

UNIT 8: Research Project

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WEEK ONE
LECTURER: N. QUARRIE

Learning Outcome One (1)

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- LO1 Understand how to formulate a research specification

Objective of Lesson

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- By the end of this lesson you should be able to:
- 1.1 formulate and record possible research project outline specifications and produce a research project specification and 1.4 produce a research project specification



Overview

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- It is very information to write a research specification before actually starting your research. This lesson will take a look at research specification, as well as, discuss some of the main sections that must be completed before starting a research.

Research specification

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- The details and skeletons of any research is very important. The first step therefore is to formulate a research specification **after the selection a topic.**
- The formulation of a research specification is more or less the same thing as writing a research proposal. It requires you to outline what each section of the project will include.
- After you complete your research specification doing the research becomes easier because you know exactly what you will need to do, who to interview etc based on what you specified in your outline.

Sections of your research specification

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SECTION A

- Introduction
- Research Objectives
- Research Methodology
- Research Resources And Timeline
- Literature Review

SECTION B

- Discussion And Analysis Of The Research Findings

SECTION C

- Conclusion And Recommendations

SECTION D

- Reference List
- Appendices

General examples of research specification

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- Open.ac.uk. (2009). [online] Available at: <http://www.open.ac.uk/research/ethics/sites/www.open.ac.uk.research.ethics/files/files/ecms/web-content/Writing-a-Research-Project-Protocol-generic.doc>. [Accessed 18 May 2016].
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- research.legalservicesboard.org.uk. (n.d.). *Research Specification: Qualitative study into the provision of legal services to small businesses*. [online] Available at: https://research.legalservicesboard.org.uk/wp-content/media/research_specification_understanding_small_business_legal_needs1.pdf [Accessed 18 May 2016].

Aims and objectives; rationale for selection; methodology for data collection and analysis

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At the start of a research it is very important to outline the aims and objectives; rationale for selection; methodology for data collection and analysis.

- Also note that research projects are done in many area of study including aviation, social care etc. The information that will be discussed are applicable to all these areas of study.

Objective of the Research

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- The aims and objectives capture the specific goals of the research in any area of study. These are usually listed and measured within a specific time span.
- So for example the researcher may decide to have the objectives achieved within a year or it could be within a given month.

Aims of Research

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- “The aim of the work, *i.e.* the overall purpose of the study, should be clearly and concisely define (Erm.ecs.soton.ac.uk, 2016).”

Aims are:

- “Broad statements of desired outcomes, or the general intentions of the research, which 'paint a picture' of your research project. They emphasize what is to be accomplished (not how it is to be accomplished) and address the long-term project outcomes, *i.e.* they should reflect the aspirations and expectations of the research topic (Erm.ecs.soton.ac.uk, 2016).”

Aim of Research

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- So when writing your aims you should write what your overall intention of the research is.
- Note also that even though the aim broad it should not be vague.

Objectives of Research

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- According to Thomson and Rarr (2014) “the objectives are the specific steps you will take to achieve your aim.”
- The objectives usually gives some hints as to how you are going to go about doing the research.
- When writing objectives you must use active sentences.

Objectives of Research

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- “The steps you are going to take to answer your research questions or a specific list of tasks needed to accomplish the goals of the project (Erm.ecs.soton.ac.uk, 2016).”
- Emphasize how aims are to be accomplished
- Must be highly focused and feasible
- Address the more immediate project outcomes
- Make accurate use of concepts
- Must be sensible and precisely described
- Should read as an 'individual' statement to convey your intentions”

Objectives of Research

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- “Objectives should be:
- **Specific** – be precise about what you are going to do
- **Measureable** –you will know when you have reached your goal
- **Achievable** – Don’t attempt too much. A less ambitious but completed objective is better than an over-ambitious one that you cannot possibly achieve.
- **Realistic** – do you have the necessary resources to achieve the objective? For example: time, money, skills, etc?
- **Time constrained** – determine when each stage needs to be completed. Is there time in your schedule to allow for unexpected delays (mycourse.solent.ac.uk, 2016)?”

Things to note re Aims and objectives

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- Always ensure that your aims are connected to objectives.

The aims of the research should not:

- “Be too vague, ambitious or broad in scope.
- Just repeat each other in different terms.
- Just be a list of things related to your research topic (Erm.ecs.soton.ac.uk, 2016).”

Things to note re Aims and objectives

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- The verbs that are used when writing objectives are very important. Some verbs can be classified as weak and some can be classified as being strong.
“Researchers should use strong positive statements which use strong verbs. Avoid weaker verbs (mycourse.solent.ac.uk, 2016).”
- Examples and strong and weak verbs that were outlined on the said website includes:
- “Strong verbs: *collect, construct, classify, develop, devise, measure, produce, revise, select, synthesize*
Weak verbs: *appreciate, consider, enquire, learn, know, understand, be aware of, appreciate, listen, perceive.*”

Example of Aim and Objectives

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- **Example:**

“**Aim:** To investigate the relationship between tectonic-plate movement and the gravitational effect of the alignment of the major planets.

Objectives:

- Data sets will be extracted from the known historical record of tectonic-plate movement
- Data sets will be extracted from astronomical tables detailing the various alignments of the major planets covering the same period as data from the geological record (mycourse.solent.ac.uk, 2016).”

Example of Aim and Objectives: Aviation

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- Example related to Aviation:
- **Aim:** To investigate the relationship between aviation policies and the success of the industry.
- **Objectives:**
- Data sets will be extracted from the known aviation records concerning aviation policies.

Example of Aim and Objectives: Health and Social Care

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Example:

- **Aim**
- To critically assess the collection and disposal operations for bulky household waste in order to identify factors, which contribute to performance and technical efficiency.
- **Objectives**
- To critically assess bulky waste operations by local authorities, including volumes/types of materials arising and current disposal/recovery routes.
- To classify and evaluate the operation of furniture recovery schemes nationally.
- To make recommendations to improve the operational effectiveness of, and to maximize recovery opportunities of bulky waste collection, (erm.ecs.soton.ac.uk, 2016).”

Rationale for selection

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“Somewhere in the introduction you need to inform the reader of the rationale of your research. This is a brief explanation of why your research topic is worthy of study and may make a significant contribution to the body of already existing research (linguistics.byu.edu, 2016).”

So if you are doing a research on the positive effects of a given policy on the aviation industry then you will need to explain the importance of doing that research. What significant contribution will this make to the industry? etc

Methodology for data collection and analysis

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- Now, before doing any form of research, whether aviation, business, management or social care related, it is important to document a methodology.
- There are a few key things that must be discussed in a survey:
- Types of data that will be collected;
- The methods that will be used to collect data
- The sampling size and sample frame
- All types of data, as well as, the methods and sample size that will be used should be justified.

Methodology for data collection and analysis:

Types of data that will be collected

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- This section of your survey methodology should include a discussion about primary and secondary data that you will be collected.
- Discuss the advantages and disadvantages of using the type of data identified.
- For example, you may say that you will be collected primary data to find out the factors that causes teenage pregnancy among teenagers in Beverly Hills because the data provided online would not be very specific to Beverly Hills

Methodology for data collection and analysis:

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- This is where you would discuss if you will be using questionnaires, interviews, observation etc.
- Must justify why you choose the methods you chose, as well as, why it is the appropriate/best method.

Methodology for data collection and analysis

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- Methods popularly used to collect primary data:
 - Focus groups
 - Questionnaires
 - Interviews
- Methods popularly used to collect secondary data:
 - Internet
 - Books
 - Etc

Methodology for data collection and analysis

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- If questionnaire is one of the instruments that you will be using then you must mention who you will be issuing the questionnaires to, when you will be issuing them, as well as, the number of questionnaires to be issued.
- Interviews: Must mention who will be interviewed- including the job position of the interviewee, if applicable, when the interview will be conducted and the specific information that you will interview the person about.
- What do you think we would do in the case of observation?

The sample size

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- What is a sample? This is a subset of the target population.
- The important question is “what sample size should be used? To select the sample size a formula is used to do the calculations.
- Please see the following slide for an example

Example: Sample Size

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“A study is to be performed to determine a certain parameter in a community. From a previous study a sd of 46 was obtained.

If a sample error of up to 4 is to be accepted. How many subjects should be included in this study at 99% level of confidence (pitt.edu, 2015)?”

Example: Sample Size

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$$n = \frac{Z^2 \sigma^2}{D^2}$$

$$n = \frac{2.58^2 \times 46^2}{4^2} = 880.3 \sim 881$$

Sample Frame

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- “A sampling frame is a complete list of all the members of the population that we wish to study.
- To give an example, if we wish to study the underlying factors that cause patients to be admitted into hospital following an acute asthmatic attack in a given area (your population), then you would need to know the names of all the people in that area who have been admitted into hospital for this reason.
- From a list of these names, you can then randomly select an appropriate number as representatives of the population (your sample) whom you can invite to take part in the research (Vickers and Offredy, n.d.).”

Review Questions

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1. What is the main difference between aims and objectives?
2. Explain what it means to have a SMART objective?
3. Using information learnt in this lesson try to come up with an aim and two objectives based on the topic crime and violence.
4. What are some of the things to avoid when writing aims and objectives?
5. What exactly should be included in a methodology?
6. Lets say you were to select a random topic. Provide a rationale for the selection of that topic.

References/Additional Reading List

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