



Alzahra University

Academic Writing for Research Publication

(Week 8; on-line course)

شنبه 4 اردیبهشت 1400

نگارش متون علمی برای انتشار پژوهش

پژوهش از زمستان تا بهار

1399-1400



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Part I

Method Section

The method starts directly **below the introduction** and must be written with **enough information** so that:

- (1) the research **could be repeated** by others to evaluate whether the results are reproducible, and
- (2) the **audience** can judge whether the results and conclusions are valid

The method section contains several sections

- **Participants** (Who was in the study?)
- **Procedure** (What happened in the study?)
- **Measures/Materials**
 - What measures (e.g., **surveys**)
 - What materials (e.g., special **lab equipment**)
- **Analysis** section (describes **statistical analysis**)

Question

- What does a Method section contain in your field?



Participants

- **Number** of participants
- Procedures for **selecting** participants or the **sampling** method
(*random, opportunistic* etc.)
- **Demographic** information (*age, gender, occupation, educational level*)
- If some participants **did not complete** the experiment, state **how many** and **why** they did not continue

Example

Participants

Sixty university students (30 males and 30 females) participated in this study for extra course credit in a Psychology 100 course at the University of Victoria....

Materials

- Describe **materials** used and their **function** in enough detail so others can replicate

For example in describing word lists, include the **number** of words, approximate **length** of words, were they in **capital or lowercase** letters, etc.

- A **copy** of the materials can be included in an **appendix** at the end of the paper; you would refer your reader to that appendix (*see Appendix for a complete list of the words used in this experiment*).

Example

Materials

Three word lists were created, each of which consisted of 20 words. See Appendix for a complete list of the words used in this experiment. All words were written in lowercase letters. The length of each word ranged from 5 to 8 letters...

Procedure

- The procedure should be **logical**, and contain sufficient information for the reader to follow.
- The procedure is like the instructions for **baking a cake** or making something from Lego.
- It **describes exactly what** was done in the study and the **order** in which things were done.
- Describe the **instructions** given **to participants**

Example

Procedure

Participants were tested individually in the presence of the experimenter...

Participants: How Many

- A proposal should say exactly how many participants are intended
 - Not “about” how many
- A completed study should say exactly how many were in the study when all data were collected
- This may actually end up including several different numbers if there are missing data

Participants: Type of Sample

- What type of sample was it?
- Typical samples include
 - **Convenience** sample
 - **Simple random** sample
 - **Stratified random** sample: based on members' shared attributes/characteristics
- Be sure you understand sampling **definitions**
- Convenience samples are very common
- Simple random and stratified samples are less common—and much harder to collect

Participants: Important Characteristics

- The demographics of your sample
- This includes
 - **Age**: should include age range
 - **Race/ethnicity**: should include numbers and/or percent
 - **Gender**: should include numbers and/or percent

Participants: Inclusion Characteristics

- Many studies **require** participants to **have certain qualities**

For **example**:

- Must have a *diagnosis*
 - Must be a *parent-child pair*
 - Must be *married*
 - Must be of a certain *income range*
 - Must be *African American*
- Studies must **clearly state** if participants had to have any particular characteristics or meet certain requirements



Participants: Exclusion Characteristics

- Many studies **exclude participants** with certain qualities

For **example**:

- Must have one diagnosis, but must *not have another diagnosis*
(e.g., must be **depressed but not schizophrenic**)
 - Must *not have* a serious *alcohol or drug problem*
 - Must *not be taking psychiatric medication*
- Studies need to state clearly any **exclusion characteristics** or things that would mean that someone should not be in the study



Participants in a Proposal

Must be written in the **future tense**:

Participants will be a convenience sample of 30 couples who have been married or cohabiting at least 10 years, and are at least 30 years of age and under age 55. Both members of the couple must be employed full time outside the home. Couples may be of any sexual orientation, and any race or ethnicity. Couples with a reported or documented history of domestic violence will be excluded. There are no other exclusion criteria.

Participants in a Completed Study

Because it is a completed study it is **written in the past tense:**

Participants were 42 adults who met criteria for a diagnosis of major depressive disorder. This convenience sample was 100% Hispanic American, and included 18 men and 26 women. Participants with current alcohol or drug problems or a history of psychosis were excluded.

Notes on the Examples

- Note that the examples are **objective**
 - Only the descriptions of the participants
 - No opinions or explanations about why, for example, a certain type of person was chosen
- Note that the examples are both **brief**
 - Because participants sections only describe characteristics specific to or important for the study, they are **often very short**
- Note they **do not say *how*** the sample was **collected**
 - They only state *what sort* of sample it was
 - *How* it was collected goes in the procedure section

How to write a research methodology

Research Methodology **should include:**

- The **type** of research you did
- **How** you **collected** your data
- **How** you **analyzed** your data
- Any **tools** or **materials** you used in the research
- Your **rationale for choosing** these methods

4 Steps in Writing Methodology Section

Step 1: Explain your methodological **approach**

Step 2: Describe your methods of **data collection**

Step 3: Describe your methods of **analysis**

Step 4: **Evaluate** and **justify your** methodological **choices**

Step 1: Explain your Methodological Approach

- What **research problem or question** did you investigate?

For example, you aimed to:

- *systematically describe the characteristics of something*
- *explore an under-researched topic*
- *establish a cause-and-effect relationship*



- And what **type of data** did you need to achieve this aim?

Type of Data

- Did you need **quantitative data**(expressed in numbers) or **qualitative data** (expressed in words)?
- Did you need to collect **primary data** yourself, or did you use **secondary data** that was collected by someone else?
- Did you gather **experimental data** by controlling and manipulating variables, or **descriptive data** by gathering observations without intervening?

Rationale & Assumptions

Depending on your **discipline** and **approach**, you might also begin with:

- Why is this the most **suitable approach** to answering your research questions?
- Is this a **standard methodology** in your field or does it require justification?
- Were there any **ethical** or **philosophical** considerations?
- What are the criteria for **validity** and **reliability** in this **type of research**?

For a Quantitative Research



- In a **quantitative experimental** study, you might aim to produce **generalizable** knowledge about the causes of a phenomenon.
- Valid research requires a carefully designed study under **controlled conditions** that can be replicated by other researchers.

Step 2: Describe your Methods of Data Collection

- Once you have introduced your overall methodological approach, you should give full details of your **data collection methods** .



Quantitative methods

- For valid generalizable results, you should describe your methods in enough **detail** for another researcher **to replicate** your study.
- Explain how you **operationalized concepts** and measured your variables; your **sampling method** or inclusion/exclusion criteria; and any tools, procedures and materials you used to gather data.

Surveys

- Describe where, when and how the **survey** was conducted.
- How did you design the questions and what form did they take (e.g. multiple choice, **Likert scale**)?
- What **sampling method** did you use to select participants?
- Did you conduct surveys by **phone**, **mail**, **online** or **in person**, and how long did participants have to respond?
- What was the **sample size** and **response rate**?
- You might want to include the **full questionnaire** as an **appendix** so that your reader can see exactly what data was collected.

Experiments

- Give full details of the **tools, techniques** and **procedures** you used to conduct the experiment.
- How did you **design the experiment**?
- How did you **recruit participants**?
- How did you manipulate and measure the **variables**?
- **In experimental** research, it is especially **important** to give enough detail for another researcher **to reproduce your results**.

Existing data

- Explain how you **gathered** and **selected** material (such as publications or archival data) for inclusion in your analysis.
- Where did you **source** the material?
- How was the data **originally produced**?
- What **criteria** did you use **to select** material (e.g. date range)?

Quantitative methods **example**

The survey consisted of 5 multiple-choice questions and 10 questions that were measured on a 7-point Likert scale. The aim was to conduct the survey with 350 customers of Company X on the company premises in The Hague from 4-8 July 2017 between 11:00 and 15:00. A customer was defined as a person who had purchased a product from Company X on the day of questioning. Participants were given 5 minutes to fill in the survey anonymously, and 408 customers responded. Because not all surveys were fully completed, 371 survey results were included in the analysis.

Qualitative methods

- Methods are often **more flexible** and **subjective**, it's important to **reflect on the approach** you took and explain the **choices you made**
- Discuss the **criteria** you used to **select** participants or sources, the **context** in which the research was conducted, and the **role you played** in collecting the data (e.g., active participant or passive observer?)

Interviews or focus groups

- Describe **where, when** and **how** the **interviews** were conducted.
- How did you find and select **participants**?
- **How many** people took part?
- What **form** did the **interviews** take (structured, semi-structured, unstructured)?
- **How long** were the interviews and how were they **recorded**?

Participant observation

- Describe **where**, **when** and **how** you conducted the **observation** or **ethnography**.
- What group or **community** did you observe and how did you **gain access** to them?
- **How long** did you spend conducting the research and **where** was it located?
- What **role** did **you play** in the community?
- How did you **record your data** (e.g. audiovisual recordings, note-taking)?

Existing data

- Explain **how** you **selected** case study **materials** (e.g., *texts* or *images*) for the focus of your analysis.
- What type of materials did you analyze?
- How did you collect and select them?

Qualitative methods **example**

In order to gain a better insight into the possibilities for improvement of the product range, semi-structured interviews were conducted with 8 returning customers from the main target group of Company X. A returning customer was defined as someone who usually bought products at least twice a week from Company X. The surveys were used to select participants who belonged to the target group (20-45 years old). Interviews were conducted in a small office next to the cash register, and lasted approximately 20 minutes each. Answers were recorded by note-taking, and seven interviews were also filmed with consent. One interviewee preferred not to be filmed.

Do it at Home

For your latest research idea, write only these 2 subsections of your methods:

- Your Approach
- Your Data Collection methods

*Follow the instructions of this session for writing and email it by Tuesday night.



