis and evaluations of findings also involved an awareness of the limitations, scope and quality of the findings as a result of the research process. This involved understanding the limitations of the methodology and scope of the investigation, and its relationship to other research and knowledge in the field. Often students made grandiose claims about the findings of their research – typically these took the form of literary hyperbole rather than substantive claims based on a deep understanding of the scope of their research. Students who demonstrated an understanding of the effect of the time frame, their own level of expertise, their sample size and methodology, and any potential bias, and how this affected the outcomes, were deemed to have demonstrated effective skills with respect to this aspect of the criterion.

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

This criterion was primarily concerned with the capacity of the report to use relevant language features to communicate effectively about the area being investigated. This included the orderly and meaningful sequencing of ideas and findings, adapting the content appropriately for the educated, non-specialist audience and sustaining a fluent writing style with consistent control of author's voice and tone. It is therefore important that students practise writing for this specific audience throughout the year, so that they can develop effective linguistic strategies for clearly conveying the detail of their knowledge and understanding.

Control of the conventions of language and the use of appropriate language features are essential parts of clear communication of ideas. Students needed to carefully mix technical language with appropriate formal language in order to lead the audience through the complex ideas and thinking of their investigation; this was often a very delicate balancing act, and a central issue for many reports. However, complex and technical subject-specific language may be used if it is explained and contextualised within the research. Higher-level responses used a variety of language features to make key points clear to the audience, including metaphors, similes and allegories to accurately describe complex technical concepts.

Many students made use of a glossary of terms at the beginning of their report and this was useful and appropriate for aiding the reader to understand it. However, students still needed to make sure that they clearly explained key concepts or technical ideas within the body of their report. Conversely, introducing terminology within the body of the report that was not listed in a glossary or list of key terms or without explicit explanation undermined the readability of a report for a non-specialist audience. In terms of writing, consideration of the non-specialist audience must underpin the construction of the entire research investigation.

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

The majority of students demonstrated control of the relevant conventions of writing a research report. It was expected that all submissions reflected certain writing and structural conventions of the form. Investigations were drawn from a range of areas, but all needed to be organised logically. This structure typically included: an introduction discussing the scope of the research; a literature review exploring and analysing relevant and related research; a section outlining the methodology, methods and interpretative framework for the investigation; an analysis of data and discussion of findings with respect to the research question; a conclusion drawing together the findings and answering the question; a reference list featuring all texts used and referred to in the report; and appendices and other supporting documentation. It was common for reports to feature an abstract, contents page, list of figures and tables, and a glossary of key terms or technical concepts. These elements are all acceptable features of a report structure and were used effectively by most students. Where an alternative structure was used, it needed to be logical in guiding the reader through the research process.

Clear and direct abstracts should provide an overview of the research undertaken and should summarise: What is the problem/question being addressed? Why is the research important? What knowledge already exists? How was the investigation undertaken? What were the results and what is their significance? The majority of reports handled this effectively. Some abstracts presented too much unnecessary information from the body of the report, and a focus on condensing ideas through writing was important.

Many reports also contained a table of contents at the beginning, providing readers with an overview of the project and a reference point during their reading. Although not an essential component of the report, it was a useful and relevant feature, considering the varied nature of reports. Using a contents page also aided some students in adhering to the report-writing structure. It was also useful to include a glossary of key terms after the table of contents. Presenting the

glossary at the start of the report rather than at the end facilitated greater understanding by the reader. Where acronyms were used, these should have been explained fully in the first instance and the acronym used thereafter. Key terms should not only have been explained in the glossary; they should also have been elaborated on in the body of the report. However, students should be cautioned that a glossary or list of key terms should contain only those terms or definitions that have a specific use or unfamiliarity in the context of the field of the investigation.

This criterion also related to how students presented data as part of their investigation and to support their findings. Students needed to be selective in including relevant and insightful representations of data that enabled their readers to access the meaning of their investigation more effectively. Many students who had collected data (such as through surveys, interviews or analysis) presented many graphs and tables, sometimes without explanation. While this demonstrated that the student had undertaken some analysis, data that was not later discussed or used in the interpretation of findings was often not appropriate or needed. Data needed to be clearly labelled, as inaccurate, indecipherable or unclear labelling contributed to confusion for the reader. Students must consider condensing the use of data expressed in tables or graphs to summarise key evidence and streamline the presentation of findings.

While formatting is often treated as a final consideration, there was an extent to which it was an important element in the design of a research report. Examples of poor formatting included: tables/graphs of small size or poor resolution; graphs without properly labelled axes; and tables or figures without labels, sources or explanations.

The final part of this criterion related to the accurate use of referencing and citation conventions throughout the body of the report. Students need to be clear on differences between the use of a reference list or bibliography. A reference list features only those texts referred to within the research report, whereas a bibliography is a comprehensive list of all the texts and resources used throughout the investigation, whether referred to within the report or not. At times websites and other sources were inaccurately acknowledged, and students should refer to a referencing style guide in order to cite such sources accurately.

Many students also included appendices, and, where relevant, these were helpful for the reader and provided further evidence about the research undertaken. Examples of survey questions and representations of data could be useful in demonstrating the work students completed in their research, particularly when referred to and used within the body of the report. The presentation of pages of raw data (survey results, full interview transcripts and other uninterpreted data) was often not helpful, as the reader was concerned with ways in which the student had managed and interpreted the data and established their own expertise with respect to the research area. Students should be selective with information they include in appendices.

## Levels of achievement

Each piece of writing was assessed on its individual merits against each of the criteria. The following are generalised descriptions of generic reports that demonstrate approximate features at each of the levels of performance.

### 60–50 marks

Reports in this level showed professionalism. The tone, knowledge, style and structure of the investigation established a confident authority that effectively led the reader through the research process in order to answer a clear research question. Reports illustrated a confident understanding of the research area, including the background, deployment of research strategy and interpretation of data to establish a clear finding. The research question was focused and clear, and all components of the investigation were linked productively to answering it. It was evident throughout that the student had engaged with a wide range of authoritative sources and understood their relationship to the research area. A seamless tone of confidence and control permeated the language and invited engagement from the reader. The report was carefully tailored to the required audience, though did not oversimplify concepts or ideas, instead including enough information so that the reader was invited to think. These reports did not necessarily present a highly complex, technical or challenging research question, but had appropriate scope for the purpose, audience and genre of the subject.

### 50–40 marks

Reports in this band demonstrated very strong and extensive knowledge of the student's research field. This was underpinned by engagement with a range of reliable and authoritative sources generally relevant to the research area. A clear research question was explained, and relevant research was analysed and drawn together in a way that illustrated a relationship with the research question. Reports featured accurate and substantial control of the conventions of English language, though technical language was sometimes overused, meaning that the adaptation of ideas for the non-specialist audience was not complete or not wholly effective. This often made it difficult to understand the complexity of ideas in the project and appreciate the observations that were being made. Such reports pointed to a need

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for the student to carefully use language features and adjust relevant aspects of their research, including the primary focus if necessary, with a consideration of the audience in mind.

## **40–30 marks**

Reports typically engaged well with literature relevant to the student's field of investigation, though there was an extent to which this could be undermined by inaccurate question phrasing or focus. Research questions were often too broad or not effectively developed. Reports may have engaged with a wide range of literature and research, demonstrating detailed engagement with the field of study, but this may have been undermined by a lack of rigour in some of the research and ineffective/inefficient analysis of relevant research. A relevant research methodology may have been employed, but this may not necessarily have been underpinned by a clear understanding of how this methodology was effective in answering the question. In some cases the methods used for data collection were not specifically relevant for answering the question or were a generic approach. A deeper understanding of the relative advantages and disadvantages of different investigative approaches was often necessary for a more refined and focused investigation. Reports attempted to use language effectively to illustrate complex ideas, but this was often not achieved. Sometimes the language used was either overly complex or too basic. Such reports performed an investigation in a generally capably and knowledgeable way, though lacked sophistication, complexity and control.

## **30–20 marks**

Reports may have been undermined by an ineffectively developed question, which was typically too broad, too narrow or lacked a clear focus. Reports were marked by a lack of engagement with relevant, reliable or extensive research in the field being investigated. This may have involved inaccurate or unreliable sources, or treatment of different types of literature and research in a haphazard or uncontrolled way. Reports often did not demonstrate strong understanding of the student's field of research and only a satisfactory understanding of the demands of research. Reports may have employed methodologies or methods for research in a haphazard, arbitrary or unexplained way. It needed to be clear that some form of research was engaged in, that there was a direction for investigation, some related readings, an investigative method employed and some kind of findings linked to the question. Reports sought to reflect the requirements of the form, though did so in an inconsistent way.

## **20–10 marks**

Reports demonstrated a lack of control of language and a serious misunderstanding of the demands of research as a process, along with the requirements of the report-writing genre. This lack of control and understanding was demonstrated by errors across a range of combinations of the following: the research question featured a significant flaw, or pointed to a simplistic outcome, resulting in an investigation that lacked direction, complexity or critical thinking; literature underpinning reports was typically seriously flawed, or significantly deficient due to unreliable, inadequate, or unrecognised bias in sources, resulting in simplistic, descriptive, opinionative or illogical thinking; the methodology was arbitrary or missing; findings were unstated, inadequately explained or simplistic; the length was often well below that expected; or reports often featured disorganised or missing sections, incomplete elements or sections that appeared to be in planning or draft form. Reports did not reflect a year of study and investigation.

## **Below 10 marks**

Reports did not qualify as a form of research or research writing for the purposes of the assessment. They often appeared as a plan or draft, were not organised effectively, did not put forward an investigation area and/or method, failed to engage with relevant literature and lacked direction. Reports were typically well below the word limit and demonstrated a lack of understanding of the research process.