University of Mohamed Lamine Debaghine
Faculty of Literature and Languages
Department of English Language and Literature
Introduction to Applied Linguistics Research
Third Year LMD

Lecture 4

Operational Definitions

In narrowing or subcategorizing the concept , operational definitions must be given to show the scope of the subcategory. Brown (1989:8) states :

The **operationalisation** of variables is a researcher's chance to explain how each variable is being defined with resepect to the construct in question . Such an **operational definition** should take a variable out of the realm of theory and plant it directly in concrete reality . Basically , it must be a definition that is based on **observable** , **testable ,** or **quantifiable** characteristics .

There are for example , many abstract concepts that have been **constructed** in the field of second /foreign language research . These constructs are shown in abstract terms such as **acquisition , motivation , need achievement , monitoring , compound bilingualism .**We may share a basic understanding of such theoretical concepts but even these theoretical definitions are difficult to formulate .

For example : How would you define **Bilingual ?**

A commonly-shared definition of **bilingual** is «speaking two languages » . We all know that the term may be applied to people who are at all points of fluency in the two languages
even to absolute beginners of a second language) . To use such a term in research would be almost meaningless . A more precise definition is given :

Arabic –English bilinguals who scored a **3+** or **higher** on the **FSI** (Foreign Service Institute) **inventory** participated in this study , or children who had participated in the **Arabic Immersion program in Cleveland schools** in grades **K-3** constitute the bilingual group in this study .

When broad terms for constructs are used in research questions , we cannot rely on a theoretical definition even if one is readily available . Terms must be **«operationally » defined.**

Therefore , **an operational definition is :**

a clear statement of how you judged or identified a term in your research . This is important for three reasons :

- You will need to be absolutely consistent throughout the research process in your definition.
- It is important for consumers of your research so that they do not misinterpret your findings .
- It is important to the research community that your study be replicable

Different results might be obtained by other researchers if they carry out a similar project and use a different definition of **bilingual .**

Good operational defintions can often be drawn from the existing literature . Sometimes , however , research is difficult to carry out because operational definitions cannot be found that will satisfy the researcher . Sometimes , no operational definitions exist in the literature and the researcher must define terms .

We know very little , for example , about how language is represented in the brain . Yet , many models of language acquisition talk about **acquistion devices , filters , parameters , L1→L2 transfer** as internal mechanisms . It is, of course , possible to create and define an operational definition for these terms for an individual project . In some cases , we develop an operational definition for such concepts but then find ourselves questioning the **reality** of the concepts themselves . The attempt to establish concepts is an important area of research .

Feasibility of Research So far , we have suggested that research questions should

1. Interest us
2. Promise new information or confirm old information in new ways
3. Have reasonable scope
4. Have key terms that are clearly defined and operationalized

Before we turn to stating the questions in a more formal way , we need to consider whether or not the research is **feasible**

Factors Affecting the Feasibility of Research

The feasibility of a study may depend on a number of factors:

1.The breadth of the study in relation to its research questions' scope and answerability.

2.You must know how much time the project will take and whether or not you have that amount of time to spend .When the topic is very broad as that of "language learners' performance of speech acts" it might take a lifetime to investigate the topic (this is why we have talked about ways to narrow the scope of the research to make it more feasible)

One of the major reasons we narrow scope is the amount of time we have available to carry out the research . For Example : If your research is for a course and the course is only 10 or 18 weeks in duration , the scope must be tightly constrained . **Longitudinal studies** , which follow an individual or group over a period of time , can be very time-consuming . This is one of the reasons that many researchers prefer **cross-sectional approach** where data are gathered usually only once rather than a longitudinal study .

3. Accessibilty to the research context (population , data collection)

Eg : Imagine that you want to look at some aspects of language use by bilingual children in primary school classrooms . If you are not already located at a school with a bilingual student enrollment , you may have a great difficulty in gaining access to the classroom (for access to be granted , many schools and teachers require a statement that the research will not disrupt regular instruction .

4. Whether or not it will be possible to obtain the data necessary to answer the question.

Eg :A study that might seek to compare performance on different communication task types. It might not be feasible to require participants to do 15 different tasks. Exhaustion and boredom might set in, and the researcher would not know how to interpret the results. This is not to say that such a study could not be conducted; it is just that the design of the study might entail large numbers of participants who may or may not be available for the many rounds of data collection that such a study would necessitate .

5. Cost of the research may determine the feasibility of the research . In planning a project prepare a reasonable budget and think of this:

- Do you need tape recorders and tapes?
- Do you need the computer software you need for the study .
- If videotaped data are required for your study , are videocamera and tapes available ?

- Can you operate the videocamera and observe a class at the same time , or must you hire a camera operator ?
- Will the school and /or the learners expect some remuneration for participating in your study ?
- Will you have to hire someone to help you code your data ?

Do you need paper supplies , travel to and from a school , photocopies of 200 essays or computer entry of text data ?

Therefore , try to make a list of everything you need , then decide wether this research project is feasible or no.

Thus, any study should be designed with a full understanding of the fact that the limitations of the setting , the population , time, funds might constrain the research.

Stating Research Questions & Hypotheses

Now that we have talked about the scope and feasibility of research questions , it is time to consider how these questions can be clearly stated . Research questions can take a range of forms.

Very often the researcher's prior study of the field and review of the literature will have exposed a need to **explore**, **describe**, or **explain** further a particular phenomenon through research questions, *before arriving at possible hypotheses.* Research questions may be :

Exploration will see a research question in which the researcher aims to find out what is happening, to seek new insight, to pose new questions, or to attempt to assess the phenomenon in a new light. In other words, the study structures the research rather than the other way round and the research may thereby become one of hypothesis building rather than

hypothesis testing.

Descriptive research questions will attempt to portray an accurate profile of people, events, or situations.

Explanatory questions will seek an explanation of a situation or problem, often in the form of causal relationships. A particular study may be concerned with a combination of all three tendencies, but we should be able to highlight one principal trend through our initial reading of the research questions(s).

One example of a specific and answerable research question might be,

"What is the effect of form-focused instruction on the acquisition of English relative clauses by French- and Algerian-speaking learners of English?"

Hypotheses

A hypothesis is a type of prediction found in many experimental studies; it is a statement about what we expect to happen in a study. The hypothesis should ideally present the following information to the reader: firstly, there should be some statement concerning assumed relationships (or lack of them) between the variables, or the presumed influence of one (or more) of the variables on the other.

Secondly, we can expect to read a hypothesis which really can be tested: that is, it looks to us as though it will become possible to assign operational definitions to the constructs or variables described and thereby produce usefuldata which can then be analysed.

In research reports there are generally two types of hypotheses: **Research hypotheses H1** and **Null hypotheses** often written as **H0** which is a neutral statement used as a basis for testing. The null hypothesis states that there is no relationship between items under investigation.

The statistical task is to reject the null hypothesis and to show that there is a relationship between X and Y.

The research hypothesis H1

"French-speaking learners of English will perform better following form-focused instruction than will Algerian- speaking learners of English."

The null hypothesis H° would be:

There will be no difference between the performance of the French group and the Algerian group on a posttest. We could then statistically test the differences I performance between these groups on a posttest following instruction to determine if any differences found were due to chance or due to treatment.

When, based on previous research reports in the literature, we expect a particular outcome, we can form research hypotheses. There are two ways that we can do this. The first is to predict that there will be a difference between two groups, although we do not have sufficient information to predict the direction of the difference

For example, we might have a research hypothesis that states simply that the two groups will be different, such as:

There will be a difference between the performance of the

French-speaking group and the Algerian-speaking group on a posttest.

This is known as a **nondirectional hypothesis**.

On the other hand, we may have enough information to predict a difference in one direction or another. This is called a **directional hypothesis**. To continue our example, we might believe (based on the closer linguistic relationship between English and French than between English and Algerian) that the French-speaking group will perform better than the Algerian-speaking group. We would then formulate our hypothesis as follows:

The French-speaking group will perform better on a posttest than the Algerian-speaking group.

The directional hypothesis may be **positive or negative** by

informing the reader about the specific trend of the difference or relationship (eg: better , worse , higher , lower)

Replication

Replication is a central part of the development of any field of inquiry. If one cannot repeat the results of a particular study, the validity of the results of the original study might be called into question. Albert Valdman, the editor of the journal *Studies in Second Language Acquisition, asserted that "***the way to more valid and reliable SLA research is through replication**" (1993, p. 505).

As Porte (2002) further noted, without these critical replication studies, **"it will be extremely difficult ever to discover the definitive response to a research question or hypothesis found in one particular study ... which then permits us to generalize those findings to fit exactly another context of language learning" (p. 35).** It is thus crucial that researchers report in enough detail to allow others to determine with precision what has been done. Moreover, some journals such as the journal *Language Learning* makes this explicit in their Instructions for Contributors by saying **"Methods sections must be detailed enough to allow the replication of research."**

Generally speaking, there are two primary reasons for replication: Verification and generalizability.

However , there is a dearth of replication studies because as acknowledged by Vander Veer, Van Ijzendoorn, and Valsiner (1994): « …. these replication studies do not yield novelty, but rather check the reliability of the original results, they are less valued in a community where (limited) originality is highly valued“

In addition , There are also academic reasons having to do with the difficulty involved in replication. A researcher can easily replicate the instruments, the task, and the setting of a study. But when dealing with linguistic behavior, individual characteristics such as prior linguistic background and knowledge come into play that would clearly be impossible to replicate for a variety of reasons. For example , no group of participants is going to be "identical" to another group.