The OCR Guide to **Research**

Version 1

OCR
Oxford Cambridge and RSA

This guide on research has been produced by OCR to help you understand the skills and techniques you will need to develop, practise and use in studying for your chosen qualification. This guide has not been written to accompany a specific qualification but focuses on research skills that relate to many areas of both education and work environments. Other skills guides are available at www.ocr.org.uk.

Content

This document is optimised to be printed with reduced colours.

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What is research ?

Research is the systematic study of something in order to discover new information or to have a better understanding of the topic in question. You are likely to need to use research skills in almost every area of study and work so it is important to know how to ask the right questions, find information, assess its reliability and use it appropriately.

It could be that you are asked to research potential venues for a conference. You will need to know the preferred location, what/who the conference is for, what the budget is, how many people will be attending, will there be any special requirements, the date of the conference etc.

You may be working as a web designer and have been asked to produce a website for a company. You would need to know the purpose of the website, the products and/or services the company offers, who the intended audience is, and if they want the site to be interactive for their customers, e.g. online shopping or submitting questions online.

Research is not something that can be rushed; a systematic approach must be taken in order for it to be effective. Think about research you have carried out e.g. choosing a holiday, finding the best tariffs for mobile phones, where to buy gaming consoles at the best price. You always had a clear idea as to what it was you were trying to achieve.

Key types of research

Primary research - this is when data and/or information are collected first hand as opposed to obtaining them from published sources. This may be conducted via experiments, tests or investigations, such as questionnaires.

Experiments are research methods for testing different hypotheses, frequently used by mathematicians and scientists. You may have conducted experiments in science classes to test a theory.

Tests are research methods where a person observes, evaluates or examines something under actual or simulated environments. An example of this would be a computer technician who has built a new computer. They will conduct numerous tests, trying to break it, to ensure that it works efficiently and effectively before deploying to their customer.

Investigations are direct methods of gathering information in response to your research topic. For example, let's assume that you have been asked to carry out research to find out what people's opinions are of a particular film. You would create a questionnaire so that you could gather the information from a wide range of people.

Or you may have been asked to create document templates for the organisation in which you work. You would need to gather information as to what the intended house style is, what templates are required and what information they need to include. You may even look at house styles used by other organisations and identify how effective they are in promoting its image.

Secondary research – this is when you use data and/or information collated by someone else. This is known as secondary data and/or information. It is important to check that it is reliable i.e. not out-of-date, based on fact not fiction and is not biased. An example of this is where you are trying to research into popular holiday destinations. You may look at research that has been conducted by a variety of travel agents and base your findings on analysing the various results that they have identified. You could also look at independent review websites to see comments made by people who have been there. What sort of bias would you expect from these different sources?

Quantitative research – this usually involves collecting data and converting it to a numerical format so that statistical calculations can be made and conclusions drawn from the results. The researcher will have at least one hypothesis e.g. more young people between the ages of 8 and 16 play computer games or use social networking sites than those participating in outdoor activities, such as sports. The researcher would collect data using various means e.g. questionnaires. The data would be converted into numerical data and calculations carried out to analyse the data. The researcher would then use the results to prove or disprove their hypothesis.

This type of research gives a very clear outcome, i.e. true or false, yes or no.

Qualitative research – this is about answering questions, as well as understanding different issues.

You might be a student, a healthcare worker, an administrative assistant, or an ICT specialist. Although you might not think you are a researcher, if you're analysing documents, surveys, audio, videos or pictures, then you are involved in qualitative research. Qualitative research looks at the "why" of a subject as opposed to the "how" e.g. why are people attracted to this particular brand of product; why do people use this particular website; why do people understand the contents of a document better if it contains images to help explain the information.

This type of research is less definitive than quantitative research and may give conditional results, e.g. result A is true in these circumstances but not in others. For example, hospital patients prefer watching television in a communal lounge but not all of them wanted to do this all the time.

Ethics

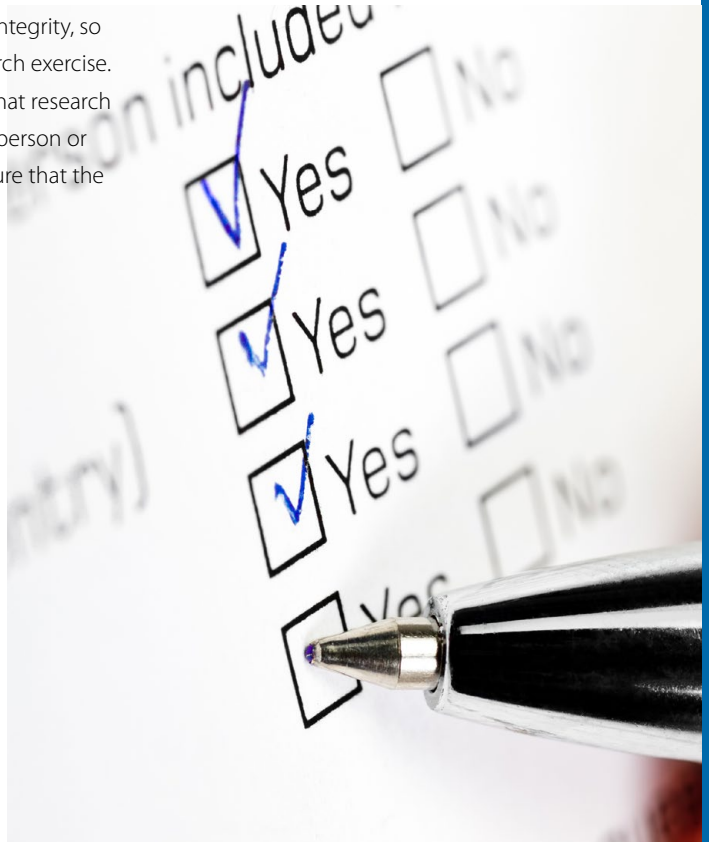
When conducting research, it is important to think about the ethics that apply to your work. Ethics are the principles that are applied to ensure that the data is;

- gathered in a way that does not exploit or mislead the participants
- not manipulated to show an incorrect result
- presented in such a way that the reader is not misled
- credited appropriate to reflect those who have taken part, those whose work has been referenced and those who have worked on the exercise.

Is your research ethical?

- Have you told your participants what your research will be used for and have they consented to this?
- Are you using your results to support a hypothesis that is not true?
- Have you changed any of the results to support your hypothesis?
- Have you used someone else's work without crediting them or asking their permission?
- Has anyone else looked at your raw data and research?

So ethics are about honesty and integrity, so we can trust the results of a research exercise. Peer review is a way of ensuring that research is ethical, where an independent person or group review the research to ensure that the above criteria have been met.



Steps in conducting research

In order to carry out research effectively you need to follow these steps:

- **Identify** the purpose of the research – ask the following questions
  - What am I trying to find out?
  - Who is the information for?
  - Where will I get the information from?
  - How will I analyse and interpret the information I collect?
  - How will I present the results of my research?
- **Produce** a plan which includes:
  - the purpose of the research
  - what data and/or information needs to be collected
  - methods to be used for collecting the data and/or information
  - identification of potential sources of data and/or information which could include the designing of questionnaires, tests etc
  - methods to be used for analysing/ interpreting data and/or information
  - deadlines for completion of various stages of the research
  - evidence of review of completed research
- **Collect** the data and/or information you require ensuring that it is reliable and relevant.
- **Analyse** and interpret the data and/or information and check that it is providing you with the information that you require i.e. does it meet the purpose of the research.
- **Review** your research and consider whether it has enabled you to achieve the overall purpose.
- **Present** your findings. This may be, for example, as a report or as a presentation.

Sources of information for research

You have identified that you need to carry out some research, so how do you go about finding the data and/or information that you want? The choices you make with respect to sources will influence the kind of information you retrieve so it is important to get this right. Here are some examples of sources you could use with some of the advantages and disadvantages of each.

World Wide Web (Internet)

Advantages:

- Easily accessible.
- Contains vast amount of information from lots of different sources.

Disadvantages:

- Data and/or information may be biased (i.e. based on opinion rather than fact).
- The information may be broad in scope i.e. generalised and not focused.
- Requires the use of advanced search techniques such as the use of filters.
- Results are based on popularity not necessarily on accuracy!
- You may not always have an Internet connection available.

Keyword and subject searching on the Internet

Keyword searching is where you retrieve all occurrences of a given word or combination of words, regardless of whether it is in the title or the main text of the article. This can be an advantage, but on the other hand, you could get far more information than you want or have time to look through.

Subject searching is where the headings assigned to online articles, books etc are searched. Subject headings have very specific terms and phrases used to describe the topic of a book or article. The disadvantage is that you are limited to an exact word or combination of words.

Books (non-fiction)

Advantage:

- Focuses on the chosen subject in detail.

Disadvantage:

- The information may be out of date depending on when the book was published.
- Can be biased according to the views of the author.

Magazines

Advantages:

- Widely accepted.
- Focuses on the topic.
- Easy to get hold of.

Disadvantages:

- Limited space available therefore minimal coverage of the topic.
- May contain only recent information.
- Not always very detailed.
- Can be written to provoke a reaction or get publicity.

Newspapers

Advantage

- Contains up-to-date or recent information.

Disadvantages

- Very generalised in the coverage of the topic.
- Limited space available therefore minimal coverage of the topic.
- Can be written to provoke a reaction or get publicity.

Journals

Advantages:

- Of a generally accepted standard.
- Written or published by a person or organisation who are specialists in their fields.
- Articles can be peer reviewed to confirm accuracy.

Disadvantages:

- Limited space available therefore minimal coverage of the topic.
- May contain only recent information.

Libraries

Advantages:

- Wide variety of information available.
- Can get help from a librarian to help you find up-to-date and relevant information.
- Usually have books, journals, newspapers, videos, audio and Internet access available.

Disadvantages:

- Location – you may have to travel to access a good library.
- Cost implications – cost of travel to library.
- Convenience – not always open when you need.

Surveys – usually used to gather information on individuals.

Advantages:

- Useful for obtaining information on the characteristics of a large number of people and/or organisations about their opinions, behaviours, attitudes, personal facts.
- Can be relatively inexpensive to carry out.
- Can be conducted remotely by telephone, email, post or online.
- A range of questions can be asked about a specific topic.
- Standardised questions can get a more precise response from similar groups of people.

Disadvantages:

- Relies on the researcher being able to develop questions general enough to be appropriate for all respondents and may require a 'free response' section to enable participants to express what they really think or feel.
- The researcher must ensure that enough people respond to the survey to provide sufficient valid data and/or information for research purposes.
- Relies on the participants completing the survey honestly, and not being influenced by what they think the researcher wants to know.

Presenting research

Whichever method you use for presenting the research, it must be appropriate to the task and the intended audience.

Formal report

Reports are usually written to comply with certain conventions. Below are some key points to help you produce a formal report.

A report could contain the following sections:

Front Page – this could include:

- The title of the research e.g. 'Research into changes in the popularity of holiday destinations'.
- The period over which the research was carried out, this could be the date range that the data and/or information was collected over. So, following our example of changes in the popularity of holiday destinations, you may choose to obtain information from the last ten years.
- Who the research was carried out by, i.e. you!

Contents Page - list the page numbers of each section of the report including any appendices.

Summary – an overall summary of your report on no more than one page. For example, it has become apparent in the last ten years that the British public have changed their opinion as to where they want to spend their holidays. Ten years ago, the most popular destinations were in Spain. This was usually due to lower costs and people being reluctant to fly long distances. Since then, it is thought that the British population has tended to choose long haul holidays, like Florida, and this report looks into whether this is true and, if so, why this has happened.

Ensure that you use a sensible numbering system for your report. Here is an example:

1. **Introduction** – this will contain an overview of what you were required to research and what you intend to cover within the report.
2. **Findings** – within the main body of the report you will use sub-numbered sections e.g. 2.1, 2.2, 2.3 etc. Sub headings should either be emboldened or underlined (not both). If graphs, charts, tables, diagrams, images of any description are appropriate to presenting your findings then they should be included in this section. They should be clearly and correctly labelled and should be combined within the body of the text and not on separate pages.

3. **Conclusion** – this will contain a summary of your findings i.e. the result of your research.
4. **Recommendations** – these are the actions you think are necessary in order to make use of what you've found out. Depending on your research topic, this section may or may not be required.

References - sources of information should be referenced, this includes web sites as well as information from books and all other sources your have used. You may need to research the correct and appropriate way of referencing your information sources.

Appendices – this should only contain information that is required as evidence or may be referred to out of interest.

Other useful points to remember:

- Use a font and text size that is simple and easy to read.
- Limit the use of font changes or sizes and italics.
- Set margins to 2cm top, 2cm bottom, 2.5cm left and 2cm right.
- All text should be justified.
- Paragraphs should be blocked and not indented.
- Use tabs and/or bullets to emphasis points.
- Keep line spacing consistent e.g. single line spacing between paragraphs, two line spaces between headings and the first paragraph.
- Try not to use 'can't' or 'don't', use 'cannot' or 'do not'.
- Use phrases such as 'the evidence suggests that', 'this report aims to'. Do not over personalise it by using phrases such as 'I believe' or 'I think'.
- Ensure you proofread it and spellcheck it.

Formal Presentation

The results of your research could be presented orally using presentation software. If you are going to use presentation software, here are a number of things for you to think about:

- What sort of room will you be presenting it in? Is it light or dark, as this may affect your decision about the colour scheme that you use.
- How far away will you be from the audience? People need to be able to see your presentation. You need to ensure that you select a colour scheme and font style and size that will enable people at the back of the room to see your presentation. Also consider that some people viewing your presentation may have dyslexia and this also has a bearing on what font you use. Remember – who is your audience?
- How much information should you have on each slide? Do not put too much information, use bullet points as the slides are supposed to be an aid to your presentation and not be a repeat of what you are intending to say.
- Should you use animation and/or sound effects? If so keep them consistent. Do not use different entry styles for each slide. Do you want each bullet point to come in one at a time or appear all at the same time?
- You must think of copyright and intellectual property – can you use information or images etc from others on your presentation and still comply with copyright law? Have you acknowledged all the sources of information that you have used?

Research Activity - Developing a research Strategy

Visit our website for a printable Research Activity.

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