

RESEARCH SKILLS IN PRACTICE



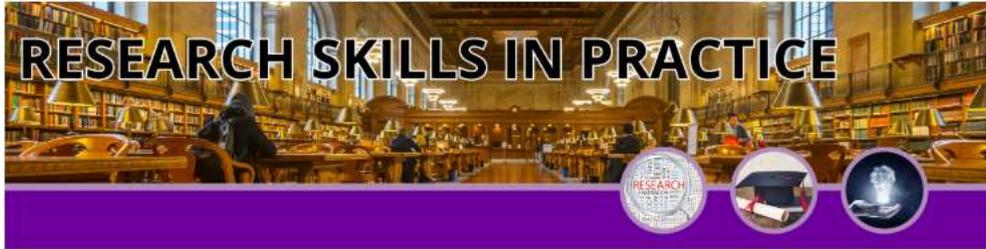
Manchester Online Learning Interest Group

13th November 2019

Style, structure and content

Leigh Wharton

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Unit navigation

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Welcome to the unit

This part will include a generic description of the entire unit (60-credit option).

This unit focuses on skills required to recognise and implement different research practices. This covers such topics as formulating research question, critically appraising the current scholarship and communicating your research results, to mention just a few. Each module focuses on particular area of expertise required in a research process. This will also cover a variety of activities, such as reading, writing and participating in online discussions.

Let's begin by listening to xxxxx, who will welcome you to the unit:



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Unit overview

The structure of the unit is as follows.

Module	Title	Credits
1	Formulating a research question	10
2	Literature Review	10
3	Designing study methodology	10
4	Your responsibilities as a researcher	10
5	Communicating your research	10
6	Reflective practice and your research	10



- **Formulating a research question** looks at a process of narrowing a scope of your enquiry.
- **Literature review** focuses on approaching current scholarship in a critical manner.
- **Designing study methodology** covers various methods and approaches to data collection and analysis.
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Welcome to the module

The aim of this module is to establish your understanding of research across different disciplines, before moving on to focus on that specific to your programme of study. Even though you are likely to have some idea as to what research is, you may not have considered it in relation to different disciplines, methods, or theories of the world. Whilst ultimately you are going to be developing a research proposal specific to your programme of study, the value of interdisciplinarity, and subsequently a more eclectic use of research methods, ought not to be overlooked. This is especially true when critiquing the existing literature on your subject of interest, which involves identifying the strengths and weaknesses of previous research studies and the methods set out in your own proposal. As such, you will need a good appreciation of how different research methodologies within, and across different areas of investigation, can complement each other, but also potentially conflict and confuse each other in the findings that they report. Therefore as someone who will need to be able to critique and make a sensible summary of potentially tens or hundreds (and perhaps in future, thousands) of research studies, this module will be teaching you essential skills that ought to be of value in your career.

You are expected to complete all of the tasks and activities included in this module. Some of the content

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a stronger foundation to identify suitable approaches to research and its interpretation.

The following short video presentation is by XXXX. Professor XXX has a international reputation forIn the video s/he will share her insight into why all students need to know about research, regardless of what career or profession they hope to join after graduation.



Transcript

Further information about Professor XXXX's research career can be found on her [University of Manchester profile](#).

Listening to the research experience of other professionals working in the field of XXXX will help you get insight into the reasons why they think research is important and what excites their curiosity enough to dedicate so much time and resource to such a specialist field of investigation.



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Module Aims

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1.1 What is research?

The word 'research' is a part of everyday life and is used in general conversations, media reports, and in professional circumstances. This module is concerned with a more formal understanding of research which is defined in the Oxford English Dictionary as:

1. The act of searching carefully for or pursuing a specified thing or person
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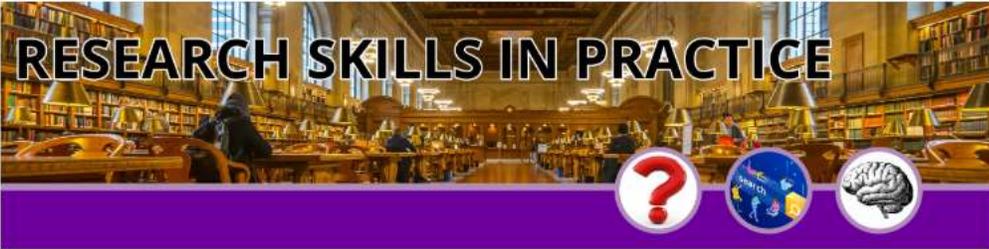
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1.2 Warm-up activity

A short narrative would be useful here to introduce students to the activity.

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1.2 Warm-up activity

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Discuss

Identify three research activities that you carry out in your life which are **not** associated with your programme of study and / or work. Spend at least 30 minutes on this activity

You'll find that 'research' is applied to a vast range of settings, conversations, and different meanings and interpretations. If you are in any doubt, then scan through [the following discussion forum](#) and see how others use this term.

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1.3 Landmark discoveries at The University of Manchester



Discipline specific podcasts to introduce the importance of research to their discipline, and some of the ways in which the research has expanded current knowledge / understanding and/or led to change/implementation of something big/landmark outcome. Discipline specific examples

▶ 0:00 / 0:00



Read at least the abstract and introduction for each of the following research studies

Here need the title and links to examples from each discipline that reflect each of the 6 items above.

You will appreciate that the design, process and products/outputs from research cover a vast range of disciplines, topics, and methods. Just at The University of Manchester, you have been introduced to just a small sample of the work that has been done and some of the major discoveries, innovations, and changes that have taken place from this.

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1.4 Introducing the scientific method

I'm not sure if the scientific method applies to some of the programmes, such as law etc but will get feedback during the review of the materials

The theory of knowledge

All research is grounded on a theory of knowledge which runs throughout the research process, from the development of the initial question, to the interpretation of results; this is what Walliman describes as 'a research road-map'. The theory of knowledge is called **Epistemology**. The term is derived from the Greek epistēmē ("knowledge") and logos ("reason"), and accordingly the field is sometimes referred to as the theory of knowledge. Epistemology has a long history within Western philosophy, beginning with the ancient Greeks and continuing to the present.

It is easy for researchers and those reading and acting on the results of research, to overlook the epistemology associated with the topic being investigated. However, it is essential that you bring what is often unconscious to the conscious, and become aware of how different epistemologies are influencing the way in which a research question is framed, designed, and interpreted, regardless of the phenomena being considered.



Spend at least 30 minutes working through the following presentation. By the end of this you ought to be able to identify the different epistemologies that underpin a research study that you are designing and/or critiquing. Hence, it is essential for your assessment.

The presentation below is recorded as a movie. Please use video controls at the bottom of the screen to play and pause the video, as required.



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A brief transition text needed here

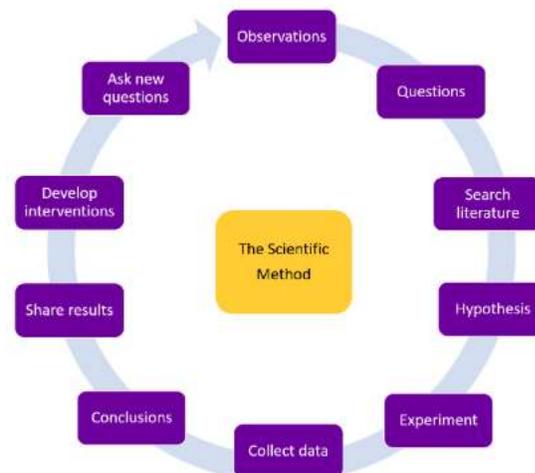


Additional reading

Topic Specialists to Advise

- Tibbetts, GG. How the great scientists reasoned: the scientific method in action
- Nicholas, M. Karl Popper, Science and Enlightenment.

The following diagram highlights some of the key sections/activities associated with the scientific method. You will include most of these in the assignments for this unit? as a whole.



A visual representation of the scientific method. Adapted from [the website of The Office of Research Integrity US](#)

There are perhaps two exceptions: research does not always involve developing an intervention and/or experimentation and a lot of research is often carried out to lead up until the point at which an experiment might then be relevant depending on the initial research question.

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1.5 Quiz



Quiz

Develop a quiz which includes linking up the keyword in the circle above, with a definition of that key word.

Quiz question 1




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Learning Objectives

By the end of this module, you will be able to:

- Explain how the scientific method is used to develop new knowledge
- Describe why it is important to follow a research plan

Research is a process to discover new knowledge. In the Code of Federal Regulations (45 CFR 46.102(d)) pertaining to the protection of [human subjects](#) research is defined as: "A [systematic](#) investigation (i.e., the gathering and [analysis](#) of information) designed to develop or contribute to [generalizable](#) knowledge." The National Academy of Sciences states that the object of research is to "extend human knowledge of the physical, biological, or social world beyond what is already known." Research is different than other forms of discovering knowledge (like reading a book) because it uses a systematic process called the Scientific Method.


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1.5 Quiz



Quiz

Develop a quiz which includes linking up the keyword in the circle above, with a definition of that key word.

Quiz question 1



Quiz question 2



Quiz question 3



Quiz question 4



Additional reading

- Robinson WR. The Inquiry Wheel, an Alternative to the Scientific Method. J. Chem Educ. 2004, 81: 791-792

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1.6 Summary

This topic has introduced you to the discipline of research [\[is it a discipline?\]](#). It included a range of influential research carried out at The University of Manchester, to help expand your appreciation of research and how vast and varied it is.

Examples of research specific to your programme of study was used to encourage you to start examining the rationale for the research, the way it was done, and what the findings (results) were. This acts as a precursor for you to develop more specific skills in critical appraisal as part of your skill set for the assignment and for your application of research skills in practice.



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2.1 Introduction

Traditional approaches to research have been criticised for what is commonly referred to as silo-thinking. This is when researchers fail to incorporate associated, influential, or wider-aspects of particular phenomena and/or the context in which it exists. Perhaps one of the reasons to resist a more multi-disciplinary approach is that it then poses challenges to previously used research methods



Diagram? To show need to move from silo thinking to the interconnected world. Could be a cartoon

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2.2 Foundations of research

Despite the need for more multidisciplinary research, all research needs to be founded upon a clearly identified and justified research theory and framework. Often a crude distinction is made between Quantitative or Qualitative research and you are probably familiar with these terms. The following diagram highlights some key differences between these two common distinctions:-

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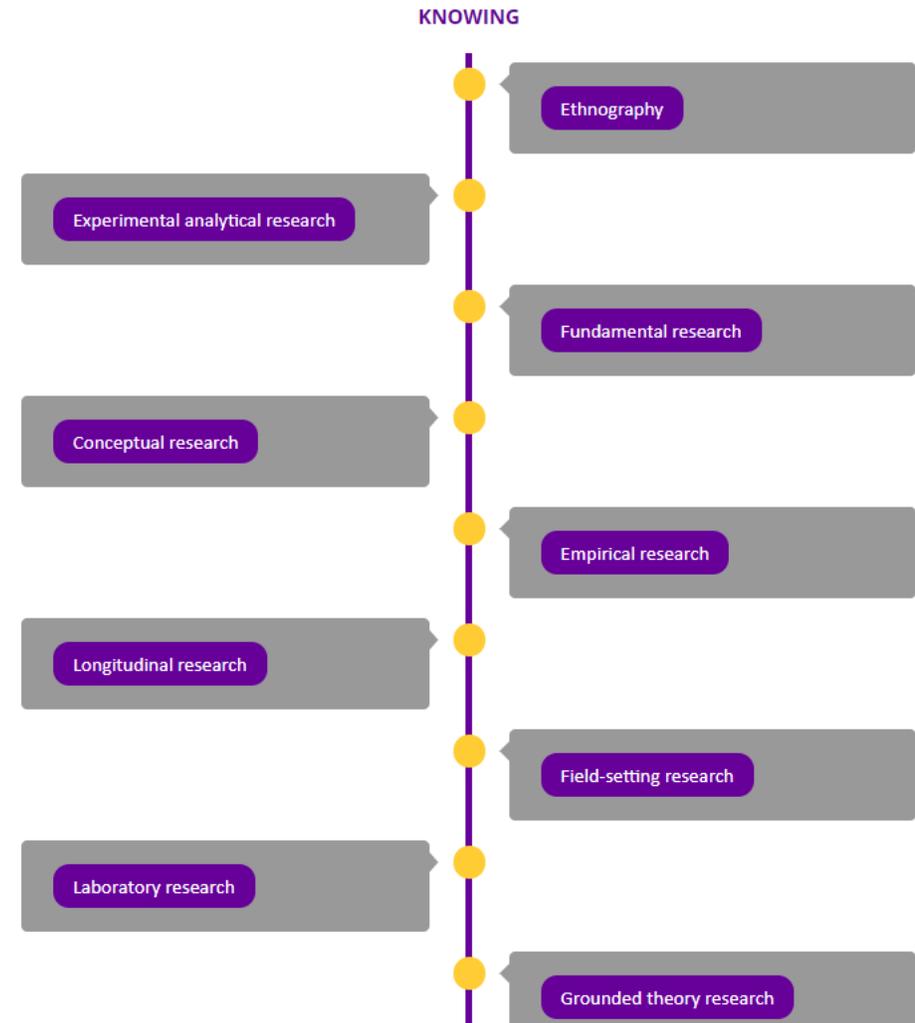
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2.4 The spectrum of research activity

By now you need to be developing a deeper sense of scientific research and in relation to your particular area of study. Remember that in its simplest form, research is concerned with shifting from *'believing what is true'* to *'knowing what is true'*. However, these two crude distinctions are at the end of the spectrums from a vast range of scientific investigations, for example, *'understanding what people believe is true'* through to *'measuring the extent that people know something is true'*, and the need for mixed research methodologies within and across different disciplines in a positive development in recent times.

Click a button in each bubble below to show a definition.



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3.1 Introduction

One of the critical components of well-designed research is the research question. Yet developing the research question is often overlooked, and based more on what sounds an appealing piece of work, rather than a question which acts as the backbone or trunk to the research as a whole. Consequently a whole topic has been dedicated to creating a meaningful research question and from experience, acts as a focal point to help students and young investigators with their work.

It can be easy to confuse the research question with a hypothesis. Here are some fundamental differences:-

- The research question needs to have a question mark at the end [image of a question mark]
- A hypothesis is usually written as a statement to prove/disprove assumptions
- A research question specifies a particular area of investigation / interest
- A hypothesis identifies a specific answer that is being sought
- A research question provides more of a framework for different areas of exploration/investigation

adapted from this website ¹⁷

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3.4 Where to start

More often than not, you will have some idea regarding the topic you will be investigating, and some idea what it is you want to find out, no matter how vague it is at the outset. You may have been given the title as part of an assigned piece of work, or by your manager, for example. Developing this into a tightly defined, clear, and unambiguous question usually starts by asking quite a few questions yourself!

One of the problems students often create for themselves when starting a research proposal is that they set out to investigate and solve the problems of the world [image/diagram/cartoon here]. This is often driven by their passion for the subject, and also wanting to achieve in their academic studies. Steven Baule, Univ Wisconsin-Superior describes this as (1) finding something you are passionate about and then living to research about it; compared with (2) find something doable and get it over with.

adapted from [this slide share](#) ^{cf}

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3.5 Narrowing your question

No-doubt at some time in your life, you have thought of some grand questions that could play a major part in solving the problems of the world. Most research isn't like that at all, unless it is what is commonly referred to as 'blue skies thinking'.



But most research is focused on a more specific, clearly defined question. Read [the following short-guide](#) ^{cf} to help you think in a more focused way in relation to defining a research question:-

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3.6 Focus on W's

Another way to start developing your focused question (or when critiquing previously/proposed research) is to think about the following questions, almost all beginning with a 'W'.

Who?

Why?

What?

Where?

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4.1 Introduction to Assessment Week

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4.2 Webinar

Questions about assessment

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Week 4: Assessment preparation

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4.1 Introduction to Assessment Week

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4.2 Webinar

Questions about assessment

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4.3 Resources



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4.4 Reading: how to develop your research question?



Please read the following:

- Item 1
- Item 2
- Item 3

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4.5 Examples

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4.6 Assessment



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4.7 Closing Summary

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Click each rectangle below for information about assessment.

Content of
submission

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Unit navigation

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Go to [Defining your study methodology](#) module

Go to **Your responsibility as a researcher** module

Go to [Communicating your research](#) module

Go to **Reflective practice and your research** module