2nd Edition

Research and Study Skills: Research and Evaluation

Student Pack

Think. Rethink

THOUGHT

UNIVERSITY OF BIRMINGHAM

Library Services

Overview

This pack will help you develop the key skills that are needed for successful research and evaluation. Covering note taking, Google, searching electronic resources, website evaluation and critical thinking, this pack is a good starting point if you want to know more about finding good quality information for your essays or how to effectively summarise information and recognise academic arguments.

This pack is one of two packs on Research and Study Skills available from the University of Birmingham. The other, complementary pack focuses on academic writing skills.

The Library Academic Engagement Team
Library Services, University of Birmingham. 2014

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Library Services

Contents

1 Getting to know an academic library

✅ Learning outcomes

By the end of this section you should be able to:
☐ Recognise that an academic library is very different from a school or college library.
☐ Understand the range of resources, services and facilities that an academic library offers.

✚ Background

Students are often overwhelmed by the scale of an academic library and can find it daunting to begin with. You should not feel discouraged as there is always lots of help available with using the resources and facilities.
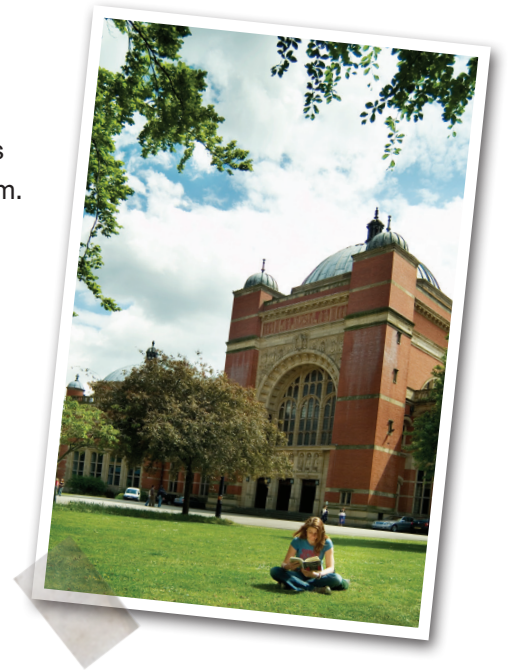
Activity

This quiz aims to test your current perceptions of academic libraries against the reality of Library Services at the University of Birmingham.

Answer the following questions:

1. How many libraries are there at the University of Birmingham?
☐ 5
☐ 6
☐ 7
☐ 8
☐ 9

1   Getting to know an academic library continued

2. How many books does the University
of Birmingham Library own?

☐ Under 500,000
☐ 500,000 – 1 million
☐ 1 million – 2 million
☐ 2 million – 3 million

3. Which of the following does the University
of Birmingham Library have?

Answer 'Yes' or 'No' to each.

Yes	No	
☐	☐	Books
☐	☐	Cash point
☐	☐	Coffee shop
☐	☐	Computers
☐	☐	DVDs
☐	☐	Electronic resources
☐	☐	Group study rooms
☐	☐	Help
☐	☐	Journals (academic magazines)
☐	☐	Newspapers
☐	☐	Photocopiers
☐	☐	Pub
☐	☐	Study spaces
☐	☐	Wifi

1 Getting to know an academic library continued

4. How many electronic journal (academic magazines) articles are downloaded every year at the University of Birmingham?

☐ 500,000 – 1.5 million
☐ 1.5 million – 2.5 million
☐ 2.5 million – 3.5 million
☐ 3.5 million – 4.5 million

5. Over 300 members of full-time and part-time staff work for Library Services at the University of Birmingham. Which of the following do they do?

Answer 'Yes' or 'No' to each.

Yes	No	
☐	☐	Add the books to the library catalogue
☐	☐	Answer questions via an online chat service
☐	☐	Buy books and other materials
☐	☐	Help staff and students
☐	☐	Library development/improvement work
☐	☐	Maintain and pay subscriptions to the electronic resources
☐	☐	Make the books ready for the shelves
☐	☐	Obtain books from other libraries in the world
☐	☐	Offer course advice
☐	☐	Offer support on essay writing and study skills
☐	☐	Provide tours of the library
☐	☐	Repair books
☐	☐	Shelve books
☐	☐	Train students in how to find information in their subject(s)
☐	☐	Serve in the café

2 Note taking

✅ Learning outcomes

By the end of this section you should be able to:
- ☐ Identify clear and concise note taking.
- ☐ Understand that good note taking should summarise concisely the key points and should demonstrate how related ideas are linked.
- ☐ Appreciate that the approach used in taking notes is a personal preference and often linked to an individual's learning style.

Background

Making notes is an important skill in academia. There are many instances of when students would make notes, for example: during lectures, classes or when reading. We make notes for a variety of reasons. These include:
- ☐ To help us to concentrate.
- ☐ To remember important information.
- ☐ To allow us to process information and clarify ideas.
- ☐ To keep active through multi-tasking.
- ☐ To collect material for assignments.
- ☐ To help revise and prepare for exams.

2 Note taking continued

Activity

This activity is designed to allow you to reflect on your current note-taking skills.

Imagine you are an Education student who needs to read the following text in preparation for an exam. Take notes from this text in the way that you would normally take notes. You may do this by using the 'Notes' space provided or by drawing, highlighting etc on the text itself or a mix of the two.

Inclusive education: widening participation activities

Widening participation is a higher education policy introduced by the Labour Government in its 2001 election manifesto. At its simplest, the policy was and is concerned with encouraging and enabling non-traditional groups of students to access higher education institutions through a programme of expansion. Non-traditional students can be defined for example as those who have little or no experience of universities, those from poorer and/or working class backgrounds, black minority ethnic groups, women, older applicants and those with a disability.

The policy's main driver was its attempts to a) increase the numbers of non-traditional entrants into university – the target then was for 50% of young people 18-30 to have experienced higher education by 2010, and b) through a range of activities and interventions to meet society's economic and social needs. To widen participation, those activities and interventions have been undertaken in collaborative partnerships with schools and colleges.

The first of these was the Aimhigher initiative that was established in 2002. Aimhigher was the national outreach programme for widening participation and it specifically targeted schools, colleges and universities to work collaboratively on raising aspirations and attainment amongst young people from disadvantaged backgrounds. Aimhigher delivered a number of programmes including summer schools and masterclasses. Although funding for the Aimhigher programme ceased in 2011, universities continue to provide a range of initiatives that raise aspirations and encourage learners with potential to enter higher education.

The University of Birmingham facilitates a number of schemes within its outreach and widening participation provision including the Access to Birmingham (A2B) scheme and Masterclass sessions. The A2B scheme is designed to help students experience higher education through the completion of a module, whilst the Masterclass sessions provide students with the opportunity to take a class, with expert staff, within the university setting so that they can experience what a higher education institution is like.

2 Note taking continued

Notes

3 Google

✅ Learning outcomes

By the end of this section you should be able to:

☐ Recall that there are three types of Google (Google, Google Scholar and Google Books) which can be useful in finding information for an academic essay, though it is always worth asking a librarian if they can recommend other electronic resources that are specific for your subject area.

☐ Discuss the advantages and disadvantages of each type of Google.

➕ Background

You will probably already be familiar with Google and are likely to use it for finding information on a regular basis. Google was founded in 1998 by two university research students, and it processes over a billion search requests a day. In addition to Google there are also two other Google search engines which can be useful if/when finding information for an academic essay: Google Scholar and Google Books.

Google (www.google.co.uk) – this is a search engine which searches over a billion websites.

Google Scholar (http://scholar.google.co.uk) – this is the academic arm of Google. Google have deals with a number of academic publishers and Google Scholar allows users to search across their content. The results can be a mix of citation details, abstracts and entire journal articles. It also searches across journal articles that university academic staff have written and made freely available.

Google Books (http://books.google.co.uk) – this allows you to search across a number of books that have been made available electronically. Google have worked with a number of large research libraries to scan their books and make them freely available to the world. For some books you will find basic publication details, whilst for others you will discover some or all of the entire book.

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3 Google continued

Activity

This activity will demonstrate the differences between Google, Google Scholar and Google Books.

Your tutor will give you a keyword (or keywords) to use to search for information on a topic. You will be asked to enter the keyword(s) into each type of Google in turn and execute the search. For each type of Google you should look at how many results are returned, as well as the benefits and drawbacks of the type of information that is found. You should enter your findings into the table provided on the next page. You should try to think about this from the point of view of finding information for your essays.

3 Google continued

Google

For the keyword (or keywords) that you have been given, search the three types of Google and complete the following table.

Type of Google	Number of results	Benefits	Drawbacks
Google www.google.co.uk			
Google Scholar http://scholar.google.co.uk			
Google Books http://books.google.co.uk			

Note: We have interrogated the different versions of Google using the basic search box in each instance. However each form of Google has an Advanced Search – by using this you can find even more relevant results. If you have time, take a quick look at the Advanced Search options for the three forms of Google that you have just studied.

4 Searching electronic resources

✅ Learning outcomes

By the end of this section you should be able to:
- ☐ Understand what Boolean logic is and explain how to use it.
- ☐ Identify keywords in an essay title and think of alternative keywords (synonyms).
- ☐ Combine keywords using Boolean logic.
- ☐ Combine keywords using the Google version of Boolean logic.

Background

Very few resources (such as Google, Google Scholar and Google Books) allow you to do a natural language search, such as '*is there a link between violence in the media and crime?*' You need to pick out the keywords for your topic and then link them with *Boolean operators*, such as AND or OR.

4 Searching electronic resources continued

Keywords

The keywords in the topic '*is there a link between violence in the media and crime*' are: *violence, media* and *crime*. As well as searching for these keywords, you should also think of synonyms (words with the same meaning). The following table illustrates the idea of keywords and synonyms.

Keywords ⟶			
	violence	**media**	**crime**
S y n o n y m s ⬇	fury	television	criminal
	cruelty	film	illegal
	aggression	press	offence

You should also consider alternative spellings, for example American spellings such as **color** for **colour**, acronyms such as **TV** for **television**, as well as alternative words, such as **automobile** for **car**.

Boolean Logic

Boolean logic was devised by English mathematician George Boole and can be used to combine keywords to effectively search electronic information: returning relevant results whilst eliminating insignificant results.

There are three main Boolean operators: *AND*, *OR* and *NOT*.

4 Searching electronic resources continued

In Google, a **space** is used for AND, **OR** is used for OR and **–** is used for NOT. To search for a phrase put " at the start of the first word and " at the end of the last word (this method of phrase searching also works in Boolean searching). Google will automatically search for synonyms: if you would like Google to search for the exact word you have typed then include a **+** sign (followed by no space) ahead of the word, eg, +car.

AND is used to join search terms when you want both terms to be present in a record, so it is used to combine the different concepts in your search. This can be illustrated as follows:

Eg, **media** AND **crime** (when searching Google you could use: **media crime**. Alternatively if you wanted media and crime as exact words you would type **+media +crime** when searching Google).
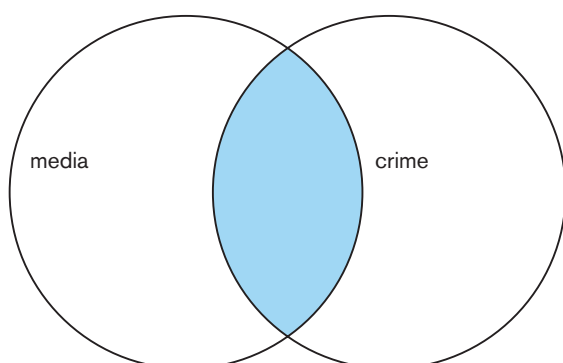
The shaded area represents the articles you want, with both the word *media* and the word *crime* in them.

OR is used to combine synonyms, ie, words with the same or similar meanings. It will find articles containing *either or both* words.

Eg, **media** OR **television** (when doing this search on Google you would use **media OR television**).
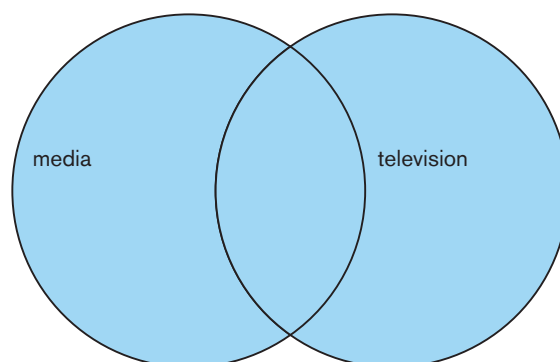

Thus this search finds articles with the word media, or with the word television, or with both words (in the intersection in the middle).

NOT is used to eliminate concepts from your search. The term following NOT must be *absent* from the item in order for the record to be returned.

4   Searching electronic resources continued

Eg, **CFCs** NOT **HCFCs** (when doing this search on Google you would use **CFCs –HCFCs** or if you wanted CFCs as an *exact* word you would type **+CFCs –HCFCs** when searching Google).

CFCs   HCFCs
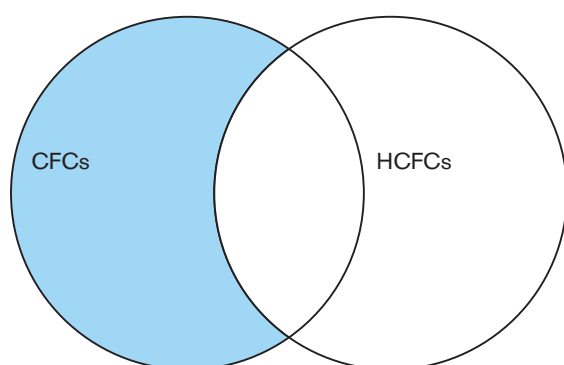
Therefore, this search will retrieve all documents with the term *CFCs*, but will eliminate any which also have the term *HCFCs*.

NB: the NOT search should be used with caution as it may eliminate articles which would otherwise have been useful. For example, the above search would eliminate an article comparing the effects of CFCs and HCFCs which may have contained some useful information about CFCs.

4 Searching electronic resources continued

Activity 1

Your tutor may choose to illustrate Boolean logic to you using an activity involving playing cards.

Activity 2

This activity will help you identify keywords, think of synonyms and combine words using Boolean logic.

For the essay title(s) that you have been assigned, consider the following:

(a) Identify the keywords you might use if you wanted to find information to write the essay that you have been assigned.

(b) For each of the keywords that you have identified in part (a), try to think of at least one other alternative word meaning the same thing (synonym).

(c) How would you combine the keywords to get the best results using Boolean logic?

(d) How would you combine the keywords to get the best results using the Google form of Boolean logic?

For each question, note your answer on a separate post-it note and affix the post-its to the template on the wall for your essay question.

5 Website evaluation

✅ Learning outcomes

By the end of this section you should be able to:
- ☐ Understand the difference between primary and secondary resources.
- ☐ Recall some of the key questions that need to be asked in order to evaluate a website for academic use.
- ☐ Critically evaluate websites.
- ☐ Work as a small team.
- ☐ Feedback key ideas to a larger group of peers.

➕ Background

You will often use the internet to do your research for academic essays. It is an important skill to be discerning and able to identify whether a website is suitable, as a source of information, for use in an academic assignment.

↗ Activity

Imagine that you have an essay due in on the topic of climate change the following day. It is now late at night and the only resource you have access to is the internet. You find the following four websites on the topic:

- ☐ The Royal Society
  http://royalsociety.org/Climate-Change
- ☐ Greenpeace
  www.greenpeace.org.uk/climate
- ☐ Department of Energy and Climate Change
  www.decc.gov.uk
- ☐ Wikipedia
  en.wikipedia.org/wiki/Climate_change

Spend five minutes looking at each website in turn and, using the questions on the *Website Evaluation Checklist* (on the next page) to help, decide on some plus and negative points for each website. Remember: for each website, you are trying to evaluate the quality and not how aesthetically pleasing it is! Record your findings in the *Website Evaluation Table* on page 20.

Tip: If in the future you are evaluating websites on another topic, why not construct a similar table to the *Website Evaluation Table* on page 20 to help you record your observations about the websites that you have found?

5 **Website Evaluation Checklist**

	Notes
Is it related to your essay?	☐ When you search the web you will get thousands of results. Stick to the ones that are directly related to your essay topic and do not get distracted! ☐ Consider the country / countries that this information refers to and only use if it is appropriate to your topic.
Who produced the website and the material within it?	☐ Anybody can post material onto the web. It is important to identify the author or organisation and check their credentials. The 'About Us' section of a website can be useful for checking these details.
Is the material on the website primary or secondary?	☐ Primary material – is first hand information produced by the author / organisation eg, data from their experiments, photographs, maps etc. ☐ Secondary material – uses, interprets, evaluates, criticises and / or comments on primary material eg, a newspaper article that comments on the results of an experiment. ☐ Example – The novel Harry Potter is a primary source as it was created from the mind of its author – J.K. Rowling. The book Critical Perspectives on Harry Potter by Elizabeth Heilman is a secondary source as it analyses the Harry Potter novels. ☐ Secondary material cannot exist without the primary material and involves third party interpretation (which could be inaccurate). A good secondary source will always take you to the primary material which allows you to check the interpretation and come to your own conclusions.
Is the material up-to-date enough for your essay?	☐ Check when the web page was last updated (you can often find this information near the bottom of the page or look for clues within the text). It is not uncommon for people to publish material on the web and then not remove / update it. ☐ Some topic areas change more rapidly than others, for example the law changes daily as new legislation is released so a website that has not been updated since 2010 may be very out-of-date!
Is the material biased?	☐ Check to see if the website gives a balanced viewpoint. Websites are created by individuals or organisations that wish to promote their own point of view. This may (intentionally or unintentionally) lead to bias. Consider why the web page has been written. ☐ Look at the way the material has been written and the language that has been used. For example, is the language sensationalist? Check to make sure that all claims are backed up with appropriate primary / secondary material. ☐ It is good practice to use a variety of sources of information so that you can see (and assess for yourself) all points of view on a topic.

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Website Evaluation Table

You are writing an essay on Climate Change and decide to look at the following websites to find information for it. Go to each website in turn and, using the Website Evaluation Checklist analyse what the plus and negative points are for using each of these websites for your essay and note them in the table below (eg, is the information of high enough quality? Is it up to date? Is it written by an expert in the field? Is it biased? etc).

|	Plus Points	Negative Points
The Royal Society http://royalsociety.org/ Climate-Change		
Greenpeace www.greenpeace.org.uk/ climate		
Department of Energy and Climate Change www.decc.gov.uk		
Wikipedia en.wikipedia.org/wiki/ Climate_change		

6 Critical thinking – arguments

✅ Learning outcomes

By the end of this section you should be able to:

☐ Understand what arguments are.

☐ Understand why good arguments are required in academic writing.

☐ Be able to analyse simple arguments, identify the premises and conclusions and present them in the standard format.

Background

Whether reading others' work or writing your own essay, an appreciation of arguments is key to academic success. By being able to break down an argument into its constituent parts, you will be able to see more easily the statements a writer wants you to accept, and be able to see clearly the points being offered as evidence.
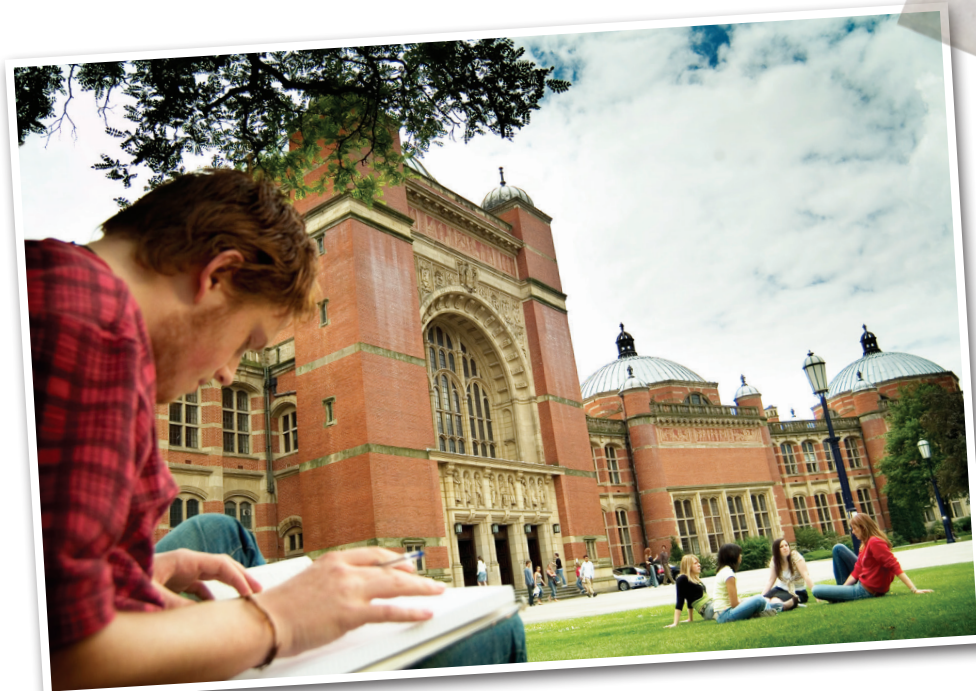
6 Critical thinking – arguments continued

Activity 1

Definitions

First of all, it's essential to know what we mean when we say the word 'argument'.

In pairs, discuss different meanings of the term 'argument' and try to come up with a working definition that covers all interpretations. Be prepared to share your findings with the group.

Argument

How does the term 'argument' as used in academia differ from some other uses?

Argument

6 Critical thinking – arguments continued

Identification

An argument is made-up of a set of statements. One of these must be a **conclusion** that the writer (or speaker) wants the reader (or listener) to accept, while the other(s) are offered as **reasons (premises)** as to why the conclusion is correct. If this doesn't happen, it's not an argument.

Take a look at the following example:

> 'You should join your local gym. Regular exercise is key to losing weight and staying healthy, and local gym memberships are cheaper than ever!'

Here, the argument is simple. The speaker is recommending that the listener join their local gym – this is the argument's **conclusion**. There are two reasons offered to support this: regular exercise is key to losing weight, and local gym memberships are cheaper than ever. These are the argument's **premises**.

6 Critical thinking – arguments continued

Activity 2

Look at the following arguments.
UNDERLINE the PREMISES and CIRCLE the CONCLUSION.

1. You enjoy talking and socialising with others. You should get a job that involves dealing with different people.

2. Beans are cheap. We had better eat beans on toast for dinner – we are short of money this week.

3. There's lots of snow forecast for later on. You should stay home from work today – the police have advised everyone to stay off the roads.

6 Critical thinking – arguments continued

Standard Format

A good way of making an argument clear is to rewrite it in the standard format.

Rewriting arguments in the standard format is the next step on from identifying the premises and conclusions. Take a look at this example:

> We should not test cosmetics on rabbits, which are conscious animals. This causes them pain and stress, and we should not inflict pain on any animal with consciousness.

Once we quickly identify the conclusion and premises, it looks like this:

> **Conclusion**   Premises
>
> **We should not test cosmetics on rabbits,** which are conscious animals. This causes them pain and stress, and we should not inflict pain on any animal with consciousness.

Presenting this argument in the standard format makes it easier to understand, and looks like this:

(Premise 1)
    We should not inflict pain on animals with consciousness.
(Premise 2)
    Rabbits are conscious animals.
(Premise 3)
    Testing cosmetics on rabbits causes them pain and stress.

(Conclusion)
    We should not test cosmetics on rabbits.

The premises have been separated out onto different lines in order to make them clear. The conclusion always sits at the bottom. Note that the order of the premises has been changed to highlight the logic of the argument.

By writing arguments in this way, it is often easier to see when premises don't support the conclusion offered, even when this appears to be the case when you first read the text.

6 Critical thinking – arguments continued

Activity 3

Take a look at the following arguments and rewrite them in the standard format:

1. She must be at home. She is either at school or at home and the teachers say she's not at school.

(Premise 1)

(Premise 2)

(Conclusion)

2. If the Council wants to build a toxic waste dump here, they should compensate those who live in the area. They are known to cause various health problems to people living close by. These people did not choose to live near a toxic waste dump.

(Premise 1)

(Premise 2)

(Premise 3)

(Conclusion)

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